DETAIL PROJECT REPORT

VISHWAKARMA YOJNA: VIII
AN APPROACH TO WARDS RURBANISATION
Village PALSANA

District GANDHINAGAR

PREPARED BY

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COLLEGE LOGO:-

YEAR: 2020 - 21

GUJARAT TECHNOLOGICAL UNIVERSITY
Chandkheda, Ahmedabad–382424 Gujarat

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ON

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Gujarat Technological University,
Chandkheda,Ahmedabad– 382424 Gujarat

CERTIFICATE

This is to certify that the following students of Diploma Engineering successfully submitted Detail Project Report for VILLAGE:-**PALSANA**
District:-**GANDHINAGAR**

Under

VishwakarmaYojana:Phase-VIII

In partial fulfillment of the project offered by

GUJARAT TECHNOLOGICAL UNIVERSITY, CHANDKHEDA

during the academic year 2020-21**.**

This project work has been carried out by them underour supervision and guidance.

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ABSTRACT

The Government of Gujarat has launched "Vishwakarma Yojana: an approach towards rurbanisation" fordevelopment of villages which is implemented by "Gujarat Technological University". Vishwakarma yojana would provide "design to delivery" solution for development of villages in 'city' areas. In this project, we describe the ecosystem for a village and then map out an integrated design procedure for building an ideal village. We define an ideal village as a bundle of services which are delivered to its residents and businesses in an effective and efficient manner. Computing, communication and information technologies play a major role in design, delivery and monitoring of the services. The selected village is surveyed, data has been analyzed for the village and an infrastructure facility has been found out by this yojana with the help of udpfi guidelines.

Palsana is a village Kalol Taluka in Gandhinagar District of Gujarat State, India. It is situated 17 km awayfrom District head quarter Gandhinagar. As per stats, Palsana village also gram panchayat. The native language of Palsanais Gujarati and almost people speak Gujarati. Palsana people use Gujarati language for communication. Palsana village in 4180 population of 2011. The total geographical area of the village is 597.61 Hect.There are about 1000 houses in Palsana village.

The design is to be provided in the village. There are 12 design to be provided in village. Design of Government Dispensary, Design of Public Garden, Design of Animal Water Pond, Design of Solid Waste Management, etc. The selected village is surveyed, data has been analyzed for the village and an Infrastructure facility has been found out by thisYojana with the help of UDPFI guidelines.

For future scope village will be designed as per the survey from smart village and ideal village likephysical facilities, social facilities, socio-economies facilities…etc. As village will be provided with primary health center (PHC), water tank (ESR), underground sump, solar street lights, training center, bus station, pond and garden and new irrigation techniques for farmer.

By studying the current status and techno-economic survey of Palsana village in Gandhinagar district of the Gujarat state in terms of basic services, public facilities, other infrastructural facilities for the need of the people and to prepare a report on the predictable socio-economic growth of the area with the discussion of Sarpanch will help full in providing better facilities and services in village. From the gap analysis, development plans for village development will be projected and planning proposals for Physical infrastructure, Social Infrastructure and Renewable Energy Source will be suggested for the village. The study will concentrate on the development of the village.

KeyWords:-Rural Development, Rurbanisation, Reduce Migration, Infrastructure Facilities, agriculture modernizing,
Traditional identities

ACKNOWLEDGEMENT

We are highly indented to **Gujarat Technological University**, Ahmedabad for providing us such opportunity to work under Vishwakarma Yojana to get real work experience and applying our technical knowledge in the development of Villages.

We wish to express our deep sense of gratitude to **Prof. (Dr.)Navin Sheth**, **Hon'ble Vice Chancellor, Gujarat Technological University-Ahmedabad**, for his encouragement and giving us the wonderful project.

We also express our gratitude to **Dr.K.N.Kher**, **Registrar, Gujarat Technological University Ahmedabad** for giving us complete support.

We express our sincere thanks to **Commissionerate of Technical Education, Gujarat State** for appreciating and acknowledging our work.

We express our sincere thanks to **Sarpanch, Talati and staff members of Gandhinagar** District for providing us with requisite data whenever we approached them. Especially our thanks are to all villagers and stakeholders for their support during Survey.

We are also thankful to our **Prof**. (**Dr.)Geetanjali Amrawat Principal**, faculties of our colleges for their encouragement and support to complete this project work.

An act of gratitude is expressed to our Nodal Officer, **Ms. Monika Bhatt (Civil Department) And Mr. Krunshnakant Patel (Electrical Department) from college Shree Swaminarayan college of Engg. And Technology** for their invaluable guidance, constant inspiration and active involvement in our project work.

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ABBREVIATIONS

SHORTNAME/ SYMBOL	FULLNAME
SWOT	Strength Weakness Opportunities Threats
UDPFI	Urban and Regional Development Plans Formulation and Implementation
PHC	Public Health Center
GIFT	Gujarat International Finance Tec-city
TDO	Taluka Developer Officer
DDO	District Developer Officer
RTO	Road Transport Office
NGO	Non-Government Organization
ULBs	Uraban Local Bodies
DPC	Damp Proof Course
RCC	Reinforced Cement Concrete
PCC	Plain Cement Concrete
KV	Kilowatt

Chapter-1
Ideal Village Visit From Gandhinagar District Of Gujarat State (Civil & Electrical Concept)

1.1 Background & Study Area Location

Paliyad is a village in Gandhinagar district in the state of Gujarat, India. The village islocated about 39 km from the Gandhinagar. Here villagers enjoy all the facilities that one living in the city does. This village is also attached by having nardipur nagar palkia nearer to its boundary. This village far from nardipur is 6.1 km. To reach its destination, there is Charadu Halt Railway Station is the very nearby railway stations to Paliyad. There has beenuseof advanced technology in primary and higher education system.

Fig 1.1 Map of paliyad

Study Area Location

- Name: Paliyad
- District: Gandhinagar
- Taluka: Kalol
- Distance From Gandhinagar: 39 Km
- PinCode: 382735
- Language: Gujarati, Hindi, English.
- Time Zone: IST (UTC+5:30)
- Elevation/Altitude**:** 71Meters. Above-SeaLevel
- STD Code: 079

1.2 Concept:Ideal Village, Normal Village

1.2.1 Objectives

- To study the existing growth, characteristics and development of villages.
- To study the existing infrastructure facilities and its management issues phasing by villages.
- To analyze all feasibility parameters and relevant factors for sustainable development of villages.
- To study strategic planning proposal in the form of physical, social and renewable infrastructure facilities for the development of villages.
- To study the future growth and future scBhatrio of village.
- To study and analyse show to sustainable facilities like water treatment plant, solar system, bio electric plant can beused in village.
- To study how to improve a drainage facility of rural areas.

1.2.2 Example/LIVE CASE STUDIES OF IDEAL VILLAGE OF India/ Gujarat

1. Punsari (Gujarat):

Punsari is a village located in Sabarkantha district in the state of Gujarat, India.Punsari is considered as India's smartest village. The village is locate dat about 80km from the state capital, Gandhinagar. Punsari is 20km from Parvati Hills. Parvati Hills is thelargesttabletop land of India.

2. Mawlynnong (Meghalaya) Asia's cleanest village:

Mawlynnong, a small village in meghalaya, was awarded the prestigious tag of cleanest village in asia in 2003 by discover india magazine. Located at about 90 km fromshillong, the village offers a sky walk for you to take in the beauty as you explore it. According to visitors, you cannot find a single cigarette butt/plastic bag lying around there.

3. Dharnai(bihar) firstfully solar powered village:

Dharnai, a village in bihar, beat 30 years of darkness by developing its own solar-powered system for electricity. With the aid of greenpeace, dharnai declared itself anenergyindependent village in july. Students no long need to limit their studies to the daytime, women no longer limit themselves to stepping out in the day in this village of 2400residents.

1.2.3 TheIdeaOfAModel/Smart Village

- It was the dream of mahatmagandhi to make the Indian villages smarter and ideal/model by improving them in all aspects like physical, economic andsocial etc.
- The social, economic and scientific developments in the secommunities helped in the growth of such villages andalso have become the building blockof civilizations.
- Education is critical for promoting sustainable development and improving the capacity of the people to addressthe environment and development issue.

Fig1.2 Concept of Smart city

- Public awareness should be recognized as a process by which human beings and societies can teach their fullest potential.

1.2.4 Ancient History Civil/Electrical Concept About Indian Village

- In India there are 6, 00, 000 villages out of them 1, 25,000 villages are backward so there is a need for designing and building the village as a smart village.
- With modernization and urbanization people migrate from one place to another place for different facilities such as education, employment and affinity of people towards the locality or city. Village is main criteria for development of nation.
- So, develop the village in such a way that which is se lf dependent in providing the services, employment and well connected to the rest of the world i.e. smart village.
- The smart village corrects the social oversight by providing accommodations for sustainable family relationships without disturbing the lifestyle of different generations.
- The vision of smart village is that modern energy access can act as catalyst for development in education, health, productive enterprise, clean water, sanitation, environmental sustainability and participatory democracy which helps to support further improvement in access to energy.
- Initially the concept of development of village is of Mahatma Gandhi i.e. swaraj and Suraj village. But now days it is newly termed as smart village.
- We know that, India is a developing nation, with the help of smart village we can make India as a SSnation. Now days, our governmental so gives strong focus on smart village. Government implements so many schemes on smart village.
- The Indus Valley civilization is so far known to be the ancient civilization in India and it mainly comprised two cities of Harappa and Mohenjo-Daro.

The history of Indian villages, infact, goes back to the Vedic era when the kingdoms comprised a major city and several villages.

- Apart from all these factors, the general condition of the Indian villages has improved a lot in the contemporary period.
- The electricity has already reached in most of the Indian villages and the villagers are enjoying the other modern technological advancements, as well.
- As a whole, it can be said that most of the changes that occurred in the history of Indian villages have yielded positive results for the villagers.
- They have also aided India to become more and more civilized and developed.

1.3 Detail Study (Socio Economic, Physical, Demographic And Infrastructure Details) Of Ideal Village/Smart Village With Photograph

- These facilities are essential for economic as well as social growth of any area. These facilities include proper road network, water supply, drainage, electricity etc. Any village which needs to be economically developed must contain the above-mentioned facilities.
- Paliyad is a village facilitated with bitumen and R.C.C. roads for main village roads as well as society streets. The roads are facilitated with sign boards, markings and signals for proper functioning of the vehicular traffic as well as pedestrian's traffic. The village is facilitated with 32 CCTV cameras for proper monitoring and protection from thefts, damages etc.
- The roads are also facility added with proper streetlights for night travel.
- Pure Drinking Water for morning and evening peak hours is also provided door to door with the help of 6 over head water tanks which range from 15000L to 25000L which are cleanedat regular in tervals to maintain hygienic conditions.
- Along with the facility of pure drinking water, the facility for the removal of waste water is also provided. Drainage network for the whole town is constructed from door to door and is connected to the main sewage line at Bardoli Taluka. Along with sewage disposal, solid waste management is also given a wide importance and is collected from door to door with the help of 3 collecting vans and is given to the Bardoli Nagar palika for disposal and treatment.

Fig1.3 Education Building Of a Paliyad

Fig1.4 Gram Panchayat Office-Paliyad

Fig1.5 Village Road

Fig1.6 Overhead Water Tank

1.4 Future Prospects Of Village

- Regarding the future prospects however which of the place solar system is uses possible more and more because day to day the electrical appliances uses in more amount and electrical energy uses in more amount. Another renewable energy like as wind energy, hydro energy and etc. In future underground wiring system will be construct so look as beautiful and another fault occurring in the line in few time compare to overhead line structure. They have to focus on waste water treatment plant and solid waste treatment plant. They have to maintain the public toilet. Developed green Building concept, and eco-friendly technique.

1.5 SWOT Analysis Of Ideal Village/Smart Village

Strength	Weakness	Opportunity	Threats
• Good connectivity, Banking facilities Door to door solid waste collection • Health facilities Education • facilities CCTV Camera • Community hall Telecommunication • Water supply	• Free Wi-Fi • Connection Library	• Use modern technology • All places Wi-Fi connection	• Water supply • Solar energy

Table1.1 SWOT Analysis

1.6 Benefits Of Visits Of Ideal Village/Smart Village

- ❖ We are learnt many of the things regarding which problems are affect to villagers and which of the general facilities are available and which of the facilities general requirement isn't fulfil to villagers, how to save environment, how to uses more and more amount to renewable energy source.
- ❖ It helps us gain first hand information regarding functioning of the village.
- ❖ We know anew thing about swot analysis and other many systems in the village.
- ❖ Provides an opportunity to plan, organize and engage in active learning experiences.
- ❖ It helps to enhance are interpersonal skill sand communications.
- ❖ Helps to understand the do and don't of the village activity
- ❖ As Paliyad has developed a lot during the year 2008 to 2015 we got a good knowledge related to rural development and general infrastructure facilities to be provided in a village.
- ❖ Paliyad canal so be considered as bench mark for the development of other villages.
- ❖ We also know the maintenance system of village, their problem-solving technique, the irregularity, and concentration in work. We also knowing from visit how to interact with people and govt. authority and representation of our idea against saarpanch, Talati, villagers.
- ❖ Visit is also providing us live and practical knowledge like doing internshipat site.

1.7 Electrical/civil Aspects required in Ideal / Smart Villages

- Smart villages capture many of the benefits of urban living while retaining valued aspects of rural life and ensuring balanced development at the national level. This enables villagers to attain healthy and fulfilling lives, achieve their development potential, earn a viable living and be connected to the wider world, giving them a real choice between the traditional route of migration to a city, or life in a smart village.
- Smart villages will serve as complementary engines of economic growth to smart cities, producing goods and services for local rural markets as well as high-value-added agricultural and rural industry products for both national and international markets. And they will act as stewards for the environment as well as, in some cases, functioning as ecotourism hubs.

Chapter-2
Literature Review

2.1 Introduction To Rural And Urban

❖ Rural

- The word 'rural' means an area which ismarkedbynon-urbanstyle oflife, occupational Structure, socialorganizationandsettlementpattern.
- Rural is noticeably agricultural, its settlement System consists of villages or home steads socially it Signifies greater inter Fig dependence among people, More deeply rooted Community life and Rhythm of life built around nature and Natural phenomenon andoccupationally it is highly Dependent on crop farming, animal enterprises, tree Crops and related activities.

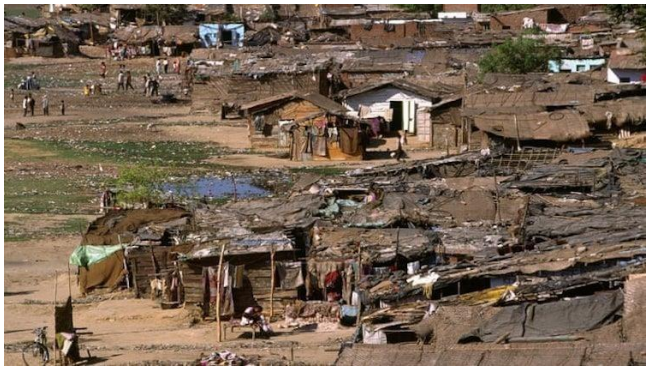


Fig 2.1(a) Rural a slowmoving

- Populationdensityisup to400persons persquare Kilometer.
- Minimum75%of populationisworking withAgriculturalactivity.
- Villagehasnomunicipal board.
- Population of gujarat state rural part is 14%, among them 52% are boys and 48% regirls. There are about 67.7 lakh house holds in the state and an average 5 persons live in every Family.
- Ruralpopulation densityof gujaratstate ruralpartis184 personsper km2.

❖ Urban

- An urban area or urban agglomeration is a human Settlement with high population density and Infrastructure of built environment.
- Minimum population is5000. Population density is 400 persons per square Kilometer or higher.
- Minimum75%ofpopulationis Working with nonagricultural Activity.

Fig2.1(b) Urban

- Population of the state has increased by 36%in Last10 years.
- In2001censustotalpopulationherewereabout2crore.Femalepopulationgrowthrate ofthe state is 36% which is 0% lower than male population growth rate of 36%.
- Population of gujarat state urban part is 11%, among them 54% are boys and 46% are girls. There are about 54.7 lakh households in the state and an average 5 persons live in every family.

2.2 Importance Of The Rural Development

- Rural development is important not only for the majority of the population residing in arural area but the growth of rural activities is necessary to stimulate the speed of overalleconomicexpansion ofthe nation.
- Rural development is pretended to be noticeable importance in the country today than inthe olden days in the process of the evolution of the nation. It is a strategy trying to obtainimproved rural creation and productivity, higher socio-economic equality, and ambition, stabilityin socialand economic development.
- The primitive task is to decrease the famine roughly about 70 percent of the rural population, implement sufficient and healthy food. Later, serve fair equipment of clothingand footwear, a clean environment and house, medical attention, recreational provision, education, transport, andcommunication.

Fig2.2 RuralDevelopment

- Rural development in simple terms can be defined as the process of improving the qualityof life and economy in the remote and rural parts of the country. These rural areas may beisolated and sparsely populated, but, in most cases, they offer a picturesque natural settingwith a rich culture. These areas have generally been dependent on agriculture and naturalresourcesfor their economic upturn.

- Rural development is a complete term that concentrates on the action taken for the development of rural are as improve the village economy. However, few are as that demand more focused attention and new initiatives are.

2.3 Ancient Village/Different Definition Of: Rural Urban Village

- A village is a small settlement usually found in a rural setting. It is generally larger than a "hamlet" but smaller than a "town". Some geographers specifically define a village as havingbetween500and 2,500 inhabitants.
- Rural areas are areas which are not towns or cities. They are often farming or agricultural areas. These are as sometimes called "the country" or "countryside".
- People who live "in the country" often live in small villages, but they might also live some where there are no other houses nearby
- ACCORDINGTO UK: -
  - A small community or group of houses in a rural area, larger than a hamlet and usually smaller than a town, and sometimes (asinparts of the U.S.) in corporated a samunicipality the in habitants of such a community collectively
- ACCORDINGTO THE PLANNING COMMISSION:-
  - A town with a maximum population of 15,000 is considered rural in nature. In these areas the Panchay attakes all the decisions. There are five people in the Panchayat
- ACCORDINGTORESERVE BANKOFINDIA (RBI):-
  - Defines rural areas as those areas with a population of less than 49,000 (tier -3 to tier-6 cities).
- ACCORDINGTOTHENATIONALSAMPLESURVEYORGANIZATION(NSSO):-
  - An area with a population density of upto 400 per square kilometer, Villages with clear surveyed boundaries but no municipal board, A minimum of 75% of male working population involved in agriculture and allied activities.

2.4 Scenario:Rural/UrbanVillageOfIndiaPopulationGrowth

- The population of India increased drastically from 361 million in 1951 to 1,028 million in2001, almost tripling within half a century. The percentage of people living in urban areas increased to 28% in 2001.The annual grow thrate of the rural population during the decade 1991–2001, was 1.7. Nearly 16% of India's population belongs to Scheduled Castes (SCs) and 8% to Scheduled Tribes

Censusyear	Population	Growthover decade		Multiple of1901 population
		Number	Percent	
1901	238,396,327	-	-	1
1911	252,093,390	13,697,063	5.7	1.1
1921	251,321,213	−772,177	-0.3	1.1
1931	278,977,238	27,656,025	11	1.2
1941	318,660,580	39,683,342	14.2	1.3
1951	361,088,090	42,427,510	13.3	1.5
1961	439,234,771	78,146,681	21.6	1.8
1971	548,159,652	108,924,881	24.8	2.3

1981	683,329,097	135,169,445	24.7	2.9
1991	846,421,039	163,091,942	23.9	3.6
2001	1,028,737,436	182,316,397	21.5	4.3

- The growth of India's population since independence hovered around 2% per year for nearly two

Table2.1 Population size andgrowthin India,1901–2001

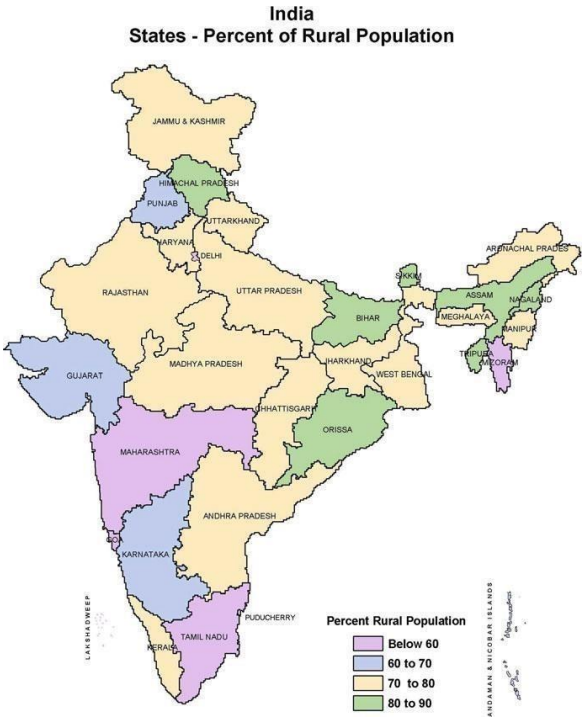


Fig2.3 Percent ruralpopulation,2001

2.5 Scenario: Rural/Urban Village of Gujarat as per Census 2011 and latest

- As per Official Census, Population of India has reached 1.21 Billion (121 Crore) in 2011which is an increase of 17% from the earlier figure of 103 Crore of 2001. Although population growth rate has decreased but actual population continue to rise.
- As per estimates, it is expected that India would be most populous country by 2025overtaking china.
- Gujarat Population Census Data shows that it has Total Population of 6.03 Crore which is approximately 4.99% of total Indian Population. Literacy rate in Gujarat has seen up ward Trend and is79.31%as per 2011 population census. Of that, male liter acy stand sat 87.23%whilefemale literacy is at 70.73%.

❖ According to census 2011 the population percentage in urban area of Gujarat is 42.60%andin rural area of Gujarat is 57.40%.

Populationof India (Incrores)			
Year	2001	2011	Difference
India's population	102.87	121.08	18.21
Rural population	742.49	833.74	91.25
Urban population	286.12	337.10	90.98

Table2.1(a) Population of India

Populationof Gujarat (Incrores)			
Year	2001	2011	Difference
Gujrat's population	50.61	60.44	9.38
Rural population	31.74	34.69	2.95
Urban population	18.93	25.74	90.98

Table2.1(b) Population of Gujarat

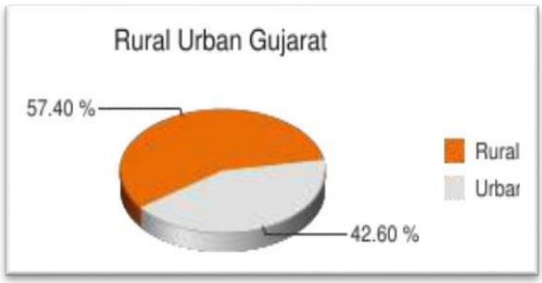


Fig2.4(a)Rural &UrbanChart of Gujarat census 2011

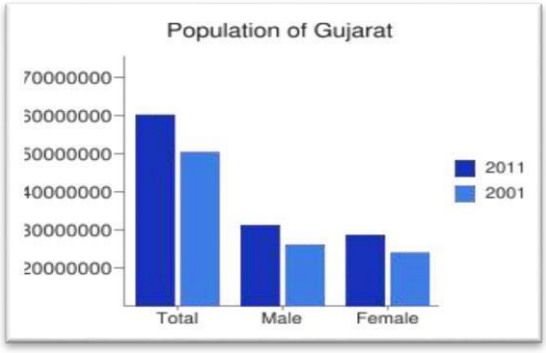


Fig 2.4(b) Population Of Gujarat

2.6 Rural Development Issues/Concerns-Measures

❖ CRIMEFREE /DISPUTE FREE

- Due to less percentage of literacy in rural area cases of crime will me more.
- Annuumin come of peoples of rural area will be lessas comparetopeoples of urban areas.

❖ RESOURCES

- Every one wants to go to the cities, so that rural people ‘remains as ignores part by the policy makers also.

Fig2.5 Rural Issues Like smoke of the fire

❖ LITERACY

- Literacy is the major problem in rural development programmers.
- The poor extension linkage causes slow growth of rural development.
- Untrained, unskilled, inexperienced staff in extension link age cannot provide satisfactory help to rural peoples.

❖ HEALTH/HYGIENE

- Now also many rural peoples using primitive methods of cooking, living and farming and they have trust on these methods.
- By using primitive cookstoves, around 300,000 death/year take plan due to pollution.

❖ WOMENEMPOWERMENT

- Womenempowermentinrural areaarevery lessascompare tourbanarea.
- Insome area women are notableto study whichdecrease literacy.

❖ ELECTRICALCONCEPT

- In21st Century, there isno electricitysupplyinmanyvillages.
- Duetopoorelectricitypeoplesaresufferfrommanyproblems.
- Duetoimproperelectricityemploymentopportunitywillbereducedwhichincreasep overtyinrural areas

❖ ANYOTHER

- The financial, manpower and managerial resources devoted to the implementation ofrural development programs are utterly inadequate.
- The political parties have a vital role to play in rural development. But unfortunately, this role has not been effectively realized by any democratic political party so far. The political parties today are guide more by party interests rather than by national interests.

Measures Of Rural Development

❖ Themainobjectiveofruraldevelopmenthasbeentoremovepovertyofthepeopleandfillth ewidenedgapbetweentherichandthepoor.Ruraldevelopmentwhichencompassesthe entire gamu to improvement in the overall quality of life in the rural areas can be achieved through eradication of poverty in rural areas.

- Rural development is the national necessity and it has following measures: need to develop a rural areaas of its culture, society, economy, digitalizationand health.
- We need to develop livings landered of rural people.
- We need to develop education in rural youths, children and women.
- We need to develop and empower human resource of their psychology, skill and other abilities.
- We need to develop infrastructure facility of rural area interms of sanitation, waterand roads facility.
- We need to provide minimum facility to rural massin terms of education, electricity, communication and network facility.
- We need to develop rural institutions like Panchayat, cooperatives, post, banking and credit.
- Weneedtoprovideafinancialsource forrural peopletocreatean ownbusiness
- We need to develop rural industries through the development of handicrafts, small scaledindustries, village industries, rural crafts, cottage industries and other related economicoperations in the rural sector.
- Weneed todevelop agriculture, animal husbandryand otheragricultural relatedareas.
- We need to restore uncultivated land, provide irrigation facilities and motivate farmers toadopta newsoil cultivation method.

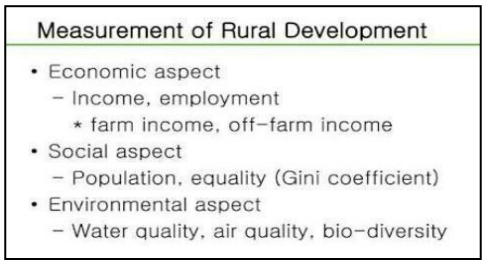


Fig2.6 Measurement Of Rural Development

- This has been also vocalized in the policy of the government which says: said, Ruralpovertyalleviationhasbeentheprimaryconcernintheeconomicplanninganddevelopmentprocessofthecountryruraldevelopmentwhichencompassestheentiregamutof improvement in the overall quality of life in the rural areas can be achieved througheradicationof povertyinrural areas.

2.7 Various Infrastructure Guidelines With Norms For Villages For The Provisions Of Different Infrastructure Facilities

- Rural development is necessary not only for an over-whelming majority of the population living in villages but the development of rural activities is essential to accelerate the pace of overall economic development of thecountry.
- Rural development has assumed greater importance in India today than in the earlier period in the process of the development of thecountry.
- It is a strategy package seeking to achieve enhanced rural production and productivity, greater socio- economic equity, and aspiration, balance in social and economicdevelopment.
- The primary task is to mitigate the hunger of about 70 percent of the rural population, providing adequate and nutritiousfood.
- Then follow an adequate Provision of clothing and footwear, a clean house in a clean environment, medical care, recreational facility, education, transport andcommunication.
- The need of the hour is that rural development shouldaimat:

- Removal ofunemployment;
- Reduction inunder-employment;
- Improve the standard of living;
- Adequate income for nutritiousfood;
- Sufficientclothes;
- Availability of soft drinkingwater;
- Satisfactory educational facilities forlearning;
- Suitable medical facilities fortreatment;
- Proper house to livein;
- Appropriate socio-cultural activities to enrichoneself;
- Adequate all-weather roads for bettercommunication

2.8 Ancient/Existing Electrical concept study as a Literature Review for village development

- **David Freshwater (2000)**: Sustainable development is generally discussed in terms of environmental considerations, but from a rural community perspective, sustainable development must address how the people of the community generate the income to maintain their rural lifestyle. In those instances where employments considered as part of sustainability discussions, it is too often thought of in static terms jobs that will last. But the reality of both modern rural and urban life is that economic conditions rapidly change, and so a discussion of sustainable employment has to be conducted in a dynamic context where different types of employment evolve as economic conditions change. While market signals alone can, in principle, provide the information and the conditions for this type of dynamic process, the argument of the paper is that the nature of rural areas makes it unlikely for markets alone to allow sustainable employment.
- **Dr. Milind Kulkarni (2010)**: In India majority of the population still lives in villages. A lot of work needs to be done in making the villages clean. There are different aspects of clean village such as: water supply, sanitation, indoor air quality, solid waste management and renewable energy etc. All these aspects have different alternatives with the associated merits and demerits. In some aspects such as water supply, considerable work is done whereas in some areas like sanitation lot of work is required to be done. We can learn lot of lessons based on success and failure in adopting different alternatives. Keeping in touch with technology clean village projects should integrate technology and digital design, which will make the village not only clean but also smart. The paper discusses all these aspects with reference to Maharashtra and India. This discussion plans to give important inputs and alternatives to policy makers so that they can redirect and reformulate the policy. Engineering students can design and implement projects of clean and smart village which will help in their skill development. At the end paper gives recommendations for effective making of Clean and Smart Village.

2.9 OtherProjects/Schemes OfGujarat/IndianGovernment

Sr.No.	Govt.Schemes	Description
1	**PRADHANMANTRIADARSH GRAM SADAK YOJANA(PMAGSY)**	It focuses on integrateddevelopment of 100 villageswith a 50 per cent populationof SCs.

2	**BHARATNIRMANYOJANA**	It was launched in 2005 forbuilding infrastructure andbasic amenities in ruralareas. It comprises of sixcomponent rural housing,irrigation,drinking water, rural roads, electrification andruraltelephony.
3	**INDIRAAWASYOJANA**	It is one of the sixcomponentsofBhar at Nirman Yojana. It was introducedin 1985-86.It aims to help built or upgradethe households of people livingunderBPL.
4	**JAWAHARLALNEHRUNATIONAL URBAN RENEWALMISSION(JNNURM)**	It was launched on 3rdDecember, 2005. The mainobjective of this scheme wasfast track development ofcitiesacrossthe country.
5	**RAJIVAWASYOJANA (RAY)**	This programme was announcedin June 2009 with an objective to make thecountryslum-free.
6	**NATIONALRURALHEALTHMISSION**	Itwaslaunchedtomakebasic health care facilitiesaccessibletotheruralpeople
7	**NATIONALRURALLIVELIHOODMISSION**	It is meant to eradicatepovertyby 2014-15.
8	**NATIONALFOODSECURITYSCHEME**	OnthepatternofMNREGS,the central government istrying hard to bring a bill inthe monsoon session (2013)to provideguarantee forfoodto the poor people

Table2.3 Project and Scheme

Chapter-3
Smart (Cities/Villages) Concept Idea And Its Visit (Civil And Electrical Concept)

3.1 Introduction: Concepts, Definitions And Practies Concepts

- The concepts of smart city embrace serval definitions depending on the meaning of theword“smart”intelligentcity,ubiquitouscity,sustainablecity,digitalcities.Manydefinitions of smart city exit, but no one has been universally acknowledged yet. Fromliterature analysis it emerges that smart city and digital city are the most used terminologyinliteratureto indicates the smartness of a city.
- A smart city is an urban area that uses different types of electronic data collection sensorsto supply information which is used to manage assets and resources efficiently. Thisincludes data collected from citizens, devices, and assets that is processed and analyzed to monitor and manage traffic and transportation systems, powerplants, water supply networks, waste management, law enforcement, information systems, schools, libraries, hospitals and other community services.

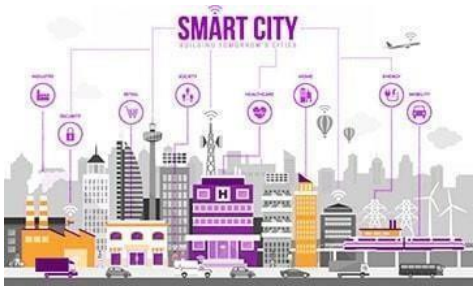


Fig3.1Smart City Concepts

- That village almost contains every basic facility as well as some unique facility andactivities such as sport festival, cultural event and social event. Solid waste managementandutilization of solar energy. Smart village hasfacilitiessuch as,
    - Primaryandhighersecondaryschool
    - Primaryhealth centeraswellasmedicalstore
    - Waterheadreservoir
    - Publicbuilding such aspost office, policestation, bank, ATM
    - Panchayatbuilding
    - Properwastemanagement watertreatmentplant
    - Wi-Fifacility ingovernment building
    - Recreational center
    - Welldesignsewerline
    - 24 hours electricity
    - BituminousroadPubliclibrary
    - CommunityhalSolarresources
    - Playground

- Socialactivities
- Healthyandhygienicenvironment

Definitions

- A smart city is a desig nation given to acity that in corporates information and communication technologies (ICT) to enhance the quality and performance of urban services such as energy, transportation and utilities inorder to reduce resource consumption, wastage and overall costs.
- We define a Smart City as a city which uses information and communication technologiessothatit'scriticalinfrastructureaswellasitscomponentsandpublicservices providedaremoreinteractive, efficient and sothat citizens canbe mademore aware of them.

Practice, Visit And Information About SmartCity

Fig3.2 FrontView Of BhatVillage

- The smart village concept is a community village with a self-sustaining income producing projects, independent electrification system generated from non-fuel based device, clean water facility for drinking including water for irrigation, quality but affordable housing, school, medical facilities for human being and animal, proper sanitation system, information centre, bank, police station, post office retail outlet for house hold and agriculture needs, communication facility, connecting roads to nearby villages and towns.
- Bhat village is a village in Gandhinagar district. It is known as a smart village in Gandhinagar taluka . The total population of the village is 5858. We visited Bhat villageon26/03/2021 and studied the village.

Fig3.3 Primary School

Fig3.4Post-Office

Fig3.5 WaterTank

Fig 3.6 Play ground

Fig3.7 PHC

Fig3.8 Gram Panchayat Office

3.2 Vision-Goals, Standards And Performanc Measurement IndicatorsSmartCitiesDevelopmentVision-Goals.

- Identify the transportation challenges and needs of the citizen and business community and demonstrate how advanced technologies can be used to address issues in safety, mobility, and climate change now and into the future.
- Determine which technologies, strategies, applications, and institutional arrangements demonstrate the most potential to address and mitigate, if not solve, transportation challenges identified within a city.
- Support and encourage cities to take the evolutionary and revolutionary steps to integrateadvanced technologies – including connected and automated vehicle technologies – into the management and operationsofthe city, consistent with the USDOT vision elements.
- Demonstrate, quantify, and evaluate the impact of these advanced technologies, strategies, and applications to wards improved safety, efficiency, and sustainable movement of people and goods.
- Examine the technical, policy, and institutional mechanisms needed for realizing thepotential of these strategies and applications – including identifying technical and policygapsand issues – and work with partnersto address them.
- Assessreproducibilityandqualifysuccessfulsmartcitysystemsandservicesfortechnolo gyand knowledge transferto othercities facingsimilar challenges.

- The amount of activity in Smart City standardization is truly over whelming–this is partly due to the bread thand scope of Smart City activities from water pipe stope ople and partly because it is early in the process and the standards bodies are still trying to understand how best to co ntribute.

  Level 1: Strategic: These are smart city standards that aim to provide guidance to cityleadership and other bodies on the "process of developing a clear and effective overallsmartcitystrategy". They include guidance in identifying priorities, how todevelopa roadmap for implementation and how to effectively monitor and evaluate progress alongthe roadmap.
- **Level 2: Process**: Standards in this category are focused on procuring and managingsmartcity projects inparticular those that cross both organizations and sectors. Theseessentiallyoffer best practices and associated guidelines.
- **Level 3**: **Technical**: This level covers the myriad technical specifications that are neededto actually implement Smart City products and services so that they meet the overallobjectives

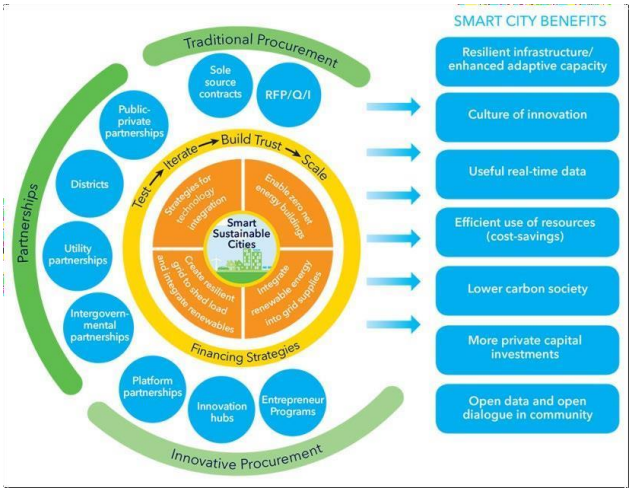


Fig3.9 Smart Cities Framework

Smart Cities Performance Measurement Indicators

- CITY keys provides a validated, holistic performance measurement framework for monitoring and comparing the implementation of Smart City solutions, with the objectiveofspeedingup the transition tolow carbon, resource-efficient cities.
  Based on the inventory of indicators from 43 existing indicator frameworks, a set for assessing smart city projects and smart city performance has been designedfor CITY keys have been suggested to fill gaps in existing frameworks, mostly related to specificcharacteristics of smart city projects.

- There sulting indicator selection responds to the wishes of cities and citizens for the coverage of their priorities and reflects city goals. CITY keys has collaborated with TRIANGULUM, REMOURBAN and SMARTERTOGETHER' light house' project consortia to develop the indicator selection

  The indicators are arranged in anextended triple bottom lines us tain ability framework, including the themes people, planet, prosperity, governance and propagation, and completed with specific smart city indicators. Under the main themes, sub the mesconforming to major policy ambitions have been identified.

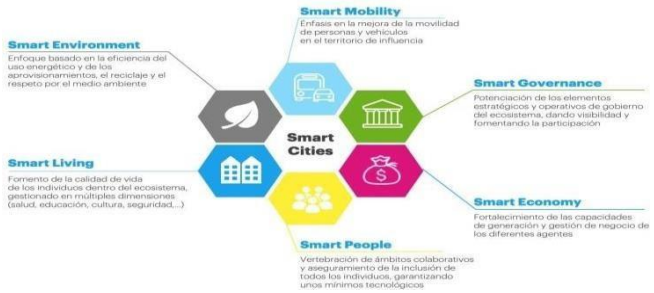


Fig3.10 Key Point of Smart Cities

- Under these subthemes in total 92 project indicators and 73 city indicators have beenselected
  - The indicators for assessing smart city serveto assessor evaluate single projects. They indicate the difference the project has made, by comparing the situationwithout the project with the situation after the implementation of the project. Assuchthey can also serveto benchmark projects againsteach other.
  - The indicators for smart cities focus on monitoring the evolution of a city towards an even smarter city. The time component “development over the years” is animportant feature. The city indicators may be used to show to what extent overallpolicygoals have been reached or are withinreach.

3.3 Technological Options for Smart Cities

1. Smart Buildings
2. Smart Mobility
3. Smart Governance
4. Smart Healthcare
5. Smart Society
6. Smart Infrastructure
7. Smart Energy
8. Smart Public Services
9. Smart Farming
10. Smart Education
11. Smart Business

Fig3.11 Technological Options

CIVIL Related Technology

- *Services required for smart village*
  - Smart Security.
  - Efficient public transportation system.
  - Improving health service.
  - Improving sanitation conditions.
  - Smart farming.
  - Solid and liquid waste management.
  - Improving Education facilities.
  - Improving Infrastructure.
  - Rain water harvesting /Rainwater drainage system.
  - Improving energy facilities.
  - Safe drinking water facilities.
  - Use of renewable energy.
- Services required for smart village Efficient public transportation system. Improving sanitation conditions Rain harvesting /Rainwater drainage system Use of renewable energy. The idea ofSmart villages based on Internet of Things Smart Weather and Irrigation, Accurate weatherinformation can be of great use to the people of the village. As we know, the majority of population in villages engages in agriculture for their living. The use of environmental sensorsto predict weather forecasts can help the farmers to a large extent. Many farming activities like sowing, irrigation and harvesting depend on the weather. Smart irrigation systems can make use of sensors in the fields and remote satellite data to ensure the optimal use of available water resources. If it is going to rain the next day, then watering the fields on that day makes nosense. All this information can be made available to the farmers through message alerts on their mobile phones. The level of water in the dams and canals can also be monitored using sensorsandit can beused to predict the future need of water.

3.4 Road Map And Safe Guards Road Map

- To become a digital city, governments will need an appropriate set of solutions that will help them advance to the next stage of maturity. The more a city takes advantage of the potential offered by ICT interms of the provision of digital services and annite gratedur ban network, the higher its level of maturity. In many ways, this is easier for newer cities in emerging markets, which are just now investing in urban infrastructure
- For example, Lusail City in Qatar, Masdar City in the UAE, and Song do in South Korea are all Making digital technology, networks, and apps a central part of how they operate and interact with citizens. By contrast, existing or brownfield metropolitan areas faceclear challenges in moving up the ICT maturity ladder, as they need to modernize their existing infrastructure with embedded sensors and control systems and retro fit old buildings a complicated and expensive process.
- Indeed, in some cases it is impossible as the buildings cannot accommodate new technologies. However, becoming adigital city is not so stark achoice that urban authorities either achieve this evolution or fail. Rather, even taking small steps, particularly for established cities, toward becoming more digitized and offering enhanced digital services provides a variety of benefits. In some cases, established cities can use the disruptive power of digitization to leapfrog some of the obstacles.

Safe Guards

- In various cities across India, police officers and public safety administrators' work around the clock to make sure millions of its residents are safe an unnerving thought, actually.

- The Delhi Police is perhaps the largest metropolitan police in the world, larger than London, Paris, New York and Tokyo, and yet the ratio of officers to the city's 20 million citizens is 1: 253.This reality leaves officers hard put to keep up with citizens on both routine days and during emergencies.
- The project requires vast experience, expertise as well as technical and financial capability in asysteminte grator for the success ful implementation of the project as well as subsequent management, operation and maint Bhatnce.

3.5 Issues&Challenges

- **Insufficient Funds-**Making cities smart means deploying smart, complex infrastructurefor implementing digital technologies. Besides, tons and tons of smart devices have to beintegrated for data collection. In addition, to ensure smart city success, governments havetohireenough tech experts and city planners.
- **Lack of experienced professional: -**Another most-pressing challenge for smart cities isthe lack of skilled professionals. For preparing a strategy to achieve smart city projectsuccess, identifying areas for implementation of technologies, and operating these tools,tech expertsare required.
- **Inconsistentnetworkconnectivity:-**For the smart management of amunicipality, several sensors , cameras, and actuators are installed everywhere. These sensors gather and send

large volumes of data in realt ime. Analysis and processing of the collected data Should happen almost instantaneously for efficient management of city operations. And for instant processing, high-speed Internet connectivity is mandatory.

- **Cyber security risks:-** Though this data help in providing efficiency at municipalityfunctions, it presents serious security risks that can't be ignored. Data from parking lots, CCTVcameras, EVchargingstations, and GPSsystemscontains confidentialinformationofcitizens.
- **Corruption:-** This point probably was meant to be from the first as this is the root causefor all above challenges. But if we talk about it solely this is also a major challenge. Bothat center and state level corruption is responsible for all the co-ordination mismatch and time lag happening. The financial constraintal so some how creep sin because of this issue. Corruption in India is a challenge which has always been a reason for non-execution orine ffective execution of most big projects in the country.
- **No time figure attached to the plan:-** The entire smart city plan is a one big plan whichshould get all the clearances if not before time then on time. Everything should be onlineand timely which unfortunately is not happening in this case. Doing this will address twomajor issues one of co-ordination and one would be the timely execution. Also, the bodyshouldbe solelyresponsible to cater to thefinancial requirements

3.6 Smart Infrastructure– Intelligent Traffic Management Smart Infrastructure

- Smart infrastructure has many components like Digital management of infrastructure, sens or networks, digital water and waste management, institutional, physical, social, economic infrastructure
- Physical Infrastructurere fersto its stock ofcost efficient and intelligent physical infrastructure such as the urban mobility system, high speed broadband infrastructure, the housing stock, the energy system, the water supply system, sewerage system, sanitation facilities, solid waste management system, drainage system, etc. which are integrated through use of technology.
- Social Infrastructure relates to components that able development of human and social capital, such as the education, healthcare, entertainment, etc.
- It also includes performance and creative arts, sports, the open spaces, children's parks and gardens.
- Economic Infrastructure include developing proper infrastructure that generates employment opportunities and attract investments.

Intelligent Traffic Management

- In present-day times, the number of vehicles has increased drastically, but in contrast, the capabilities of that roads and transportation systems still remain underdeveloped and as a result, fail to cope with this upsurge in the number of vehicles. As a consequence, traffic jamming, road accidents, increase in pollution

levels are some of the common traits that can be observed in our newage cities. With the emergence of the Internet of Things and its applicability in Smart Cities, creates a perfect platform for addressing traffic-relate dissues, thus leading to the establishment of Intelligent Traffic Management Systems (ITMS). Its foundation on Cloud computing, Internet of Things and Data Analytics.

- Its proposed system helps to resolve the numerous challenges being faced by traffic management authorities, in terms of predicting an optimum route, reducing average waiting time, traffic congestion, travel costand the extent of air pollution. The system aimsatusing machine learning algorithms for predicting optimum routes based up on traffic mobilization patterns, vehicle categorization, accident occurrences and levels of precipitation. Finally, the system comes up with the concept to fagreen corridor, where in emergency services are all owed to travel without facing any kinds of traffic congestion.

3.7 Cyber Security

- Cyber security refers to the body of technologies, processes, and practices designed to protect networks, devices, programs, and data from attack, damage, or un authorized access. Cyber security may also be referred to as information technology security.
- Cyber security is important because government, military, corporate, financial, and medical organizations collect, process, and store unprecedented amounts of data on computers andother devices.
- Elements of cyber encompass all of the following:.
  - Network security
  - Application security
  - End point security
  - Data security
  - Identity management
  - Database and infrastructure security
  - Cloud security
  - Mobile security
  - Disaster recovery
  - Business continuity planning
  - End-use reducation

Fig3.12 Cyber security

3.8 Retrofitting -Redevelopment- Green field Development- District Cooling Retrofitting

Retrofitting will introduce planning in an existing built-up area to achieve smart cityobjectives, along with other objectives, to make the existing area more efficient andliveable. In retrofitting, an area consisting of more than 500 acres will be identified by the city in consultation with citizens. Depending on the existing level of infrastructure services in the identified area and the vision of the residents, the cities will prepare a strategy tobecome smart. Since existing structures are largely to remain intact in this model, it isexpected that more intensive infrastructure service levels and a large number of smartapplications will be packed into the retrofitted smart city. This strategy may also be completed in a shorter time frame, leading to its replication in another part of the city.

Fig3.13 Retrofitting development

Redevelopment

❖ Redevelopment will effect a replacement of the existing built-up environment and Bhatbleco-creationo fanew layout with enhanced infrastructure using mixed land use and increased density. Redevelopment envisages an area of more than 50 acres, identified byUrban Local Bodies (ULBs) in consultation with citizens. For instance, a new layout planof the identified area will be prepared with mixed land-use, higher FSI and high groundcoverage. Two examples of the redevelopment model are the Saifee Burhani UpliftmentProject in Mumbai (also called the Bhendi Bazaar Project) and the redevelopment of EastKidwai Nagar in New Delhi being undertaken by the National Building ConstructionCorporation.

Green field Development

❖ Greenfield development will introduce most of the Smart Solutions in a previously vacantarea (more than 250 acres) using innovative planning, plan financing and plan implementation tools (e.g. land pooling/ land reconstitution) with provision for affordablehousing, especially for the poor. Greenfield developments are required around cities inorder to address the needs of the expanding population. One well known example is theGIFTCity in Gujarat. Unlikeretrofitting andredevelopment.

District Cooling

District cooling is the cooling equivalent of district heating. Working on broadly similar principles to district heating, district cooling delivers chilled water to buildings like offices and factories needing cooling. In winter, the source for the cooling can often be sea water, so it is a cheaper resource than using electricity to run compressors for cooling. Alternatively, District Cooling can be provided by a Heat Sharing Network which Bhatbles each building on the circuit to use a heat pump to reject heat to a nambient ground temperature circuit.

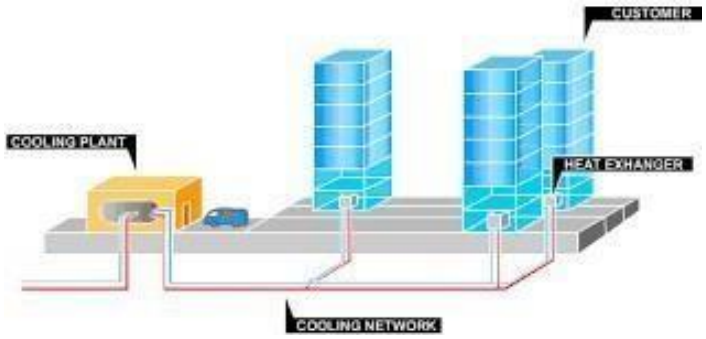


Fig3.14 District cooling

3.9 Strategic Options For Fast Development

❖ As far as developing off a smart cities is concerns, following are the primary option which should implement first.

SMARTCITY				
E-Governance andcitizen	**EnergyManagement**	**Urban mobility**	**Wastemanagement**	**WaterManagement**
1. PublicInformation	1. Smart Meters&Management	1. SmartParking	1. Waste ToEnergy & Fuel	1.SmartMeter& Management
2. ElectronicServiceDelivery	2. RenewableResourcesOf Energy	2. Intelligent Traffic Management	2. Waste ToCompost	2.LeakageIdentification,Preventive Measures.
3. CitizenEngagement	3. EnergyEfficient& Green Building	3. IntegratedMulti-Modal Transport	3.WasteWaterToBe Treated	3. Water QualityMonitoring
4. Video CrimeMonitoring			4. Recycling AndReductionOf Waste	

Table3.1 Strategic Option

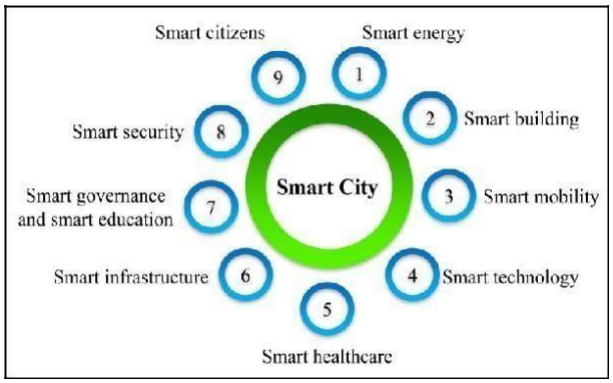


Fig3.15 Stategic Plannig of Smart Cities

3.10 India's Urban Water And Sanitation Challenges And Role Of Indigenous Technologies India's Urban Water And Sanitation Challenges

- There is a clear link between unsafe water, sanitation and hygiene, and detrimental health out comes for women and children, especially in developing countries. Despitegreat advancements in reproductive, adolescent, maternal, neonatal and child health, increasinginvestments in WASH interventions may further improve the health and well-being ofwomenand children.
- Power supply in rural areas is a serious concern. Availability of power varies from 8 to 10hours a day and even the available power supply is highly erratic with crippling voltagefluctuations and sudden power cuts. Hence the total requirement of drinking water for the village needs to be produce dina shorts panof time when the power isusually available.

- *The major challengesare:*
  - Creating consensuson sector governance and institutional arrangements
  - Developing and testing service provider models that have characteristics of well-runpublic companies for differentmarket segments (large/small);
  - Improving financials ustainability of providers (commercial, energy, Non-Revenue Water)
  - Professionalizing the WSS sector.
- *Roleof Indigenous Technologies:*
  - Although urban areas present major challenges for adequate water and sanitationmanagement, "they also present a potential efficiency of scale in basic serviceprovision never possible in the rural context. Urban systems also present the best opportunity for a transitionto integratedservice management, leveraging investments in energy, transportation, water, and sanitation in order to create more innovative and environmentally sustainable human development and natural resource management".

Indigenous Technologies

1. Smart buildings:- Automated Intelligent Buildings, Advanced Heating Ventilation andAir Conditioning systems(HVAC), Lighting Equipment.

2. Smart mobility:- Intelligent mobility; Advanced traffic management system(ATMS),Parking management, ITS-Bhatbled transportation pricing system.
3. Smart governance and smart education:-Government-on-the-Go;e-Government, e-Education, Disaster management solutions.
4. Smart healthcare:- Intelligent Healthcare,Technology, use of e-Health and m-Healthsystems, Intelligent and connected medical devices.

3.11 Initiatives In Village Development By Local Self-Government

- Local self-government in India refers to governmental jurisdictions below the level of the state. India is a federal republic with three spheres of government: central(union), state and local. The 73rd and 74th constitutional amendments give recognition and protecti on to local government sand in addition each statehas its ownlocal government legislation.
- Since 1993, local government in India takes place in two very distinct forms. Urban localities, covered in the 74thamendment to the Constitution, have Nagar Palika but derive their powers from the individual state governments, while the powers of rural localitieshave been formalized under the Panchayat raj system, under the 73rd amendment to theConstitution.
- The Panchayat raj system is a three-tier system with elected bodies at the village, talukaand districtlevels.
- Although, as of 2015, implementation in all of India is not complete, the intention is forthere to be a gram Panchayat for each village or group of villages, a tehsil level council,anda District Panchayatat the district level.

3.13 Any Projects Contributed Working By Government/NGO/Other Digital Country Concept

- **GIFTCity (Gandhinagar)**
  - GIFT City is an integrated development on 886 acres of land with 62mmsq.ft. of Built Up area which includes Office spaces, Residential Apartments, Schools, Hospital, Hotels, Clubs, Retail land various Recreational facilities.

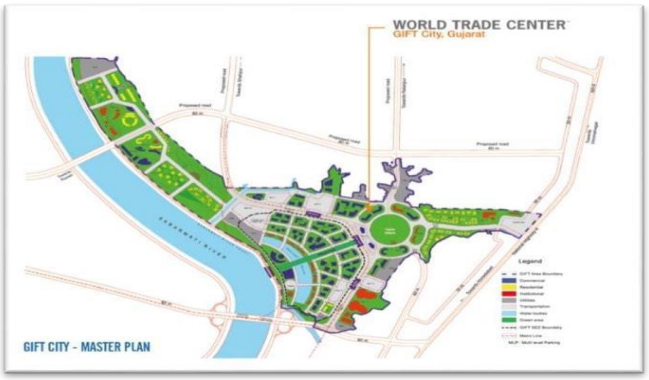


Fig3.16 GIFT City-Master Plan

- The City is located on the bank of river Sabarmati connecting the Businesscapital (Ahmedabad) and Political capital (Gandhinagar) of Gujarat State-theGrowth Engine of India.
- GIFTCity isa new Financial& Technology Gatewayof Indiafor the World.
- Infrastructure plays a pivotal role in supporting the business environment andqualityof life in GIFT City.
- Ajudiciouscombinationwiththelatesttechnologyandglobalbestpracticesininfrastructure service delivery are in place. All of these come together to provide an international standard of working and living.

3.14How To Implement Other Countries Smart Villages Projects In Indian VillageContext

- ❖ It is clear that the situations and challenges in developing urban and rural area are different due to the constraints and opportunities. Many researchers believe that the existing technologies developed for the smart city may be useful for the smart village concept. Researchers reported that the Smart village system can be developed on the lines of smartcity model. The components taken into consideration will vary from region to region for villages, based on the available resources and opportunities. Following are some generalized guidelines for the development of Smart Villages.
- ❖ Economic Component: This component will include local administration ande conomic factors. It will cover governance models, bandwidth, mobility, cloud computing, entrepreneurship etc.
- ❖ Environmental Component: This component will address the issues related to resourcesand infrastructures available at local level. It may cover cleaner technologies, public andalternativetransportation, green spaces, smart growth, climate change etc.
- ❖ Social Component: This component may address issues related to community life, participatory democracy, social innovation, proximity services etc.

3.15 Electrical Concept (Design Ideal and Prototype model)

- Worldwide, 1.3 billion people remain without access to electricity and 2.7 billion are still cooking on harmful and inefficient stoves1. Many live in remote rural village communities, and until they have access to energy services, little progress can be made to develop and improve their lives2. As United Nations Secretary-General Ban Ki-moon has stated, “energy is the golden thread that connects economic growth, increased social equity, and an environment that allows the planet to thrive”.
- Improving the lives of rural communities by developing smart villages is a concept analogous to the more familiar smart cities. The vision for smart villages is that modern energy access can act as a catalyst for development – in education, health, food security, productive enterprise, clean water and sanitation, environmental sustainability and participatory democracy – which in turn supports further improvements in access to energy. Integrating energy access with other development initiatives, harnessing and developing local entrepreneurial capacities, and technological advances in the supply and use of sustainable energy are making such transformative change possible.

- Energy is a fundamental component of the requirements for rural development, but it has not received the attention it deserves in the context of agriculture. The workshop's focus on energy for agriculture in off-grid villages in India resonated with the need to create revenue streams from productive enterprises and employment opportunities, not least for young people, in thousands of villages yet to be fully electrified.
- StreetLights are also deal as a big electrical concept in smart village initiative.
- With no power these work get delayed thus spoiling everything for the farmers. So rural India needs 24x7 power for developing the country, helping the farmers and educate the village children, and electricity in rural area also ensure the safety of the people.

Fig. 3.17 Electrical Concept

Renewable Energy for Electricity

- There are other ways of generating electricity by using natural resources that can be replaced or renewed without harming the environment or contributing to the greenhouse effect.

- For example, Presently 89 per cent of Australia's electricity is generated from burning fossil fuels, 74 per cent from coal and 15 percent from natural gas. Renewable energy is used to generate 11 per cent of electricity. Of those renewable energy sources hydropower is the biggest contributor contributing around 6 per cent of total electricity. The remaining 5 per cent comes from a mix of sources including wind, bioenergy and rooftop solar.

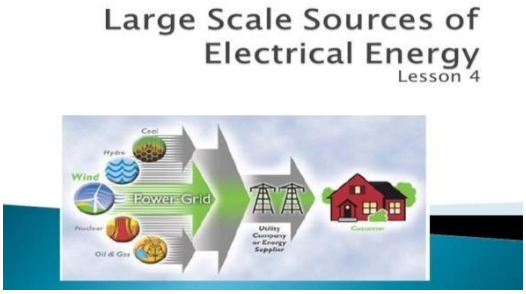


Fig. 3.18 Source of Energy

Chapter-4
About Palsana Village

4.1 Introduction

4.1.1 Introduction About Palsana Village

- Palsana is a village located in Gnadhinagar Taluka. Palsana is near to 07 km from Kalol and 28km Gandhinagar District. Population of this village is 4500 as percensus 2011. Main occupation of Palsana is farming.

Fig4.1 Village map

4.1.2 Justifcation/Need Of Study

- By VishwakarmaYojana project government required technical result of the problem of villages at the engineering point of view.
- The developmental work in villages that could undertaken as per the need of the village includes,
    - Socio- Cultural Facilities such as Community Hall, Public Library, Recreation Facilities, Assembly polling and other.
    - Sustainable development: Rainwater harvesting, Biogas plant, Eco friendly Toilets, Solar Street lights& other for effective development of Villages.
    - Physical infrastructure facilities such as Water, Drainage, Road network, transport facility, Electricity, sanitation, Irrigation, Solid waste Management, Storm Water Network, Telecommunication & other, Social infrastructural facilities such as Health, education etc

4.1.3 Study Area

- In Palsana village some physical and social facilities are better like under ground drainage, cement concreteroad, primaryschool, secondaryschool, and Aanganwadi.
- For development Palsana village we are try to provide required facilities like Government Dispensary as a physical infrastructure facility, Public garden as a social infrastructure facility, Water waste management as a sustainable infrastructure and E-center as a smart infrastructure facility.
- Based on survey wetried to give design of basic facilities to fulfill their needs. By providing this basic facility to village for reduce urban city pressure and decrease migration rate, which is ultimate aim of Vishwakarma Yojana.
- We are given attractive of public garden, An e-center and krishisevakendra using smarttechnology for Palsana village. We are tried to give batter design to use maximum natural resources and provide all the basic needs.

4.1.4 Objectives Of The Study

- To study the existing growth, characteristics and development of villages.
- To study the existing infrastructure facilities and its management issues phasing by villages.
- To study strategic planning proposal in the form of Physical, Social and Renewable infrastructure facilities for the development of villages. To study the future growth and future scBhatrio of village.
- To study how to improve a drainage facility of rural areas.

4.1.5 Scope Of The Study

- To development of village compare to the city area in the basic facility to needed for people and their amenities and to study whole village.
- The study will focus the development trend intensity of growth of the village find out the problems related to thephysical developmentof the area and infrastructure services of the village.
- The information of the village is collected based on different categories like, Education, water facilities, drainage facilities, transportation facilities, primary health center, bankfacilities, publictoilets, communityhall and other amenities.
- Based on these studies the requirement can be known and the further plan based on this requirement can be visualize for compacted development of the village.

4.1.6 Methodology Frame Work For Development Of Palsana

- The study framework of our village divided in three phases, Preliminary survey, analysis, design.
- In preliminary survey there are two approaches one is direct and second is indirect.
- We first done indirect study of village through housing various online sources and official websites of Gandhinagar district.
- Then we visit the village on primary bases and to collect the data as per techno-economic survey for prescribed by university.

- Then we come at the second phase of project, the analysis. We analyze the information collected and come to decide the roadmap of development of village.

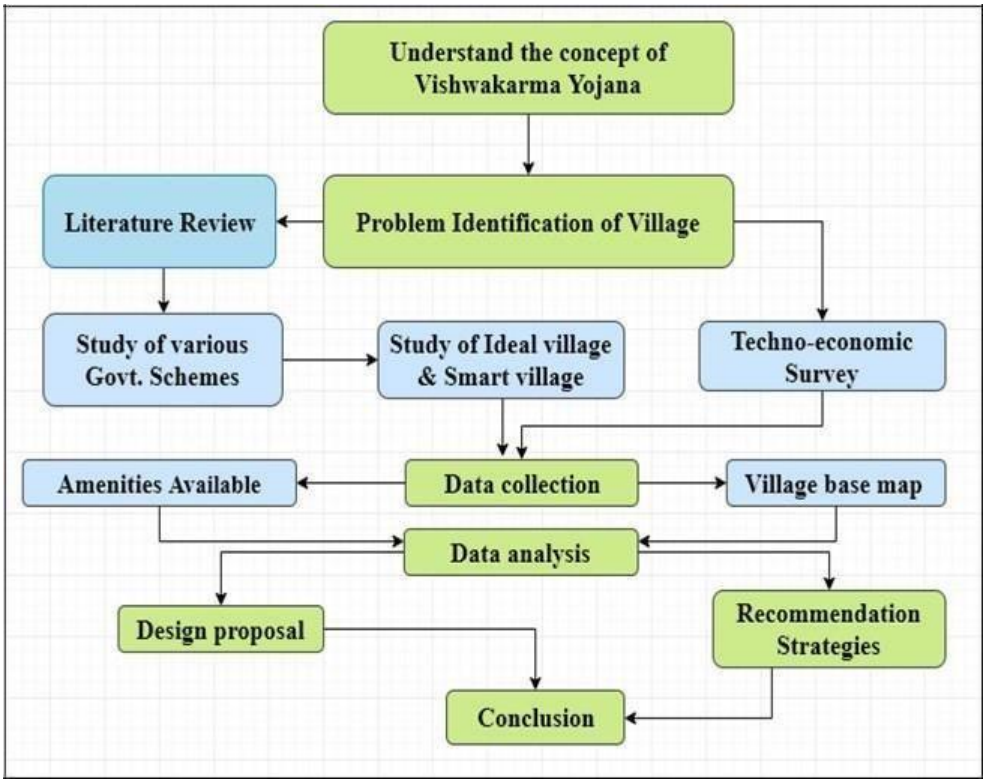


Fig4.2 Methodology framework for village

- Then we again contact the Gram Panchayat member to inform about our future scope of project and get the further data for designing various facilities.
- And at third phase of project we design the various facility in village like library, pick upstand, biogas plant, construction of paver block road and solid waste collection facility.
- Inthis waywe approachour phase Iproject.

4.1.7 Available Methodology For Development Of Related To Civil

- Panchayat
- Gram DrainageS ystem
- Overhead Water Tank
- Bus Stop
- R.C.C Roads
- Paver Blocks
- Electricity 24*7
- General Provision Street.
- Water Supply System

- ❖ Community Hall
- ❖ Temple
- ❖ Education
- ❖ Solid Waste System
- ❖ WIFI

4.2 Palsana Village Study Area Profile

4.2.1 Study Area Location WithBriefHistoryLandUseDetails

- Villagename :-Palsana
- Taluka :- Kalol
- District :- Gandhinagar
- State :- Gujarat
- Pincode :- 382725
- Area(hectare) :- 1049.19
- Elevation/Altitude :-71meters
- Coordinates :- 21.54630^{O}N,71.79694^{O}E
- Population:- 4500

Brief History

❖ Palsana village is located in Kalol taluka and Gandhinagar district. People of this village are living in very peaceful manner. This village having very proud history. literacy rate of Palsana village was 69.7%. In Palsana Male literacy stand sat70.7% while female literacy rate was 29.3%. Agriculture is the main profession of this village. Major crops in village are vegetables. Young generation is attracted towards mobile, laptop and computer technology these days. Village is fully depending on an agriculture. New generation are attracted toward the small-scale business and many people are success in business from this village. Village is surrounded by many recreational and religious places.

4.2.2 Base Location Map, LandMap, Gram Tal Map

Fig4.3 Village map

Fig4.4 Satellite map

4.2.3 Physical & Demographical Growth

- *Source of water*
- Overhead Watertank.
- borewell &piped water, Bottled waterfor drinking.
- Local Municipal Corporation.
- *Drainage System*
- Closed drainages are provided in the village.
- *Road network*
- Village is connected by SH41 to Kalol.
- All connecting roads are bitumen road (good condition).
- All internal roads are c.c. road.
- *Transportation facility*
- Nearest railway station 6Km. (Saij Sertha Road Railway Station)
  - Nearest bus station in village. (Main road)
  - Auto, jeep, minibus available.

- *Electricity*
- GEB power supply 24hr.
- Main streets have lighting.
- All government buildings are fully facilitated with good lighting.

- *Housing conditions*
- All houses are consisting of lighting, good ventilation and good sanitation with toilets.

Sr.no.	Census	Population	Male	Female	Total House
1	2001	-	-	-	-
2	2011	4500	2498	2002	1000

Table4.1 Demographicdetail village

4.2.4 Economic Generation Profile/Bank

- The major population Palsana village is engaged with agricultural activities and other some people is doing business and services.
- The main crops are grown in Palsana village is:
  - All vegetables

4.2.5 Actual Problem Faced By Villages And Smart Solution

- Palsana village have no facility of solid waste treatment and not Available any hospital so peoples goto 5km away from village for illness.

4.2.6 Social Scenario Preservation Of Traditions, Festivals Cuisine Social Scenario

Population	Persons	Males	Females
Total	1055	536	519
In age group 0-6year	136	62	62
Scheduledcast(SC)	92	40	52
Scheduledtribes(ST)	0	0	0
Literacy	94.67%	97.88%	91.22%

Table4.2 Social ScBhatrio

Preservation Of Traditions, Festivals, Cuisine

- Navratri festival is celebrated with a durga pooja. This 10days celebration, people do durga pooja, and enjoy with music and play dandiya and garba. Festival like diwali, bhai duj, vasantpanchami, holi, kevadi etc. All festival is celebrating in full spirit of god. This village are concerned with fully hindu religion people. People also celebrate a nation festival like free-dom day, Gandhi jayanti, etc. Are celebrate.

4.2.7 Migration Reasons/Trends

- Immediate concerns faced by such migrant workers relate to food, shelter, healthcare, fearof getting infected or spreading the infection, loss of wages, concerns about the family, anxiety and fear. Sometimes, they also face harassment and negative reactions of the localcommunity.
- There as on of migrationis to study abrot for further education like college and other reason of expand the business.
- Marriage of girls are migrant in her husband residence after marriages this trend is neverbeing stop. In village up to higher secondary education are available. lack of security Is are a son for people of which are migrant.

4.3 Data Collection Of Palsana Village

4.3.1 Describe Methods for Data Collection

- Self-survey of the village.
- Interaction with the villagers.
- Techno economic survey.
- Physical survey of the village.
- Census 2011 reports and other reports published by different Ministries of the Government.
- Journals, Magazines and periodicals.
- Statement of villagers.
- Published reports of Centraland State Governments and local bodies.

4.3.2 Primary Details Of Survey

- Palsana is a village located in Kalol Taluka of Gandhinagar district. Sarpanch of the village is Thakor Hansaben Popatji. Village is located 5Km away from Kalol.
- Palsana is well connected by state highway (SH41)
- Total population of village is 4500 among them 2498 are male and 2002 are female as percensus 2011.
- Total house holds in Palsana villageare 183 as percensus. Main occupation of the Palsana village peoples is Farming.

4.3.3 Average Size Of The House Geo Tagging Of House Average Size Of The House

- Averagesize of house is3.5 m x 6m.

Geo Tagging Of House

- Most of the houses in the Medra village is residential house and some of the are Kutchhahouse.
- 80% Puccahouse.
- 20% Kutchhahouse.

4.3.4 No Of Human Being In One House

- Mainly in the one house there is 5 persons including children.

4.3.5 Material Available Locally In The Village And Material Out Sourced By The Villagers

- For the house, they used mainly bricks, sand sandwood.
- There is no any out sourced material in the village.

4.3.6 GeographicalDetail

Sr.No.	Description	Information/Detail
1	Areaofvillage(inHector).	1049.19 Hector
2	Coordinatesfor location.	21.54630°N,71.79694°E
3	Forestare (inHect.).	-
4	Residentialarea(inHect.).	5.35 Hector
5	Agriculturallandarea (inHect.).	703.26 Hector
6	Otherland.	340.58
7	Distancetothenearestrailwaystation(Km).	4km Saij Sertha
8	Nearesttown anddistance.	6 km Kalol
9	Distancetothe nearestbus station(Km).	InVillage
10	Connectivitytootherroads.	SH41

Table4.3 Geographical Detail

4.3.7 Demographical Detail-Cast Wise Population Details/ Which IDProof Using By Villagers

Population	Persons	Males	Females
Total	**4500**	**2498**	**2002**
In age group 0-6 years	**136**	**62**	**62**
Scheduled cast(Sc)	92	40	52
Scheduled tribes	0	0	0
Literacy	94.67%	97.88%	91.22%

Table4.4 Demographical Detail & Cast wise detail

- *Listof IDproof using by Villagers*
  - Aadhar card
  - Voterid card
  - Ration Card
  - Passport
  - Pancard

4.3.8 Occupational Deatil- OccupationWiseDetails/MajorityBusiness

- In this village 80 to 85% people connected with agriculture activities it's the villages main source of income. Out of that 42 to50 % people are connecting with both agriculture and labor work. But village has the milk production business so that's a income of source to othere are approx. 5 to 10% people are connected with milk production and other are doing labor work for money.

Name of three major occupationgroups invillages	Farmer
	-

Table:-4.5 Occupation Detail of Palsana Village.

4.3.9 Agricultural Details/ Organic Farming/ Fishery

- Most of area covered by agriculture of total area of Palsana village. And most of people in Palsana village are base of agriculture labors Most of population of Palsana village isdependedagriculture.

Majorcrops growninthe village	Saragwa
	Potato

Table:-4.6 Demographic detail Palsana village.

4.3.10 Physical Infrastructure Facilities– ManufacturingHUB/ WareHouse

- In Village no any Manufacturing hub.

4.3.11 Tourism development available in the village for attracting the tourist

- No tourism in this village.

4.4 Infrastructure Details (With Exiting Village Photograph)

4.4.1 Drinking Water/Water Management Facilities

- In Palsana village there are two overheadtank of 50,000 liter capacity and other is of 80,000 liter. In village attached with pipeline through Narmada river.
- In Palsana village there is water distribution system is well developed in all over village. Its work in Good Condition.

Fig4.5 Overhead tank

4.4.2 DrainageNetwork

- Village drainage line are construct before 4 or 5yrs. Its work in Good Condition.

4.4.3 Transportation & Road Network

Good all - weather roa disavailable in all over village. And it makes door to door connectivity. internal street is made up of paver block and external street which joint state highway is made up of R.C.C.

Fig4.6 Road Network

- Transportation network railway stop near 5km away. Public use owns two wheeler or four wheeler are used for travelling through main road. The reis availability of rickshaw, jeep or other transportation facility.

4.4.4 HousingCondition

- All houses are puccahouse and constructed by modern methodology and material like brick, rcc, blocks etc. All houses are newly constructed. Also, a government housing(ghb) scheme is available nearby the area.
- Most of the houses in the Medra village is residential house and some of the are Kutchha house.
- 80% Puccahouse.
- 20% Kutchhahouse.

4.4.5 Social Infrastructure Facilities, Health, Education, Community Hall, Library Social Infrastructure

- Like Gram panchayat etc. Available in village.

Fig4.7 Gram Panchayat of Palsana

Health

- There is no availability of PHC in Palsana Village. All type of health facilities is available at Kalol So, villagers go to kalol for medical facilities.

Education

Sr.no.	Description	Information/Detail
1	Playgroup	1Nos.
2	Primaryschool	1Nos.
3	Secondaryschool	1Nos.
4	Highersecondary school	1Nos.

Table4.7 Educational Facilitiesat Palsanavillage


Fig4.8 Primary School

CommunityHall

- InVillage Community hall is in under construction.

Library

- There is no availability of Library in Palsana Village.

4.4.6 Existing Condition Of Public Building And Maint Bhatnce Of Existing Public Infrastructures

- In village existing public building are panchayat building, school, Community hall, etc. all building is newly built in a last 5year, so no need of repair and maint Bhatnce of public building.

4.4.7 Technology Mobile/WIFI/Internet Usage Details

- In village 60 to 65% use smart phone are 20 to 25% use a normal phone and rest of people are not use phone. 60 % people have knowledge about internet and use.
- In village in gram panchayat office have WIFI for Public use.

4.4.8 Sports Activity As Gram Panchayat

- Currently no activities organized at Gam Panchayat.

4.4.9 Socio-Cultural Facilities, Public Garden/Park/Play Ground/Pond/Other Recreation Facilities

- There is no availability of any sociocultural facility like public library, public garden, cinemahall etc. inside the village so Socio-cultural Facility is required.

4.4.10 Other Facilities

- There is one Hanumanji's temple is famous in Kalol Taluka. In village one Cemetery ferry it's Enough for Village.

4.4.11Any Other details

- Gram Panchayat have their own building in good condition.

❖ Fig4.9 Gram Panchayat of Palsana

4.5 Electrical Concept

4.5.1 Renewable Energy Source Planning Particularly for Villages

- Palsana village does not had any renewable energy sources.
- The village required renewable sources.
- Renewables Can Protect Against Power Interruptions. Whether severe seasonal weather or events like tornados are to blame, power outages in rural areas can extend for hours or days.
- The renewable sources of energy proposed to be put to use for improving the overall energy scenario include biomass, biogas and solar energy. Biomass can be produced from agro waste, mainly paddy in the case of this village.

4.5.2 Irrigation Facilities

- In Palsana, irrigation is done by using pump.
- There are three major sources of irrigation in India. They are (a) canals, (b) wells and tube-wells, and (c) Tanks. Wells and Tubewells are the major source of irrigation. Canals rank second, while the tanks stand third.

4.5.3 Electricity Facilities With Area

- 24 hours electricity is available in Palsana.
- G.E.B supplies the electricity to the village.
- Street light facility is available in village.
- More than 300 L.E.D streetlights are available.

4.6 Existing Institution like- Village Administration- Detail Profile

4.6.1 Bachat Mandali

❖ Village have no bachat mandala. Required a small scale bachat mandli in village. Village have one Mandali but its only for farmer.

4.6.2 Dudh Mandali

❖ Yes village have a Dudh Mandali

4.6.3Mahila Forum

❖ No mahilaforum in village.

4.6.4 Plantation for the Air Pollution

- In a village every year plantation program is arranged by some local group and panchayat. Lastyear in higher secondary school in 100nos. palnt grown by villagers.

4.6.5 Rain Water Harvesting –Waste Water Recycling

- No facility of rain water harvesting in a village. And no facility of waste water recycling in a village.

4.6.6 Agricultural Development

- There is no any institute for Agricultural Development

Chapter-5
Technical Options With Case Studies

5.1 Concept(civil)

5.1.1 Solid & Liquid Waste Management

- Proper management of solid and liquid wastes is an important determinant of improved sanitation in any community. The goals of sanitation fail miserably when solid and liquidwaste management aspect is not given proper attention to improve health and living environment of the community. In rural areas, this aspect is mostly neglected due to lack of proper infrastructure, unavailability of sustainable technology at household or community level and more over lack of adequate O&M infrastructure and awareness of common people. In most of the rural areas it is not a fel t-need problem.
- Management of solid or liquid wastes in rural areas is much easier than in urban areas due to the fact that there are no highly contaminated industrial wastes. In rural areas, most of the wastes can be safely reused for beneficial purposes with limited resources. Further, in rural areas there are usually less space constraints allowing for the application of natural waste water treatment systems there fore increasing to choice of options.

Septic Tanks:

- A Septic tank is a combined sedimentation and digestion tank where the retention time of sewage is one to two days. During this period, settleable solids settle down to the bottom. This is attended by anaerobic digestion of settled solids (sludge) and liquid, resulting inreasonable reduction in the volume of sludge, decrease in biodegradable organic matter and release of gases like carbondioxide, methane and hydrogen sulphide. The effluental though clarified toalargeextent, will still contain considerable amount of dissolved and suspended put rescible organic solids and pathogens, as the efficiency is only 30- 50 % for BOD and60-70 %TSS removal.
- Hence, the effluent of septic tank should be discharged into the small borese werorsurface drains. The out fall from such drains should beconnected to a small sewagetreatment plant. The second option of septic tank effluent discharge could be a soak pit. It should be notedthat the option by a soak pit may not be environmentally friendly depending on the soiltype, groundwater table, population density and should usually be avoided if financial resources allow.
- In order to control the effluent quality and avoid the clogging of soakage pits, septic tank requires desludging. Though desludging frequencies vary, it is generally recommended to desludge tank severy two to three years, or when the tank become one-third full. The mostacceptable method of sludge removal is by vacuum tankers. Regular desludging eventsrequirewell-organized community and public/private service providers.

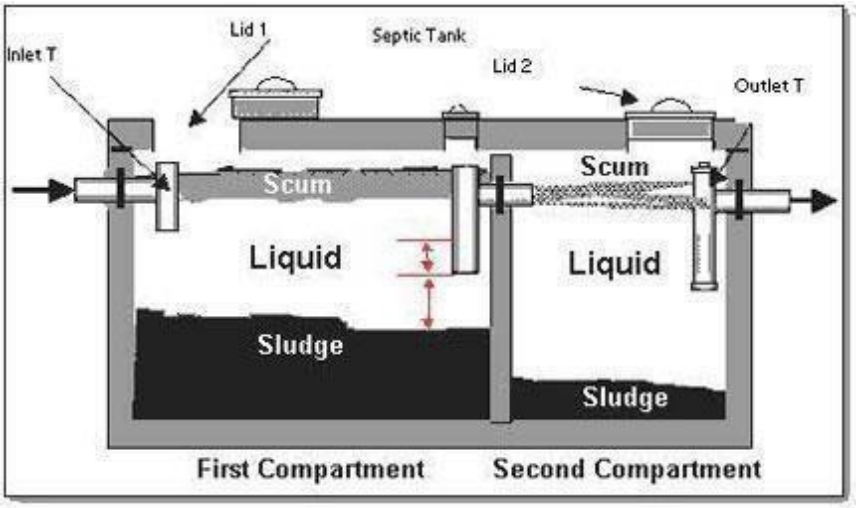


Fig5.1 Spetictank

5.1.2 Various Type Of Method For Transportation

1. *Road Transportation:*
   - ❖ Road transportation is one of the most common of all modes of transportation. It is widely used in all country. The road transport is use for good and passenger movement. The various vehicle use for road transport is listedas below,
     - Bus
     - Truck
     - Car
     - Bicycle•Motorcycle, etc
2. *Rail Transportation:*
   - ❖ Rail transport is used for both goods and passengers and is a popular method ofpublic transport. Many cities have a train station but there are still a lot more thandon ‘which would make travelling by train difficult to get to some destinations and will require further transportation by bus, carortaxi. Shopping around and purchasing your tickets in advance will help you save money which may make travelling by train more economic and comfortable than a caror even bus.
3. *Water Transport:*

   Water transport is the economy and the oldest form of transport for heavy good sand bulk loads. Waterways are the natural gifts, hence it does not required large amount of capital costs for the construction of road and railway tracks, exceptcanal transport, as in the case of land transport. In addition to that the cost of running isalso veryless.

4. *Air Transportation:*

- ❖ Air transportisan important Bhatble to achieving economic growth and development. Air transport facilitates integrated into the global economy and provides vital connectivity on a national, regional, and global scale. It helps to generate trade, promotetourism, and create employment opportunities.

5.1.3Various Type Method For Drainage System

❖ There are two types of drainage as below:

- Surface drains
- Sub Surface drains

1. *Surface drainage system:*

- Surface drains as the name is justify to remove water from the ground surface prior to infiltration and canal so prevent excess water from flowing too the rarea. In short, they collect water from the ground surface and transport into a suitable disposal point.

2. *Sub surface drainage system:*

- Sub surface or underground drainage will remove excess soil water. It penetrates into themselves, just like open drains. These under ground drains afford the great advantages that the surface of the field is not cut off, no waste of land and do not interfere withfarm operations. On the other hand, they are low cost and are not effective in slowly permeable clay soils. It is more likely that the soil does not have the required water holding capacity.

5.1.4 VariousTypeMethodForRoads

❖ There are two types of roads as below,

- Flexible pavement road
- Rigid pavement road

1. *FlexiblePavementRoad:*

- Flexible pavement can be defined as the road pavement consisting of amixture of asphaltic or bituminous material and aggregates placed on a bed of compacted granular material of suitable quality in layers over the subgrade. Examples of Flexible pavement road:

1. Water bound macdam roads
2. Stabilized soil roads with or without asphaltic toppings

Fig5.2 Flexiblepavement roadcross section

• The design of flexible pavement is based on the principle of any magnitude, the intensity of a load diminishes of vehicles and its transmitted downwards from the surface byvirtue of spreading over an gradually larger area, by carrying it deep enough into the ground through succeeding layers of granular material.

2. RigidPavementroad:

• A rigid pavement is constructed from cement concrete or reinforced concrete slabs. Mortar concrete roads are in the category of semirigid pavements. The design of rigid pavement is based on providing are inforced cement concrete slab of enough strength to resists the loads coming from traffic. The rigid pavement has rigidity and high modulus of elasticity to distribute the load over a relatively wide area of soil.

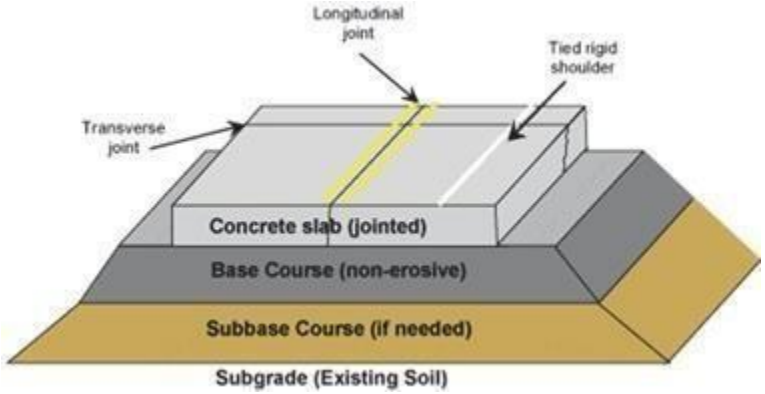


Fig5.3 Rigidpavement roadcrosssection

5.1.5 Various Type Of Environmental Factors

1. Wind Effect:

- Wind is a powerful force that has a great deal of effect on structures. There are two general types of effects of wind on structures: static and dynamic. The static load mainly indications to elastic bending and twisting of structure. Dynamic analysis of wind isrequired for skyscrapers, taller, long-span and slender structures. This is because gustsof wind cause varying forces on the structure that induce large dynamic motion, including oscillations.

2. Corrosion Effect:

- Simply corrosion is the damage to metals over a period of time because of the irreaction with the environment.
- For civil and structural engineers corrosion is not just anaesthetic issue it causes severe damage and deterioration to buildings, bridges, equipment and pipelines. While the metal components on the exterior of the building are more liable to atmospheric damage and corrosion, the effect of corrosion on all the metal elements especially within the building like foundation and structural walls is equally bad.

5.1.6 Latest Technology From The GLOB

❖ *Self-healing concrete:*

- Bond is a standout between the most generally used materials in development, in addition one of the biggest contributors to unsafe carbone manations said to be incharge of around 7 for every penny of yearly worldwide discharges. Splitting is a important issue in development, asarule brought about by the introduction of water and chemicals. Analysts at BathUniversity are hoping to build up a self-mending solid, utilizing ablend containing micro-organisms inside microcapsules, which will develop when water enters a splitin the solid to deliver limestone, stopping the break be fore water and oxygen has an opportunity to erode the steel support.

5.1.7 Suggestion For The Solving Civil Related Issues And Concerns And Challenges(Civil)

❖ **Use of Recycled Contentin Building materials:**

- There is lot going on in the field of green concrete but somehow It is not really used commercially in the production. Also steel isarecyclable materials oibelieve in future there are fair chances of reusing steel in building construction. There are many factors such as corrosionandaging of the sematerials that may impact there reusability but then that ‘swherethe challenge lies.

5.2 Concept (Electrical)

5.2.1 Programmable Load Shedding

- Programmable load shedding time management system is a reliable circuit that takes over the manual task of switch ON/OFF the electrical devices with respect to time. It uses real time clock (RTC) interfaced to a microcontroller of 8051 family Multiple ON/OFF time entry is the biggest advantage with this project.
- Load shedding is what electric utilities do when there is a huge demand for electricity that exceeds the supply. Thus in a distribution system it needs to be precisely controlled for specific period of time. Programmable load shedding time management system is a reliable circuit that takes over the manual task of switch ON/OFF the electrical devices with respect to time. It uses real time clock (RTC) interfaced to a microcontroller of 8051 family. While the set time equals to the real time, then microcontroller gives command to the corresponding relay to turn ON the load and then another command to switch OFF as per the program. Multiple ON/OFF time entry is the biggest advantage with this project.

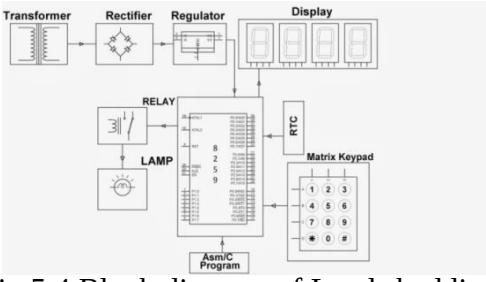


Fig.5.4 Block diagram of Load shedding

5.2.2 Railway Security System Using IOT

- An IoT Based Railway Security System for Automated Manning at Level Crossings. Abstract: Railways is considered as one of the widely spread mode of transportation all over the globe. ... This real time information is sent to database server with the help of Wi-Fi module through Internet of Things (IoT).
- Railways is considered as one of the widely spread mode of transportation all over the globe. Nowadays there is an enormous increase in road and railway traffic. This rapid growth has given rise to more and more accidents at the level crossings. This is a serious concern for both railway and road traffic users. There are no easy ways for tackling this problem, but the main concern is regarding its feasibility for the fluctuating environmental conditions. In this paper, we are proposing an IoT based technique as an alternative and efficient solution for manned and unmanned level crossings. To implement this technology, we are fixing two Infrared Sensors at a pre-calculated distance to calculate the speed of train and time taken by the train to reach level crossings. With this data we are trying to automate closing and opening of gates at level crossings and to regulate road traffic users waiting time. This real time information is sent to database server with the help of Wi-Fi module through Internet of Things (IoT). With the help of GSM module, we send the intrusion detection information to the concerned train driver, station master and control room for efficient monitoring.

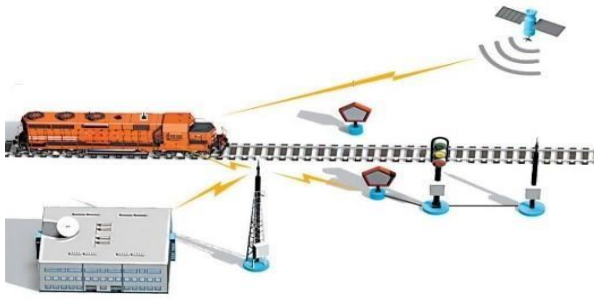


Fig.5.5 Railways security system using IOT

5.2.3 Management Through Energy Harvesting Concept

- Energy harvesting is the process by which ambient energy is captured and converted into electricity for small autonomous devices, such as satellites, laptops and nodes in sensor networks without the need for battery power. Energy harvesting applications reach from vehicles to the smart grid.

- With electronic circuits now capable of operating at microwatt levels, it is feasible to power them from non-traditional sources. This has led to energy harvesting, which provides the power to charge, supplement or replace batteries in systems where battery use is inconvenient, impractical, expensive or dangerous. It can
- also eliminate the need for wires to carry power or to transmit data. Energy harvesting can power smart wireless sensor networks to monitor and optimize complex industrial processes, remote field installations and building HVAC. In addition, otherwise wasted energy from industrial processes, solar panels, or internal combustion engines, can be harvested for useful purposes. A key component in energy harvesting is a power converter that can operate with ultralow voltage inputs.

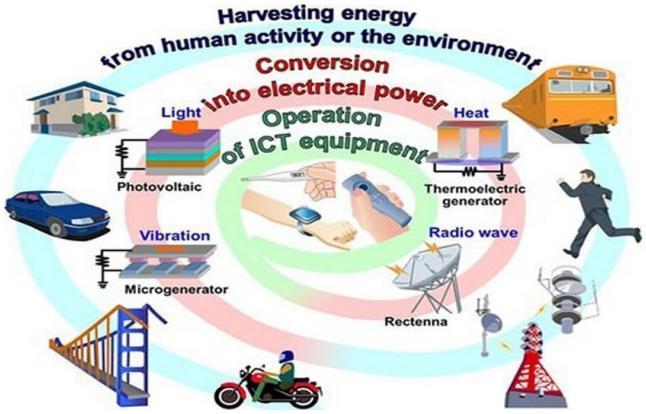


Fig.5.6 Energy Harvesting Concept

5.2.4 Moisture Monitoring System

Home automation has three major parts:

- Hardware
- Software/Apps
- Communication protocols

Each of these parts is equally important in building a truly smart home experience for your customers. Having theright hardware enables the ability to develop your IoT prototype iteratively and respond to technology pivots with ease.

A protocol selected with the right testing and careful consideration helps your avoiding performance bottlenecks that otherwise would restrict the technology and device integration capabilities with sensors and IoT gateways.

Another important consideration is the firmware that resides in your hardware managing your data, managing data transfer, firmware OTA updates and performing other critical operations to make things talk.

Fig.5.7 Wireless Soil Moisture and Climate Monitoring

5.2.5 Home Automation Using IOT

The **IoT** based **Home Automation** will enable the user to use a **Home Automation** System based on **Internet of Things** (**IoT**). The modern **homes** are automated through the internet and the **home** appliances are controlled. The user commands over the internet will be obtained by the Wi-Fi modems.

The IoT based Home Automation will enable the user to use a Home Automation System based on Internet of Things (IoT). The modern homes are automated through the internet and the home appliances are controlled. The user commands over the internet will be obtained by the Wi-Fi modems. The Microcontroller has an interface with this modem. The system status is displayed through the LCD display, along with the system data. This is a typical IoT based Home Automation system, for controlling all your home appliances. The smart home market is taking off as IoT device prices come down and the general public comes to understand the benefits of these products. And from smart homes, the next logical step is smart cities, which would take the IoT to the next level. And yet, smart homes are just one small part of our daily lives that the Internet of Things will transform in the coming years.

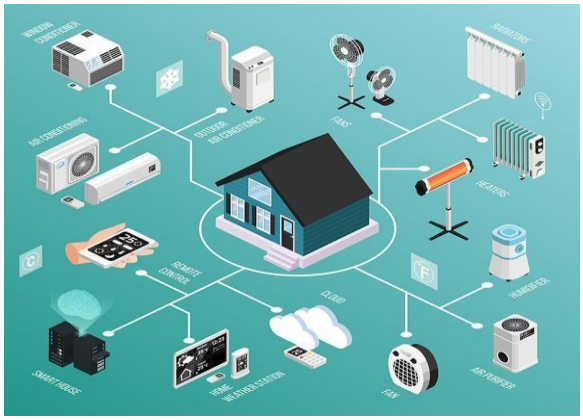


Fig.5.8 Home Automation Using IOT

Applications also allow users to view the system status and the processed data. **Level**-1 **IoT** systems are **suitable** for modelling low- cost and low-complexity solutions where the data involved is not big and the analysis requirements are not computationally intensive.

5.2.6 PC Based Electrical Load Control

Automation system is mostly depending upon the power systems in industrial, residential or commercial, which needs remote controlling and monitoring. By employing wireless technologies, it is more competent to execute a suitable technology depending upon the requirements of the proposed system like speed, cost, and distance.

For distant controlling and monitoring of different loads and by means of efficient power usage through real time power spending with the help of a PC based graphical user interface application. The progress of technology equipments is becoming simpler and easier for us. Automated systems have more benefits over manual system. PC based electrical load controlled systems are highly reliable, precise and time conserving systems. They give number of features like rapid data storage, transfer data and data securities

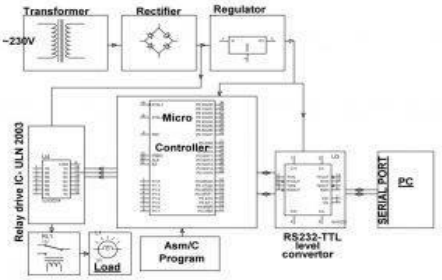


Fig.5.9 PC-Based Electrical System Block Diagram

5.2.7 Electrical Parameters Measurements

Parameter	Measuring Unit	Relationship
Voltage	volt (V or E)	$E = I \times R$
Current	amp (I)	$I = \frac{E}{R}$
Resistance	ohm (R or Ω)	$R = \frac{E}{I}$
Conductance	mho (G or ℧)	$G = \frac{I}{R} = \frac{I}{E}$
Power	watt (W)	$P = I \times E$ or $P = I^2R$
Inductance	henry (L or H)	$V_L = -L\left(\frac{\Delta I}{\Delta t}\right)$
Capacitance	farad (C)	$C = \frac{Q}{E}$ (Q = charge)

Chapter-6
Swachh Bharat Abhiyan(CleanIndia)

❖ What is Swachh Bharat Abhiyan?

Swachh Bharat Abhiyan is a massive mass movement that seeks to create a Clean India by 2019. The father of our nation Mr. Mahatma Gandhi always puts theem phasis on swachhta as swachhta leads to healthy and prosperous life. Keeping this in mind, the Indian government has decided to launch the swachh bharat mission on October 2, 2014.The mission will cover all rural and urban areas. Theurban component of the mission will be implemented by the Ministry of UrbanDevelopment, and the rural component by the Ministry of Drinking Water and Sanitation.

6.1 Swachhta Needed In Allocated Village Existing Situation With Photograph

- ❖ Our village is facing problems regarding the Swachhta as there are not any facilities available in village for excretion of waste.
- ❖ There are no facilities given by government for management of waste.
- ❖ No facility is available for the management of solid waste as well.
- ❖ *Types of Swachhta needed in Palsana village:-*
    - Bio-gas plant is required for the treatment of biological waste.
    - Dustbins should be distributed in whole villages other villagers throw garbage in dustbins.
    - Government should provide facilities like garbage vans like urban areas so that was the is deposited and directly treated in treatment plants.
    - Water treatment plant is also necessary for the treatment of wastewater from houses and agricultural fields.

Fig6.1 RealScBhatrio of Village AboutSwachhta

6.2 Guidelines– Implementation In Allocated Village With Photograph

- ❖ Implementation of SBM (G) is proposed with ‘District ‘as the base unit, with the goal ofcreatingODF GPs.
- ❖ A project proposal shall be prepared by a District, and scrutinized and consolidated by the State Government into aState Plan.

- Funds are to be made available for these preliminary IEC works including for triggering behavior change. This will endeavor to reach every household in every community and shall disseminate information regarding the need for safe sanitation, and the ill effects of opendefecation getting the population oriented towards satisfying their felt-needs.
- The proliferation of educational facilities in the rural areas provides the opportunity to utilize an approach that should essentially include an element that involves school and college children as potential agents of change in homes.
- The built-in flexibility in the menu of options is to give the poor and the disadvantaged families' opportunity for subsequent up gradation of their toilets depending upon their requirements and financial position.
- The provision of Incentives for individual household latrine units to the rural households is available to States which wish to provide the same this may also be used to maximize coverage so as toattain community outcomes.
- The Scheme shall aim to saturate coverage in the first instance the States/ Districts/ GPsin all major river basins of India e.g. Sutlej, Ravi, Beas, Ganga, Yamuna, Godavari, Narmada, Tapti, Kaveri, Brahmaputra. This will ensure the outcomes required for pollution free rivers, in addition to ODF communities.
- A robust Monitoring arrangement has to be put in place to monitor open defecation status of a village, the implementation of Solid and Liquid Waste Management projects as well as the construction and us of Household, Schools, Aaganwadi toilets and CommunitySanitary Complexes. The monitoring has inter-alia also to use a robust community ledsystem, like Social Audit.
- To accelerate coverage in Gram Panchayat selected under the Sansad Adarsh Gram Yojana, these GPs may be selected on priorityfor coverage under the SBM.

Fig6.2 Symbol ofSwachBharat Mission

6.3 Activities Done By Students For Allocated Village With Photograph

- Our group of the Vishwakarma Yojana had visited our allocated village after this we matesarpanch another Panchayat member and selected one small area for cleaning purpose. Then Villagers join with claning and clean Grampanchayat, busstop, mainchowk etc.

Chapter-7
Village Condition due to Covid-19

7.1 Taken Steps In Allocated Village Related To Existing Situation With Photograph

- Sanitization is being done in the Palsana GramPanchayat. Villagers are maintaining social distancing while receiving ration and essentials from the GramPanchayat in Palsana GramPanchayat.
- Disinfectant was sprayed in every house of Palsana village.
- Vegetables and ration kit are being distributed by panchayat and some local group among the vulnerable communities.
- During lockdown village's main entry get was locked by grampanchayat.
- The grampanchayat took preventive actions against COVID-19 proactively before the lockdown in the entire country.
- Grampanchayats prayed pesticides and distributed home-opathic medicine in every house in the village in lock down.
- Every villagers are strictly obeyed the decision of the government and the gram panchayat.

Fig7.1 During Lock-down entry gate locked

7.2 Activities Done By Students For Allocated Village With Photograph

Fig7.2 Activity Done By Student

Fig7.3 Ration Kits Distributed by the Gram Panchayat

7.3 Any Other Steps Taken By The Students / Villagers

- A goodsteps taken by the villagers that, they were wearing masks if they came out of their houses if necessary, and they wear using sanitizer and washing their hands frequently.
- They also sanitis their houses and hole village.
- we have convinced villagers for testing of covid 19 report.
- we explained that if you fill any type of fever, cold, weakness, etc. then immediately contact to your nearest hospital or clinic and strictly follow the instructions of doctor.
- We have explained that to do not come out of their houses without any urgent work.

Chapter-8
Sustainable Design Planning Proposal (Prototype Design) Part-1(Scenatrio/Existing Situation/Proposed Design In AutoCad/Recapitulation Sheet / Measurement Sheet / Abstract Sheet /Sustainability Of Proposal)

8.1 Design Proposals

- In theVishwakarma Yojana Phase – VII Part – I we have given total six design according to the village need and useful for the villagers.
- The design proposals are:
    - Solid Waste Management
    - Animal Water Pond (Avedo)
    - Waste Water Treatment
    - Public Garden
    - E-Suvidha center
    - Government Clinic

8.1.1 Sustainable Design (Solid waste management)

- Swachh Bharat Abhiyanwas launched in October 2014.
- Swachh Bharat Abhiyan is a nation-wide campaign in india for the period 2014 to2019 that aims to clean up the streets, road and infrastructure of india's cities, towns, and rural areas.

➢ *Profile Of The Study Village*

- Palsana is located on Kalol taluka in Gandhinagar district. It has a population of 1055 that make into 183 households as per 2011 census data. The amount of daily waste generated is around more than 500kg per day.

➢ *Proposed Solid Waste Management system*

❖*Construction*

- In the past record of village a Scattering dustbin are provided in whole village for cleaning purpose of village.
- But, after sometime a dustbins are stolen by villagers and take it and put in the home Sonow weare providing a Dustbins with fixed solid base with ground, it is easy to use and for collecting purpose.
- By providing fixed dustbin sastolen problem is neglected and dustbin sareused for village cleaning purpose.
- There is a one set of two dustbinsone for DryWaste & otherone for Wetwastehanged with steel pipe and fixedin the ground.

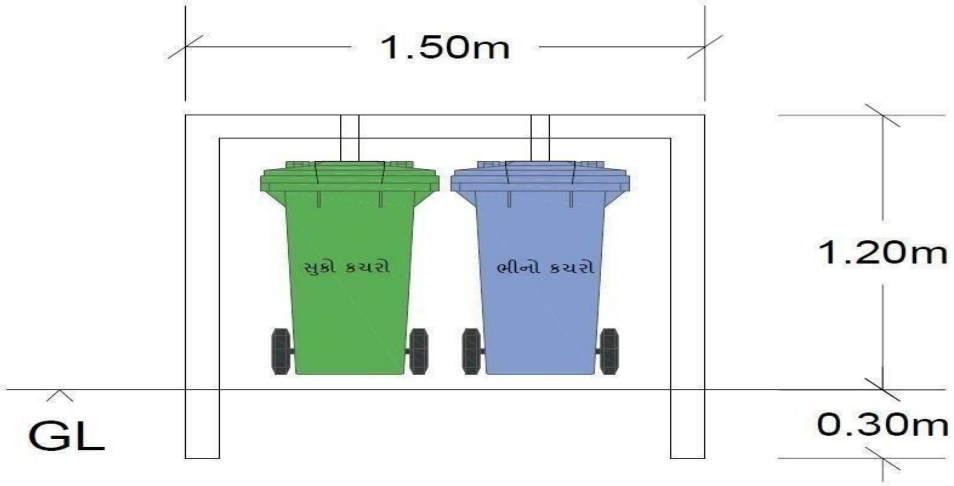


Fig8.1 Elevation of Fixed Dustbin

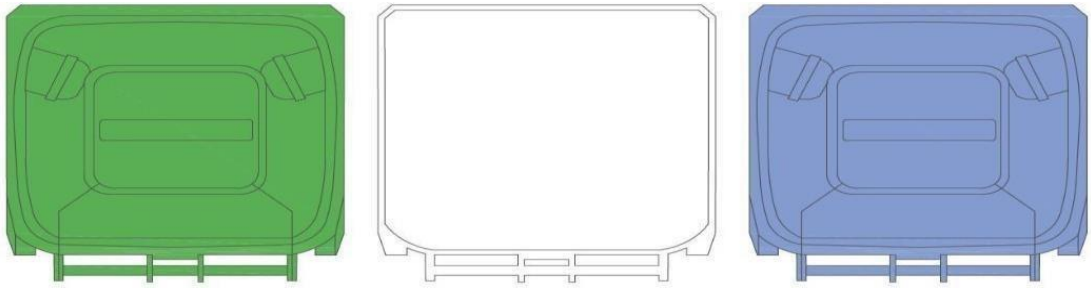


Fig8.2 Top View

- *OneSet ofFixed DustbinEstimate*

1mlong and1 inch diasteel pipeprice– 425/-
Total steel price for one set = 4.5m long pipe*425 =
1912.5/-Dustbinsof100 kg capacity unit price = 500/-

OneFixedDustbin Set Price=1912.5+500+500=2912.5/-

Sr. no	Particular	Quantity	Unit price	Total cost ₹
	No.of dustbins install			
1	**No. of Fixed dustbin installed in wholeVillage**	**16**	**2912.5**	**46600/-**

Table8.1 Estimate of Solid waste management

- **Collection of waste**

Fig:8.3 Procedure

Fig: 8.4 Dry-Wet

STEP 1: Community Education and Provision of Dustbins: At least two weeks before the actual collection of waste from the door steps of households, ward-wise community education took place on types of wastes; and how community cooperation in waste-segregation at the household level can ease waste management at the GP level. The GP campaigned with the community to cooperate with the arrangement in their personal interests, and in the interest of community well-being. Each household was provided with two dustbins Green for dry waste; and Red for Wet Waste.

STEP 2: Collection: Palsana engages 1 battery operated three-wheeler (vehicles) for daily collection of waste from households and other area. The vehicles make one trips daily in the morning from 7.00 to 10.30 am. The vehicle has two compartments one for collection of 'wetwastes' and the other for 'drywastes'. Each vehicle has adriver and agenitorwhoempties the dustbins into the vehicle handed by residents at their door steps. The idea ofcollecting one time in a day is part of their planning. It feels easy to touch the 'wet waste' when it is still fresh/or when it has not started decaying. It is a well-though to utplan. The unit attempt Shandling anytype of waste of any quantity generated within the Panchayat.

STEP 3: Segregation – Primary – Secondary - Tertiary: The households are supposed to segregate wet waste from dry waste at the household level, before handing them over togenitors. This is primary segregation. Bring them to the SWM unit and do secondary segregation. Secondary segregation is reported to be necessary because all said and donemany a household do only a rough segregation into two different bins. The genitors do a secondary segregation and shift the wet waste fit for vermincomposting, and others go for tertiary segregation. Practically, tertiary segregation involves sorting dry wastes of different types such as plastics, bottles, pet bottles, iron pieces, papers, card boards, clothpieces, carrybags, tetra packs etc.

STEP 4: Treatment: Wet wastes that are easily digestible / decomposable go into making vermin-compost; and wet waste of assorted nature go into plain composting covered with a plastic sheet. The non-biodegradable wastes are classified and kepts eparately for different recycling use. There are buyers for each type of waste be it papers, card boards, bottles, pet bottles, bottle caps etc. Each type of bio-degradable waste has some utility. Some of the items like orangepeels, lemonpeels, eggshells etc. are processed by the SWM Unit itself and are converted into bio-products.

STEP 5: Store Keeping: Each type of dry waste is kept in one compartment each after segregation. There is a long tin-shed compartmentalized for this purpose. These items (bottles, pet bottles, papers, card boards, worn out cloths/footwear etc.) cannot be sold ona daily basis. So, they let them accumulate over a period of one or two months so that it becomes economical for recyclers who deal in such waste materials to buy and transport to their places. They are sold to recycling agents who visit this SWM Unit periodically.

STEP6:Saleas recyclables: These items (bottles, petbottles, papers, cardboards, wornout cloths/footwear etc.) are sold to traders who dealin recyclable waste materials. They go for reprocessing, and they may arrive inthe market inseveral different forms.

STEP7:Sale after recycled products: Some of the wastes such as orangepeels, lemonpeels, and eggshells are processed by the SLWM Unit. They become salable commodities. Forinstance, orange peels / lemon peels are dried up and powdered to be added in making scouring powders used for vessel cleaning. Similarly, eggshells are powdered and sold for use as organic fertilizer sinrose gardens. They are presented as resource recovery from wastes below.

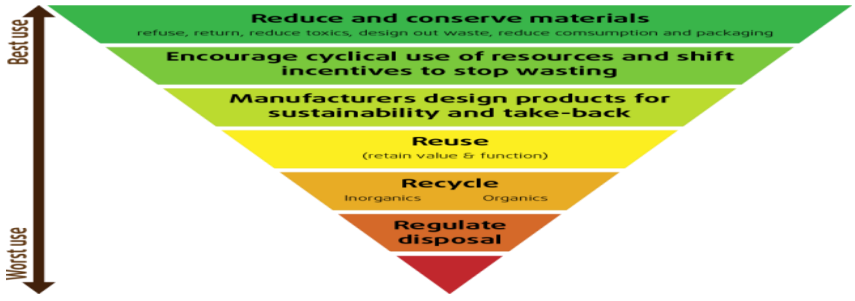


Fig:8.5 Integrated Waste Management Hierarchy

➢ *Solid Waste Management*

❖ This hierarchy can only be achieved by way of DECENTRALISATION of Waste management. This model is a culmination of awareness tosystemizedand scientific management.

❖ Pre-production Actions

- Reducing Production (consumption): Producing and consuming only as much as needed.
- Redesigning Production processes: Producing using cleaner processes and packaging using less material.
- Production of safe and recyclable materials: Avoiding the use of toxic and non-recyclable materials, so that maximum resource can be recovered with least harm to the environment.

❖ Post-production Actions

- Reuse: What is produced should be reused as many times as possible. E.g. Bottles, containers, bags, etc.
- Recycle: Recycling those materials that cannot be reused. E.g. Organic waste into compost, PET bottles into polyester fibers, glass bottles into glass panes, cotton rags into paper, etc.

Waste Generation	Collection & Transportati-on	Disposal
• TotalestimatedSolidWaste Generated:approx.650 kgperday(based on anestimateof250gperpersonper day) • TypesofSolidWaste:1) Biodegradable:Animal waste,vegetable waste,2)Non-Biodegradable:Plastic bags,papers,glass • SolidWasteSources:HH, Weekly markets,Schools/Aanganwadi, Shops,etc.	• Currently there isnoscientific system todaily collect and/ortransport the solidwastegenerated • Once in 2 to 3 months,wasteiscollectedfrom the roads/drainsand transported to anopen area outside thevillage • This process iscontracted out by theGP	• Current DisposalmethodsVegetables&FoodWaste: Given tolivestock, reused infield • Plastics:Thrownoutside in the openarea,fields,drainsorburnt

Table8.2 Solid waste management

Abstract Sheet For Solid Waste Management-I

SR. NO	PARTICULAR	QUANTITY	UNIT PRICE	AMOUNT (RS.)
Solidwastemanagement				
	System for collection, segregation and disposal of household garbage			
1	Workers Uniforms, safety equipment; handgloves, canvas shoes, firstaid kits etc.		3000	3000
2	Tools required (Shovels, Brooms etc.)	1set	15000	15000
3	Waste Collection Vehicles (Battery operated vehicles)	1	200000	200000
4	Other SWM Activities, Land scaping and Beautification			30000
				Total cost=284000

Abstract Sheet For Solid Waste Management-II

SR. NO	PARTICULAR	QUANTITY	UNIT PRICE	AMOUNT (RS.)
1	Salaryfor the workers	2	7500	15000
2	Safety tools and equipment	LS	3000	3000
3	Water and Electricity charges at the RRC	LS	4500	4500
4	Vehicle maintenance	LS	3000	3000
				Total cost=25500

FINALCOST=3,09,500Rs.

8.1.2 Physical Design (Animal Water Pond {Avedo})

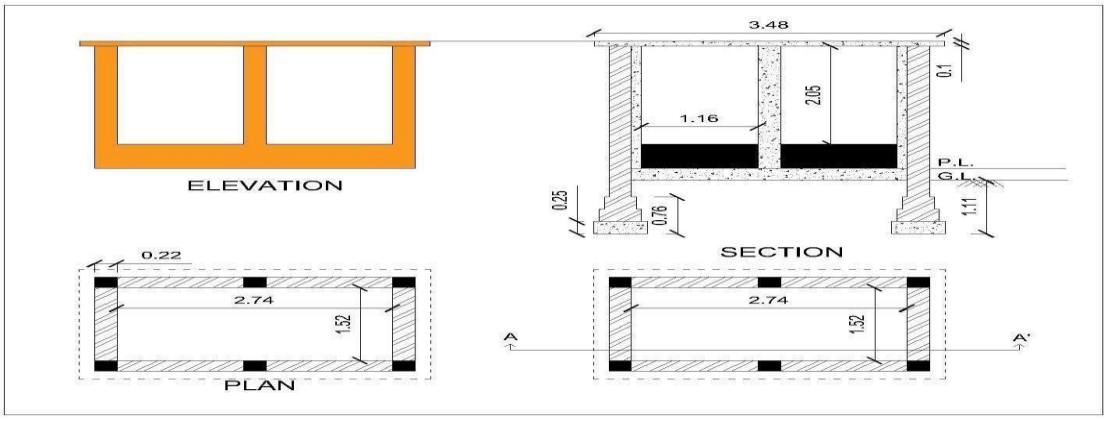


Fig:8.6 Plan, Section and Elevation of Design of Animal Water Pond {Avedo}

- All the dimensions are in meter.
- The area of Avedo is 2.74 x 1.52 m.
- Total Numbers of bricks are 3,400nos. use in this Avedo.
- 2.5cm mortar be disused.
- 7.5cm BBCC is used above earth filling.
- Earth filling thickness is about 0.6 m.
- The step footing below the ground level is about 0.9m.
- Column Size is0.5m x 0.3m.
- BeamSize is 0.3mx 0.3m

Measurement Sheet Of Animal Water Pond {Avedo}

SR NO	ITEM DESCRIPTION	NO	LENGTH	BREADTH	HEIGHT	QUANTITY
1	**Excavation in foundation**					
	Size of Footing=1.5*1.5m	**6**	**1.5**	**0.9**	**1.5**	**12.15**
				Total quantity =		**12.15M^3**
2	**Plain cement concrete**					
	In foundation (1:2:4)					
	Size of Footing =1.5*1.5m	**6**	**1.5**	**0.9**	**0.3**	**2.43**
				Total quantity =		**2.43M^3**

3	Concreting in Footing						
	And plinth in C.M(1:6)						
	Column						
STEP :1	1.5+0.6 =2.1m	6	2.1	0.6	0.2	1.51	
STEP :2	1.5+0.5 =2.0m	6	2	0.5	0.2	1.20	
STEP :3	1.5+0.4 =1.9m	6	1.9	0.4	0.2	0.91	
STEP :4	1.5+0.3 =1.8m	6	1.8	0.3	0.6	1.94	
						5.57	
	Column						
STEP :1	1.5-0.6 =0.9m	6	0.9	0.6	0.2	0.65	
STEP :2	1.5-0.5 =1.0m	6	1	0.5	0.2	0.60	
STEP :3	1.5-0.4 =1.1m	6	1.1	0.4	0.2	0.53	
STEP :4	1.5-0.3 =1.2m	6	1.2	0.3	0.6	1.30	
				Total quantity =		14.21M^3	
4	Concreting in Column in						
	Foundation						
	Height=0.7	6	0.5	0.3	0.7	0.63	
				Total quantity =		0.63M^3	
5	Sand Filling up to GL						
	9.09					9.09M^3	
6	Concretingin Beam						
	Size of Beam=0.3*0.3m	4	2.75	0.3	0.3	3.30M^3	
		2	3.4	0.3	0.3	2.04M^3	
				Total quantity =		5.34M^3	

7	Sand filling in space between					
	Plinth beam	1	6.4	3.4	0.9	19.58M^3
				Total quantity =		19.58M^3
8	PCC in space between Plinth beam	1	6.4	3.4	0.3	1.92M^3
				Total quantity =		1.92M^3
9	Concreting in column	6	0.5	0.3	2.5	7.50M^3
				Total quantity =		7.50M^3
10	Brick Masonry above plinth up					
	To slab level					
	L = 13.3 m	1	13.3	0.3	0.5	6.65M^3
				Total quantity =		6.65M^3
11	Concreting in Beam below slab level					
	Size of Beam=0.3*0.3m	4	2.75	0.3	0.3	3.30M^3
		2	3.4	0.3	0.3	2.04M^3
				Total quantity =		5.34M^3
12	Concreting for slab	1	9.3	6	0.15	1.40
				Total quantity =		1.40M^2
13	Plaster					
	For wall	4	8.3		0.6	19.92
		4		5	0.6	2.40
	For Column	6	1.6		2	19.20
	For Beam	4	2.75		0.3	3.30
		2	3.4		0.3	2.04
	For Slab	1	9.3		6	55.80
				Total quantity =		102.66M^2

Abstract Sheet Of Animal Water Pond {Avedo}

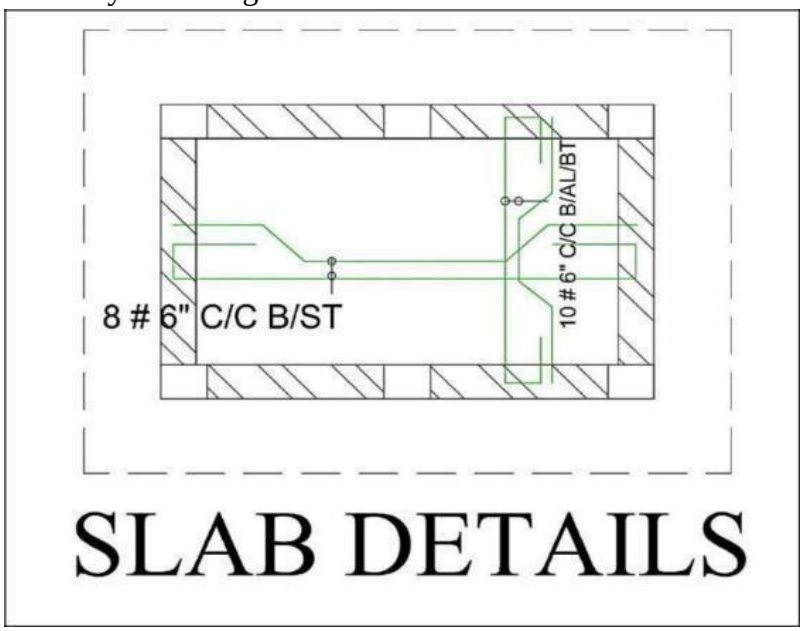
SR. NO	PATICULARS OF ITEM	QUANTITY	RATE	PER	AMOUNTRs.
1	Excavation in foundation	12.15M^3	85	M_3	1032.75
2	Plain cement concrete in foundation	2.43M^3	3200	M_3	7776.00
3	Concreting in Footing and plinth in C.M(1:6)	14.21M^3	3000	M_3	42624.00
4	Concreting in Column in Foundation	0.63M^3	3500	M_3	2205.00
5	Sand Filling upto GL	9.09M^3	900	M_3	8181.00
6	Concreting in Beam	5.34M^3	3500	M_3	18690.00
7	Sand filling in space between plinth beam	19.58M^3	900	M_3	17625.60
8	PCC in space between plinth beam	1.92M^3	3200	M_3	6144.00
9	Concreting in column	7.50M^3	3500	M_3	26250.00
10	Brick Masonry above plinth upto Slab level	6.65M^3	2800	M_3	18620.00
11	Concreting in Beam below slab level	5.34M^3	3500	M_3	18690.00
12	Concreting for slab	1.40M^2	3500	M_2	4882.50
13	Plaster	102.66M^2	260	M_2	26691.60
				TotalRs	199412.45

Required Material Of Animal Water Pond {Avedo}

Sr. No.	Perticuler of item	Quantity
1	Cement	241Nos.
2	Sand	12.45M^3
3	Aggregate	33.67M^3.
4	Bricks	3325Nos.

Slab Details of Animal Water Pond (Avedo):

- An Avedo hasa clear dimension 3.2m x1.98m.
  - 10mm diameter main steel bars are provided @60mmc/c spacing alternate bent up.
  - 8mm diameter distribution steel bars are provided @60mmc/c spacing alternate bent up.
  - To pand bottom coveris 20 mm and end coveris 50mm.Cement concreate proportion for slab (1:1.5:3).
  - Two-way slab design.



- Fig: 8.7 Slab of Animal Water Pond {Avedo}

Measurement Sheet Of Slab Of Animal Water Pond {Avedo}

SR No.	Item Description	No	Length	Breadth	Height	Quantity
1	Cement Concrete for Slab					
	(1:1.5: 3)					
	L=32m					
	B= 1.98 m	1	3.2	1.98	0.12	0.76M^3
2	Centering and shuttering for slab					
	Bottom	1	2.74	3		8.22
	Sides	2	3.2		0.15	0.96
		2	1.98		0.15	0.594
					Total quantity=	9.77M^2
3	10mm diamain steelbars 60 mmc/c alternate bentup					
	L = 3.28 m					
	Span= 1.88 m					
	No.of bars = 5 nos					
	Extralength of bent upbars					
	L = 3.31 m	5	3.31		0.9	14.90 KG
4	8 mm dia. Distribution steel 60mmc/c					
	L = 2.03 m					
	Width of slab = 3.1 m					
	Total no. of bars= 17 nos	17	2.03		0.22	7.5922 kg.
					Total quantity=	22.4872

Abstract Sheet Of Slab Of Animal Water Pond {Avedo}

SR NO.	ITEM DESCRIPTION	QUANTITY	RATES	PER	AMOUNT RS.
1	Cement Concrete for Slab	0.76M^3	9600.00	M_3	7299.07
	(1:1.5: 3)				
2	Centering and shuttering for slab	9.77M^3	125.00	M_2	1221.75
3	10mm dia. main steel bars	14.90 Kg.	60.00	Kg.	893.70
	60mmc/c alternate bentup				
4	8mm dia. Distribution steel	7.59 Kg.	60.00	Kg.	455.53
	60 mm c/c				
5	Labour for cutting, bending, and placing steel	22.49 Kg.	7.00	Kg.	157.41
			TotalRs.		10027.46
			Add 5%contingencies Rs.		501.37
			GrandTotal Rs.		10529
			Say		10600.00

➢ Required Material for Slab of Animal Water Pond {Avedo}

❖ *Cement, Sand, Aggregate for Slab:*

- Proportion= 1: 1.5 : 3= 5.5
- *Volume of dry concrete =1.15 M^3*
- Cement=6bags
- *Sand=0.31 M^3*
- Aggregate=0.63M^3❖Percentage of steel in slab:
- *Volume of steel= 0.0017 M^3*
- Volume of concrete= 0.76M^3
- Percentage of steel in slab =0.230 %

8.1.3 Social Design (Government Clinic)

❖ All the dimensions are in meter.

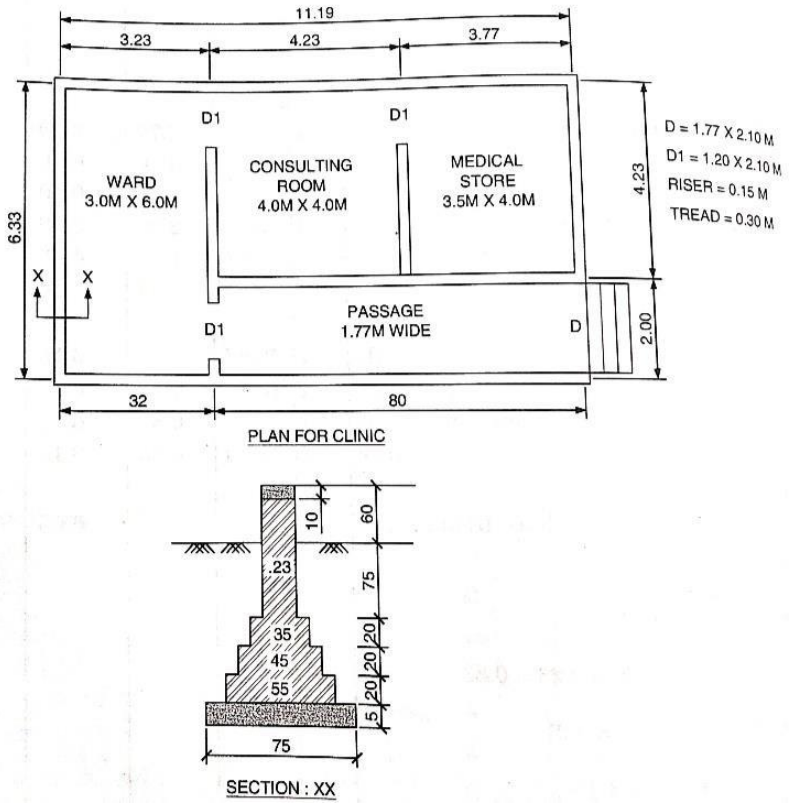


Fig:8.8 Plan and Section of Design of Government Clinic

Measurement Sheet Of Government Clinic

SR. NO	Item Description	No.	Length	Breadth	Height	Quantity
1	Excavation					
	For Walls	2	11.94	0.75	1.4	25.1
	For Steps	1	6	1	0.1	0.600
				Total Quantity=		$25.700M^3$
2	PCC					
	For Walls	2	11.94	0.75	0.05	0.09
	For Steps	3	5.48	0.75	0.05	0.62
				Total Quantity=		$1.52M^3$
3	Brick Masonary Upto Plinth					
	For60cm Thick Wall	2	11.74	0.55	0.20	2.59
	For50cm Thick Wall	1	8.51	0.55	0.20	0.94
	For40cm Thick Wall	1	32.7	0.4	0.2	2.616

	For30cm Thick Wall	**1**	**32.8**	**0.3**	**0.8**	**7.872**
	Steps	**2**	**11.64**	**0.45**	**0.2**	**2.1**
				Total Quantity=		**16.118M^3**
4	**DPC**	**1**	**32.8**	**0.3**	**0.1**	**0.984**
				Total Quantity=		**0.984M^3**
5	**Brick Masonary For Super Structure**	**1**	**32.8**	**0.3**	**3**	**29.520**
	Deduction					
	D	**1**	**1.2**	**0.3**	**2.1**	**0.756**
	W	**1**	**1**	**0.3**	**1.2**	**0.360**
	O	**1**	**1.2**	**0.3**	**2.1**	**0.756**
	Shutter Lintel	**1**	**4**	**0.3**	**3**	**3.600**
	D	**1**	**1.5**	**0.3**	**0.1**	**0.045**
	W	**1**	**1.2**	**0.3**	**0.1**	**0.144**
	O	**1**	**1.5**	**0.3**	**0.1**	**0.045**
				Total Quantity=		**23.814M^3**
6	**Backfill**	**2**	**4**	**5**	**0.5**	**20.000**
				Total Quantity=		**20.000M^3**
7	**Concreting Below Flooring**	**2**	**4**	**5**	**0.075**	**3.000**
				Total Quantity=		**3.000M^3**
8	**RCC Slab (1:2:4)**	**1**	**8.9**	**5.6**	**0.12**	**5.98**
				Total Quantity=		**5.98M^3**
9	**Flooring**	**2**	**4**	**5**	**1**	**40.000**
	Shutter	**1**	**4**	**0.3**	**1**	**1.200**
	D/O	**2**	**1.2**	**0.3**	**0.1**	**0.072**
				Total Quantity=		**41.272M^2**
10	**Partition Wall**	**1**	**5.2**	**1**	**3**	**15.600**
	Deduction					
	D1	**2**	**1**	**1**	**2.1**	**4.200**
				Total Quantity=		**11.400M^2**

11	**RCC Lintel**					
	D	**1**	**1.5**	**0.3**	**0.1**	**0.045**
	W	**1**	**1.3**	**0.3**	**0.1**	**0.039**
	O	**1**	**1.3**	**0.1**	**0.1**	**0.013**
	D1	**2**	**1.3**	**0.1**	**0.1**	**0.026**
	Weathershed	**1**	**11**	**0.5**	**0.1**	**0.550**
				Total Quantity=		**0.673M^3**
12	**Partition**	**1**	**11.15**	**3**	**1**	**33.450**
	Deduction					
	D1	**1**	**1**	**1**	**2.1**	**2.100**
				Total Quantity=		**31.350M^2**
13	**Outside Plaster**	**1**	**29**	**3.775**	**1**	**109.475**
	Deduction					
	D	**0.5**	**1.2**	**2.1**	**1**	**1.260**
	W	**0.5**	**1**	**1.2**	**1**	**0.600**
	Shutter	**0.5**	**4**	**1**	**2.775**	**5.500**
				Total Quantity=		**102.065 M2**
14	**Inside Plaster**	**2**	**18**	**3**	**1**	**108.000**
	Celing	**1**	**4**	**5**	**1**	**20.000**
	Deuction					
	D	**0.5**	**1.2**	**2.1**	**1**	**1.260**
	W	**0.5**	**1**	**1.2**	**1**	**0.600**
	O	**1**	**1.2**	**1**	**2.1**	**2.520**
	Shutter	**0.5**	**4**	**1**	**2.775**	**5.550**
				Total Quantity=		**118.070 M2**
15	**White Washing**	**1**	**1**	**1**	**1**	**220.135**
				Total Quantity=		**220.135 M2**
16	**Door Wood Work**					

	D	1	1.2	2.1	1	2.520
	D1	3	1	2.1	1	6.300
				Total Quantity=		$8.820M^2$
17	Window Wood Work	1	1	1.2	1	1.200
				Total Quantity=		$1.200M^2$
18	Ventilator Wood Work	1	0.5	0.5	1	0.250
				Total Quantity=		$0.250M^2$
19	WashBasin	1	1	1	1	1NOS.
				Total Quantity=		1NOS.

Abstract Sheet Of Government Clinic

SR. NO	ITEM DESCRIPTION	QUANTITY	RATE	PER	AMOUNT
1	Excavation	$32.478M^3$	150.00	M_3	4872
2	PCC	$6.396M^3$	3900	M_3	24944
3	Brick Masonary Upto Plinth	$11.016M^3$	5200	M_3	57283
4	D.P.C	$0.984M^3$	4700	M_3	4625
5	Brick Masonary For Super Structure	$19.214M^3$	4900	M_3	94149
6	Backfill	$20.000M^3$	120	M_3	2400
7	Concreting Below Flooring	$3.000M^3$	4300	M_3	12900
8	Flooring	$41.272M^2$	450	M_2	18572
9	RCC Work	$0.673M^3$	5500	M_3	3702
10	RCC Slab	$5.98M^3$	8800	M_3	52624

11	Partition	31.350M^2	550	M_2	17243
12	Partition Wall	11.400M^2	715	M_2	8151
13	Outside Plaster	102.065M^2	310	M_2	31640
14	Inside Plaster	118.070M^2	260	M_2	30698
15	White Washing	220.135M^2	16.00	M_2	3522
16	Door Wood Work	8.820M^2	1600.00	M_2	14112
17	Window Wood Work	1.200M^2	1500.00	M_2	1800
18	Ventilator Wood Work	0.250M^2	1550.00	M_2	388
19	Wash Basing	1NOS.	350.00	NOS.	350
20	Slab				
	Concreting	7.977M^3	4100.00	M_3	32706
	Shuttering	45.580M^2	250.00	M_2	11395
	Rebar	405.000 Kg.	42.00	Kg.	17010
21	Beam				
	Concreting	0.517M^3	4100.00	M_3	2120
	Rebar	36.000 Kg.	42.00	Kg.	1512
		Total Amount			448717
		Add 3% contingenciesRs.			13461
		Add 2%charged establishmentRs.			8974
		Grand total			471152
		For1 Sq. Mt			4711.52

8.1.4 Socio-Cultural Design (PublicGarden)

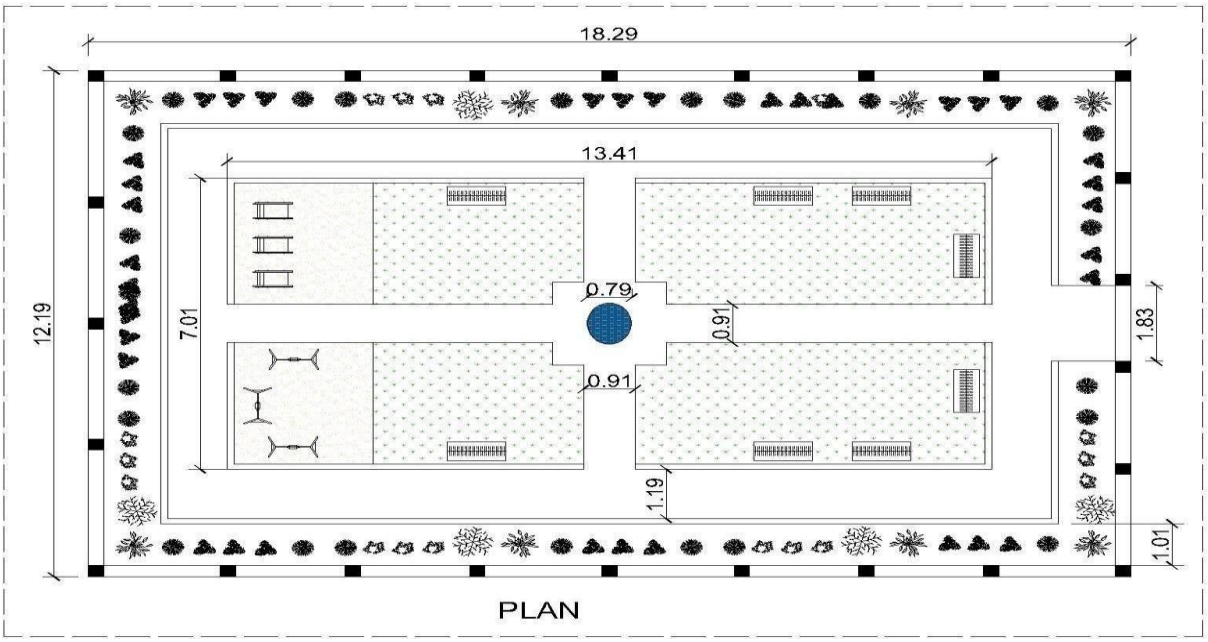


Fig: 8.9 Plan of Public Garden

Abstract Sheet Of Public Garden

SR. NO	ITEM DESCRIPTION	QUANTITY	RATE	PER	AMOUNT (RS.)
1	Excavation for Foundation	186	100	M_3	18600
2	Concreting in foundations	15.5	3000	M_3	46500
3	Masonry infoundation	85.5	1200	M_3	102600
4	Earth Filling	85	40	M_3	3400
5	Superstructure masonry work	75	1500	M_3	112500
6	Plaster work	300	120	M_2	36000
7	Colouring	200	20	M_2	6000

8	**Pavement block**	**250**	**570**	**M_2**	**142500**
9	**Fountain**	**1**	**10000**	**NOS.**	**10000**
10	**Tree plantation**	**55**	**50**	**NOS.**	**2750**
11	**Light pole with light**	**25**	**5000**	**NOS.**	**125000**
12	**Slides & Swings**	**4**	**7000**	**NOS.**	**28000**
13	**Benches**	**10**	**4500**	**NOS.**	**45000**
		Total Amount			**678850**
		Add 3% contingenciesRs			**20365**
		Add 2%charged establishmentRs.			**13577**
		Grand total			**712792**
		For1 Sq. Mt			**7127.2**

Fig:8.10 3D Top view of Public Garden

8.1.5 Smart Village Design (cybercafe)

➢ *Introduction*

The purpose of this study was to investigate the use and services of Akshaya

- ❖ Community Information Centers in Kerala. Structured questionnaires were employed to collect data from are presentative sample of 100 Akshaya Centre Entrepreneurs in Malappuram district of Kerala. The study found that Akshaya Centers are widely used for bill payments and a majority of the entrepreuneurs provides various services at affordable rates.
- ❖ E-literacy programme is the main attraction of the Akshaya that increased the status of Akshaya Centers. It is revealed that the entrepreneurs are willing to diversify the Centers with more IT related services. Demand for new services through the Centers showed the trust of local community towards Akshaya Centers.
- ❖ Akshaya project officially launched in 2002, by setting up more than 600 sites in Malappuram district of kerala, with the goal that one person in every family to be computer literate in the district. After the first phase, Malappuram districtis said to be india's firste-literate in the district.

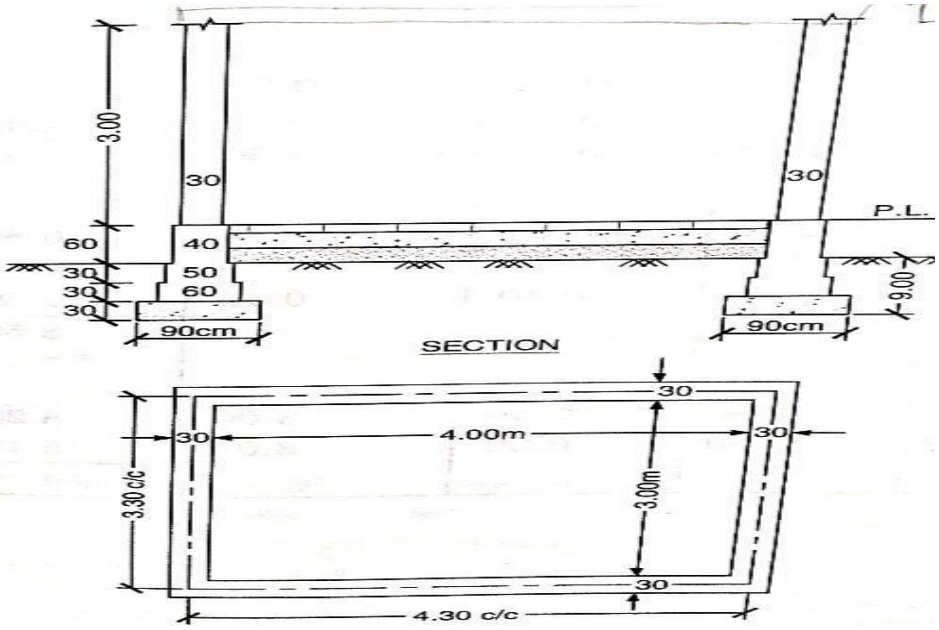


Fig: 8.11 Plan of Cybercafe

➢ *Mission*

- ❖ To bridge the gap between the 'Information Rich and the Information Poor'.
- ❖ Transformation of Governance to provide efficient, transparent and convenient services to the Citizens through Information & CommunicationTechnologies.
- ❖ Improving public service delivery by making services accessible to the commonman in her/his locality.

➢ *Benefit*

- ❖ There is no any service centre for villager facilities.
- ❖ So, we have prepared a design for E-center keeping the view to avail facilities in Palsana.
- ❖ E-Center design has been made under the Vishwakarma yojana p roject digital facility infrastructure.

SR. NO	ITEM DESCRIPTION	NO.	LENGTH	BREADTH	HEIGHT	QUANTITY
1	Earth work In excavation for foundation					
	Longwall	2	5.2	0.9	0.9	8.42
	Shortwall	2	2.4	0.9	0.9	3.89
				Total Quantity=		$12.308M^3$
2	PCC					
	Longwall	2	5.2	0.9	0.3	2.808
	Shortwall	2	2.4	0.9	0.3	1.296
				Total Quantity=		$4.104M^3$
3	Brick Work					
	Footing:1					
	Longwall	2	4.9	0.6	0.3	1.764
	Shortwall	2	2.7	0.6	0.3	0.972
	Footing:2					
	Longwall	2	4.8	0.5	0.3	1.44
	Shortwall	2	2.8	0.5	0.3	0.84
	Footing:3(upto ground level)					
	Longwall	2	4.7	0.4	0.6	2.256
	Shortwall	2	2.9	0.4	0.6	1.392
	Footing:4(up to plinth level)					
	Longwall	2	5.2	0.2	0.85	1.768
	Shortwall	2	3.4	0.2	0.85	1.16

				Total Quantity=		**8.09M^3**
4	**RCCSlab**	**1**	**4.6**	**3.6**	**0.12**	**1.98**
				Total Quantity=		**1.98M^3**
5	**Super Structure**					
	Longwall	**2**	**4.6**	**0.3**	**3**	**8.28**
	Shortwall	**2**	**3.0**	**0.3**	**3**	**5.4**
				Total Quantity=		**22.344M^3**
6	**Deduction**					
	OpeningD	**1**	**1.1**	**0.2**	**2.1**	**0.462**
	WindowW	**1**	**1.8**	**0.2**	**1.4**	**0.504**
				Total Quantity=		**-0.966M^3**
7	**Deduction For Lintels above door and Windows with 15cm bearing at each end**					
	Door(D)	**1**	**1.4**	**0.2**	**0.15**	**0.042**
	Window(W)	**1**	**2.1**	**0.2**	**0.25**	**0.063**
				Deduction=		**-0.105M^3**
					Net Quantity=10.34-0.966-0.105=9.269M^3	
8	**Smooth Plastering**					
	Outside Wall	**4**	**4.3m**	**-**	**3.0**	**55.32**
	Inside Wall	**4**	**3.0m**	**-**	**3.0**	**43.2**
	Celing	**1**	**4.6**	**3.6**	**-**	**16.56**
	Deduction					
	D	**0.5**	**1.1**	**-**	**2.1**	**1.155**
	W	**0.5**	**1.8**	**-**	**1.4**	**1.26**
				Total Quantity=		**112.51M^3**
9	**Door Wood Work**	**1**	**1.1**	**0.2**	**2.1**	**0.462**
				Total Quantity=		**0.462M^3**

10	**Window Wood Work**	**1**	**1.8**	**0.2**	**1.4**	**0.504**
				Total Quantity=		**0.462M^3**
111	**Ventilator Wood Work**	**1**	**0.5**	**0.5**	**1**	**0.250**
				Total Quantity=		**0.250M^3**

Measurement Sheet Of cybercafe

Abstract Sheet Of cybercafe

SR. NO	ITEM DESCRIPTION	QUANTITY	RATE	PER	AMOUNT (RS.)
1	**Excavation in Foundation**	**18.572M^3**	**100**	**M3**	**1857.2**
2	**Concreting in foundations**	**5.832M^3**	**3200**	**M3**	**18662.4**
3	**Brick work (1:6)**	**8.09M^3**	**3200**	**M3**	**25888**
4	**RCC Slab**	**1.98M^3**	**5500**	**M3**	**10890**
5	**Brick work in super structure**	**9.269M^3**	**3500**	**M3**	**32441.5**
6	**Smooth Plastering**	**112.51M^2**	**150**	**M2**	**16821**
		Total Amount			**106559**
		Add 3% contingenciesRs			**3196**
		Add 2%charged establishmentRs.			**2131**
		Grand total			**111886**
		For1 Sq. Mt			**1118.86**

8.1.6 Heritage Village Design (WasteWaterTreatment)

- *Introduction*

❖ Water scarcity has become a major issue in today's world. The presentsc Bhatrio demands the need of conserving water resources. In addition, there is lot of advanced technologies developed in purifying and recycling wastewater produced. The recycled water is stored in the tank and used whenever the need arises.

❖ The underground water table is low and reducing because of poor rainfall. The rate of natural recharging in the aquifer has become slow due to the low amount

of rainfall. In addition, the water in the borehole is diminishing very fast and need for boreholes are increase ng. Hence, the process of Purifying and recycling water is the need of the present. Activated charcoalis increasing lyused for purifying water. There cycled water can be used for multipurposes.

- *Objective*

The main objective of this Activated charcoal filtering tank is to meet the water needs ofthe Palsana village people. Charcoal is used to remove contaminants and impurities, using chemical adsorption active. Charcoal carbon filters are most effective at removing chlorine, sediment, volatile organic compounds (VOCs), taste and odor from water. The purified wateris stored in underground tank. The water is pumped and stored in overhead tanks.

The recycled water is used to meet the water needs of the Palsana village people. The wastewater generated from the village including water from the bathrooms, kitchen sink sand the laundry is recycled and usedfor cleaning and other purposes.

- *DataCollection*
  - Capacityoftank= 70000liters
  - Sizeof filtration tank =5.5 m X2.6m X 4 m
  - Sizeof storage tank= 7.6 mX 4.5 mX 2 m

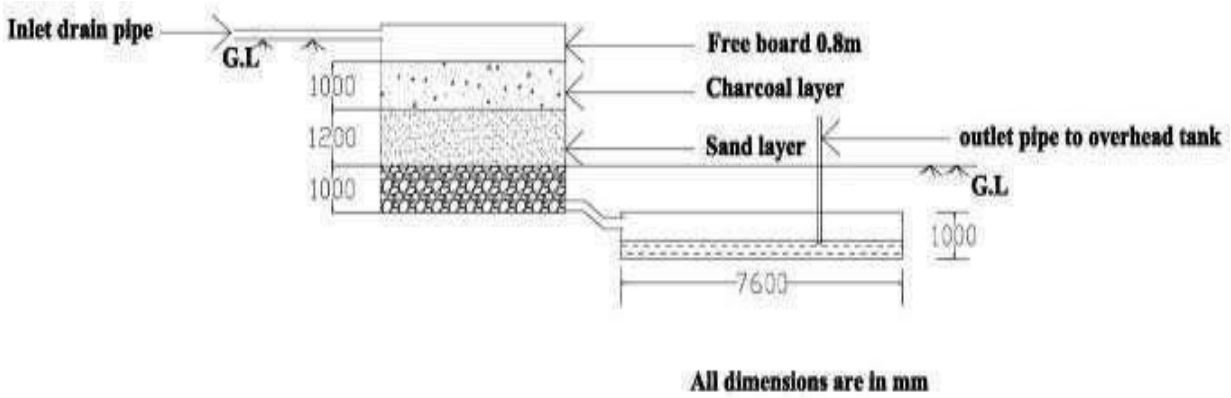


Fig8.12 Wastewater filtration unit

- *Analysis of waste waterout flow*
  - Averagewaste wateroutflow = 15000lit/day (assume)
  - Factorof safety = 1.5
  - Total amount of waste water flow out flow=15000X1.5=**22500lit/d**
- *Filtration Unit Details*
  - Materials: Activated charcoal, coarse aggregate, Fine aggregate.
  - Top Layer: Activated Charcoal,
  - Middle Layer: Fine Aggregate,
  - Bottom Layer: Coarse Aggregate.

- *PROCESS OF MODEL FILTRATION UNIT*
  - **Collection of Materials**
    - Sand
    - Aggregate
    - Charcoal
- *Cleaning of Materials*-Clean sandand aggregate
- *Filing the Materialsin Model Filtration Unit*
  - Top Layer: Activated Charcoal
  - Middle layer: Fine Aggregate
  - Bottom layer: Coarse Aggregate
  - P^hValue -6.5to 7.5

Abstract Sheet For WasteWater Treatment

SR. NO	ITEM DESCRIPTION	QUANTITY	RATE	PER	AMOUNT (RS.)
1	Sand	2 TON	1500	Ton	3000
2	Aggregate	1.5 TON	700	Ton	1100
3	Activated Charcoal	215 Kg.	60	Kg	12900
4	Pipe (40 mm Dia.)	100 M	410	M	41000
5	Other Plumbing item	-	-	-	5000
6	Other construction and labour cost	-	-	-	15000
		Total Amount			78000
		Add 3% contingenciesRs			2340
		Add 2%charged establishmentRs.			1560
		Grand total			81900
		For1 Sq. Mt			8190.00

8.1.7 Electrical Design 1

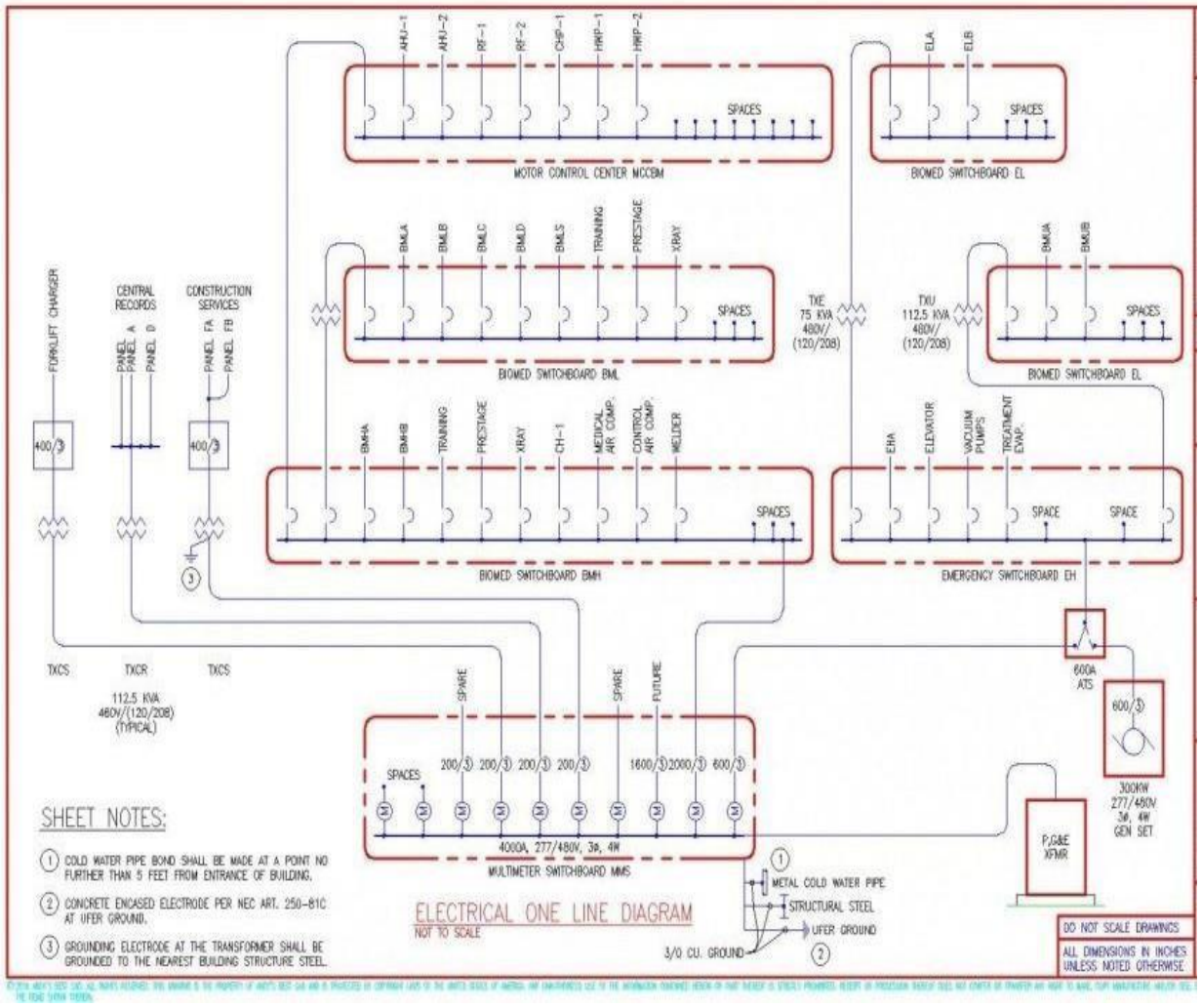


Fig8.13 Main Feeder Line

Explaination:-

- In telecommunications, a feeder line branches from a main line or trunk line.
- In electrical engineering, a feeder line is a type of transmission line. In addition Feeders are the power lines through which electricity is transmitted in power systems. Feeder transmits power from Generating station or substation to the distribution points.
- They are similar to distributors except the fact that there is no intermediate tapping done and hence the current flow remains same at the sending as well as the receiving end. In radio engineering, a feeder connects radio equipment to an antenna, usually *open wire* (air-insulated wire line) or twin-lead from a shortwave transmitter. In power engineering, a feeder line is part of an electric distribution network, usually a radial circuit of intermediate voltage.

Definition:-

- A **feeder line** is a peripheral route or branch in a network, which connects smaller or more remote nodes with a route or branch carrying heavier traffic. The term is applicable to any system based on a hierarchical network.

Technology:-

- Technology related to main feeder line is SCADA.
- At 132 kV, which can be class as either a distribution or transmission network.
- The protection that is akin to that used for the protection of transmission networks is employed.

Cost :-

- Main Feeder line costs minimum 5,000/- to maximum 6,000/-.

8.1.8 Electrical Design 2

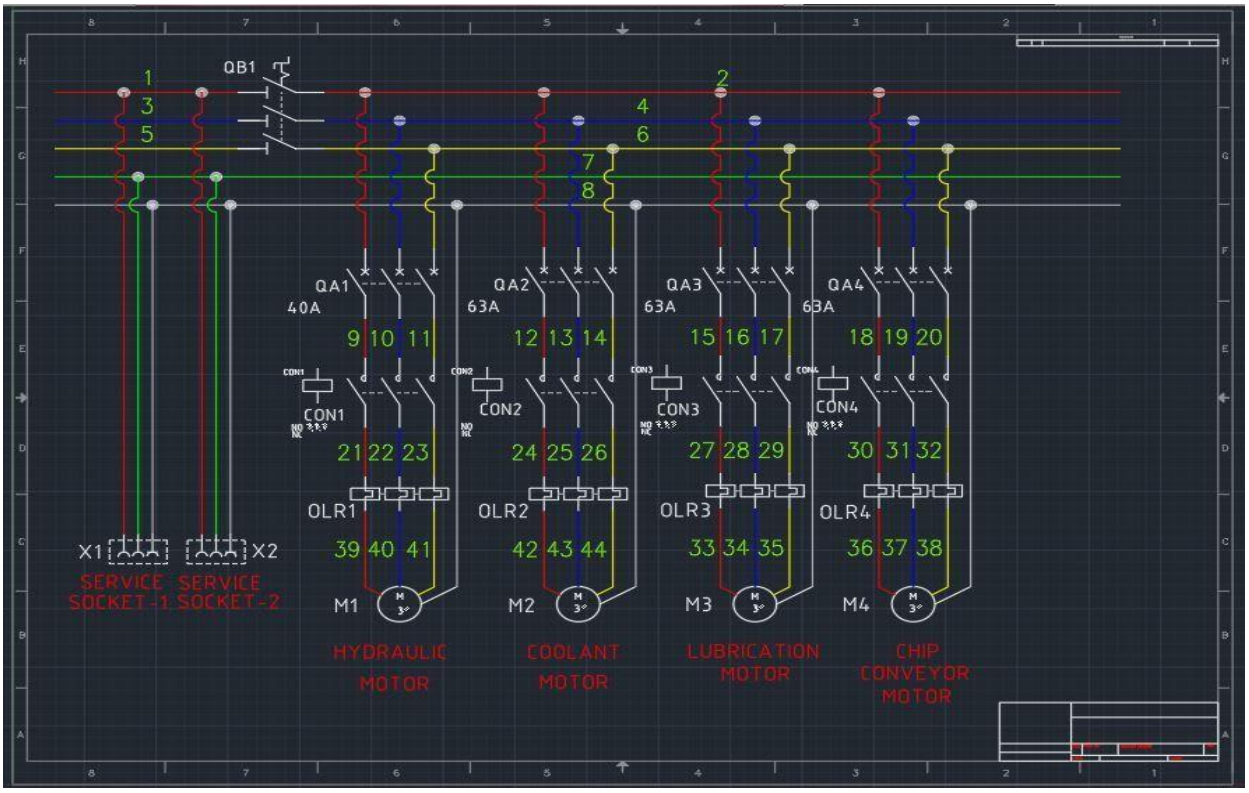


Fig8.14 Single phase line and three phase line with Single line diagram

Explaination:-

- In electricity, the phase refers to the distribution of a load
- Single-phase power is a two-wire alternating current (ac) power circuit. Typically, there is one power wire—the phase wire—and one neutral wire, with current flowing between the power wire (through the load) and the neutral wire.
- Three-phase power is a three-wire ac power circuit with each phase ac signal 120 electrical degrees apart.

Definition:-

- Three-phase power can be defined as **the common method of alternating current power generation, transmission, and distribution**. It is a type of polyphase system and is the most common method used by electric grids worldwide to transfer power.

Technology:-

- Technology related to Single phase line and three phase line is SCADA.
- SCADA in power system can be defined as the power distribution application which is typically based on the software package.
- The electrical distribution system consists of several substations; these substations will have multiple numbers of controllers, sensors and operator-interface points.

Cost:-

- Single phase line costs minimum 1500/- to maximum 3000/-.
- Three phase line costs 4000/-.

8.1.9 Electrical Design 3

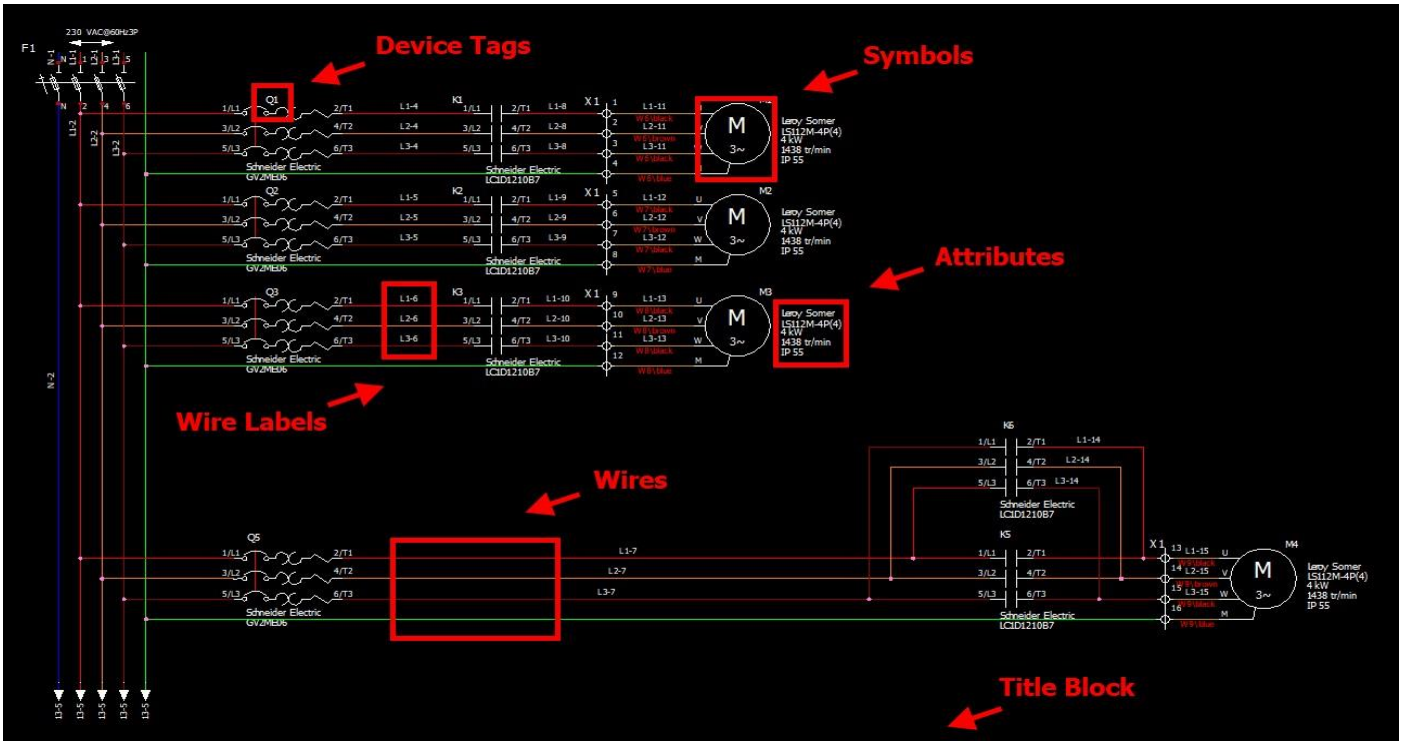


Fig8.15 Tree line Diagram

Explaination:-

- **Electronic packaging** is the design and production of enclosures for electronic devices ranging from individual semiconductor devices up to complete systems such as a mainframe computer.
- Packaging of an electronic system must consider protection from mechanical damage, cooling, radio frequency noise emission and electrostatic discharge.
- Mass-market consumer devices may have highly specialized packaging to increase consumer appeal. Electronic packaging is a major discipline within the field of mechanical engineering.

Definition:-

- Power electronic packaging is one of the fastest changing areas of technology in the power electronic industry due to the rapid advances in power integrated circuit (IC) fabrication and the demands of a growing market in almost all areas of power electronic application such as portable electronics, consumer electronics, home electronics, computing electronics, automotive, railway and high/strong power industry.

Technology:-

- Thermal management technology is used for high power device packaging.

Cost:-

- Tree line diagram costs minimum 8000/- to maximum 10000/-.per floor.

8.2 Reason For Students Recommending This Design

- There is no wastewater management system and reuse of water for other purpose villagers generally dispose wastewater into river through drainage system. So we design wastewatermanagement system as a sustainable infrastructure design.
- There is no health facility in Palsana village then improve health of people we design Government Dispensary as a social infrastructure design to improve health of village people.
- There is no Avedo in the village for drinking and feeding of cattles so it is necessary to provide it.
- For online facility we have design E-Suvidha Center for village peoples.
- In village there is no library for book reading and students have to travel outward for this purpose we have design library for physical comfort.
- There is no Solid waste management. So we design as a Sustainable infrastructure design In many houses meters are not available so through this meter facilities are fulfilled by this meter design.
- Through the design of single phase and three phase in one space it can reduces the installation space in village. Through which the land for agriculture and for other purpose can be safe.
- People of village get employed through this project.

8.3 About Designs Suggestions/ Benefit Of The Villagers

- Due to construction of Government Dispensary in the village the people will get health facility.
- Due to construction of E-Suvidha center in the village's people not go to outside of village for Online facility.
- Due to construction of public library in the village the students will get a good environment for the study.
- Villagers give sussuggestions that they require Avedo, public garden, Solid Waste Management, Wastewater Treatmentetc. which is help full for villagers.
- Villagers get meter connection in there house through the Main feeder line.

- The Power packaging design the house in the village from the unwanted current through the line. For example, if some unwanted power is coming through the sub station in the line, the power packaging device control this current and give safety for a bigshort circuit. Through power packaging device the line does not disturbed by the unwanted power.
- Reduced line loss. The distribution substation is the electrical hub for the distribution network.
- Power quality. Mitigation equipment is essential to maintain power quality over distribution feeders.
- Energy cost reduction.
- Power electronics packages provide mechanical support, device protection, cooling and electrical connection and isolation.
- A three-phase circuit provides greater power density than a one-phase circuit at the same amperage, keeping wiring size and costs lower.
- For starters, single-phase motors are less expensive to manufacture than most other types of motors.

Chapter-9
Proposing Designs For Future Development Of The Village For The PART-II

- The study is aimed to know the basic scenario of village through techno-economic survey and gap analysis done.
- Through our study we will try to makea master development plan of the village.
- Our master development plan might be including provisions of all the facilities suggest by us, then we focus on the improvement in the existing facilities. Our aim is to work according to new upcoming T.P. scheme in Palsana Village.
- In next part we will design Medical shop, Public toilet, Public library, Bank, Post office and Student stationary shop.
- One this all basic facilities is available in Palsana Village, then we should focus on making the village smarter by adopting various technology.
- In new designs proposed by as, we should focus on regular maintenance of these facilities. Because due to lack of maintenance peoples will avoid to use and hence it become obsolete. For maintenance purpose we should provide a maintenance plan which is economical and effective. It can be done by villagers them self.
- In this way with coordination between various Government agencies, we can develop Palsana village in better way as other smart or model villages.

Chapter-10
Conclusion of the Entire Village Activities of the Project

- We discuss with Palsana, Paliyad and Bhat village authorities and dwellers of village and filled different types of survey for demand analyze it. Using techno-economic survey we get existing condition of village like demographical details, geo-graphical details, occupational detail, physical infrastructure details, social infrastructure details, socio-cultural facilities, sustainable infrastructure facilities, andother facilities.
- By use of Gap Analysis we compare all the available facilities and required facilities in Palsana village. We observe available amenities in village like, road network, drinking water facility, educational facility, sanitation facility, transportation facility, and renewable source facility. We also observe which facilities are required for batter growth of village by interaction with different authorities of ideal village and smart village.
- By providing this required facility to village, development and growth of village can be possible. Soultimately migration rate and urban city pressure can be reduce and livelihood of village dweller willincrease.
- An approach that will be used successfully when planning for the future of a community involves preceding the planning process with an exercise designed to develop vision of the future for the "Vishwakarma Yojana". By developing Rural India, the future scenario for urbanization can be change in Sustainable manner.
- And lastly this project is helped us to understand our skills and make it even batter. We got deep knowledge about development of village and various infrastructure facility design of village. Lastly we enjoyed the informational as well as practical journey of civil work.
- We are proposing a design base on our survey, knowledge and Gap analysis to village for its development. Following are all design we propose for a village are:
    - Solid Waste Management
    - Animal Water Pond (Avedo)
    - Government Clinic
    - Public Garden
    - Cyber Cafe
    - Waste-Water Treatment

Chapter-11
References Refered For This Project

- IS456:2000 (ReinforcedConcretestructure).
- IS875:1987 (Load calculationforSlab).
- SP16 (design of steelas per IS 456).
- IS962:1989 (Codeof Practicefor Architecturaland BuildingDrawings).
- IS1553:1989 (Designof LibraryBuilding)
- Censusof India (www.censusindia.gov.in)
- UDPFInorms2014 (www.mohua.gov.in)
- SwachhbharatMission (www.swachhbharatmission.gov.in)
- VishwakarmaYojana (www.vyojana.gtu.ac.in)
- GoogleMap (www.google.com/maps/)
- OtherWebsite
  - www.rural.nic.in
  - www.saanjhi.gov.in
  - www.swaniti.in
  - https://panchayat.gujarat.gov.in
  - www.giftgujarat.in
  - www.gujaratindia.gov.in
  - www.nrega.nic.in
  - www.cag.gov.in
  - www.gujarattourism.in

Chapter-12
Annexure Attachment

12.1 Survey from Ideal Village Scanned copy attachment in the report for Part-1

Gujarat Technological University, Ahmedabad, Gujarat — Vishwakarma Yojana: Phase VIII Techno Economic Survey

Techno Economic Survey

For

Vishwakarma Yojana: Phase VIII

IDEAL VILLAGE SURVEY

An approach towards Rurbanisation for Village Development

Name of Village:	BHAT VILLAGE
Name of Taluka:	GANDHINAGAR
Name of District:	GANDHINAGAR
Name of Institute:	Shree Swaminarayan Institute of Engg. & Tech
Nodal Officer Name & Contact Detail:	MONIKA BHATT / KRUSHNAKANT PATEL 9712963286 / 7777999656
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	RAHUL PATEL
Date of Survey:	08 - 03 - 2021

1. **Demographical Detail:**

Sr. No.	Census	Population	Male	Female	Total House Holds
i)	2001	–	–	–	–
ii)	2011	6,823	3,634	3,189	1,430

2. **Geographical Detail:**

Sr. No.	Description	Information/Detail
i)	Area of Village (Approx.) (In Hector) Coordinates for Location:	694 - 95 - 05
	Forest Area (In hect.)	–
	Agricultural Land Area (In hect.)	298 - 80 - 34
	Residential Area (In hect.)	102 - 57 - 75
	Other Area (In hect.)	
	Water bodies	17 - 31 - 08
	Nearest Town with Distance:	MOTERA 4.6 km

3. **Occupational Details:**

Name of Three Major Occupation groups in Village	1. GIOVERNMENT EMPLOYEES 2. LABOUR WORKERS 3. PRIVATE SECTORS

4. **Physical Infrastructure Facilities:**

Sr. No.	Descriptions	Detail	Adequate	Inadequate	Remarks
A.	**Main Source of Drinking water**				
	• Tap Water (Treated/ Untreated) • RO Water • Well (Covered/ Uncovered) • Hand pumps • Tube well/ Borehole	Yes	✓		
	• River/ Canal/ Spring/ Lake/ Pond	Yes (canal)	✓		
	Suggestions if any:				
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:	80,000	2 Nos	
	Underground Sump	Capacity:			
	Suggestions if any:				
C.	**Drainage Facility**				
	Available (Yes/ No)	Yes	✓		Under ground
	Suggestions if any:				
D.	**Type of Drainage**				
	Closed/ Open	Closed	✓		
	If Open than Pucca / Kutchcha	NO	✓		
	Whether drain water is discharged directly in to Water bodies/ Sewer plants	Yes	✓		
	Suggestions if any:				

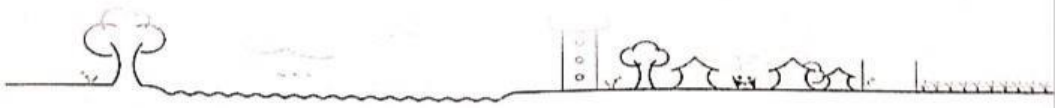
E.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	Yes	✓		All weather
	Main road	Yes	✓		
	Internal streets	Yes	✓		RCC
	Nearest NH/SH/MDR/ODR Dist. in kms.	SH71	✓		
Suggestions if any:					
F.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	Yes	✓		Gandhi nagar (15 kms)
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Yes	✓		At village
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Yes	✓		Auto, Jeep etc.
Suggestions if any:					
G.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Yes	✓		24 hrs GEB
	Power supply for Domestic Use	Yes	✓		
	Power supply for Agricultural Use	Yes	✓		
	Power supply for Commercial Use	Yes	✓		
	Road/ Street Lights	Yes	✓		LED

	Electrification in Government Buildings/ Schools/ Hospitals	Yes	✓		
	Renewable Energy Source Facilities (Y/ N)	No		✓	
	LED Facilities	Yes			
Suggestions if any:					
II.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	Yes	✓		5 Nos
	Location Condition	Good	✓		
	Community Toilet (With bath/ without bath facilities)	No		✓	
	Solid & liquid waste Disposal system available	Yes	✓		
	Any facility for Waste collection from road	No		✓	
Suggestions if any:					
I.	**Irrigation Facility:**				
	Main Source of Irrigation (Stream/River/ Canal/ Well/ Tube well/ Other)	Canal And Pipe	✓		
Suggestions if any:					
J.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	Good	✓		100% Pucca houses

5. **Social Infrastructural Facilities:**

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks

K.	**Health Facilities:**				
	Sub center/ PHC/ CHC /Government Hospital/ Child welfare & Maternity Homes (If Yes than specify No. of Beds) Condition:	Yes NO Good			PHC
	Private Clinic/Private Hospital/ Nursing Home	Yes	✓		Good
	If any of the above Facility is not available in village than approx. distance from village: ..1.....kms. to Gandhinagar Highway				
Suggestions if any:					
L.	**Education Facilities:**				
	Aaganwadi/ Play group	Yes	✓		
	Primary School	Yes	✓		
	Secondary school	Yes	✓		
	Higher sec. School	Yes	✓		
	ITI college/ vocational Training Center	NO		✓	
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	Yes	✓		
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				
Suggestions if any:					
M.	**Socio- Culture Facilities**				
	Community Hall (With or without TV) Location:	Yes	✓		



	Condition:	Good			
	Public Library (With daily newspaper supply: Y/N) Location: Condition:	No		✓	
	Public Garden Location: Condition:	No		✓	
	Village Pond Location: Condition:	No		✓	
	Recreation Center Location: Condition:	No		✓	
	Cinema/ Video Hall Location: Condition:	Yes Good	✓		
	Assembly Polling Station Location: Condition:	Yes Good	✓		
	Birth & Death Registration Office Location: Condition:	Yes Good	✓		
If any of the above Facility is not available in village than approx. distance from village: .....kms.					
Suggestions if any:					
N.	**Other Facilities**				
	Post-office	Yes	✓		
	Telecommunication Network/ STD booth	No		✓	

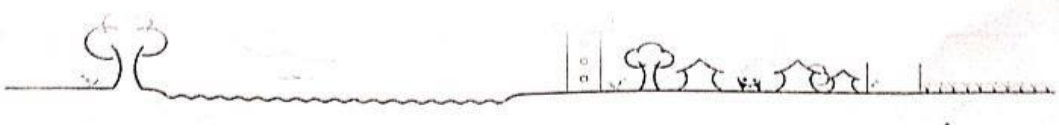
	General Market	Yes	✓		
	Shops (Public Distribution System)	Yes	✓		
	Panchayat Building	Yes	✓		
	Pharmacy/Medical Shop	Yes	✓		
	Bank & ATM Facility	Yes	✓		
	Agriculture Co-operative Society	Yes	✓		
	Milk Co-operative Soc.	Yes	✓		
	Small Scale Industries	No		✓	
	Internet Cafes/ Common Service Center/Wi Fi	No		✓	
	Other Facility	Yes	✓		
Suggestions if any:					

6. **Sustainable /Green Infrastructure Facilities:**

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
O.	Adoption of Non-Conventional Energy Sources/ Renewable Energy Sources	No		✓	
P.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	NO		✓	
Q.	Any Other				

7. **Data Collection From Village**

Village Base Map Available: Hard Copy/Soft Copy	Yes



Recent Projects going on for Development of Village	
Any NGO working for village development	

8. Additional Information/ Requirement:

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Repair & Maintenance of Existing Public Infrastructure facilities(School Building, Health Center, Panchayat Building, Public Toilets & any other)		
2.	Additional Information/ Requirement		

9. Smart Village Proposal Design

Sr. No.	Descriptions	Information/ Detail	Remarks
1.			

Note: Photographs/ Video/ Drawings of all existing Infrastructure facilities & conditions should be taken by students of respective villages for their record and information.

For Any Administration queries/ Difficulties:
GTU VY Section:
Contact No – 079-23267588
Email ID: rurban@gtu.edu.in

DAVE PRANAV P. (186710306010)
PATEL KRUTIK A. (186710306055)
TIWARI VIVEK H. (186710309092)
SWAMINARAYAN COLLEGE OF ENGG. SAIJ, KALOL

To,
Muncipal Councillor/GMC ,
Bhat ,Gandhinagar
Gujarat

Subject:- To visit Bhat for Vishwakarma Yojana Phase-VIII Project.

Respected Sir,

As per above subject, we are studied at Swaminarayan College of Engg. Kalol In Civil Engg and Electrical Engg Department. We select Bhat for the Vishwakarma Yojana phase VIII for training and development of village under university guidelines.

So, please give us permission for visit village for develop our ideas and knowledge.

We are taking responsibility for any kind of misbehavior in village.

Your's Faithfully
Dave Pranav P.
Patel Krutik A.
Tiwari Vivek H.

NODAL OFFICER :-
MONIKA BHATT M.V.Bhatt
KRUSHNAKANT PATEL K Patel

M.V.Bhatt.
H.O.D Sign

Principal Sign
PRINCIPAL
SWAMINARAYAN COLLEGE OF ENGG. & TECH. KALOL (DIPLOMA)

Muncipal Councillor Sign
Clerk

Talati Sign

12.2 SurveyfromofSmartVillage Scanned copy attachment in the report for Part-1

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

Vishwakarma Yojana: Phase VIII

SMART VILLAGE SURVEY

An approach towards **"Rurbanisation for Village Development"**

Name of District:	GIANDHINAGAR
Name of Taluka:	KALOL
Name of Village:	PALIYAD
Name of Institute:	Shree Swaminarayan Institute of Engg & Tech.
Nodal Officer Name & Contact Detail:	MONIKA BHATT / KRUSHNAKANT PATEL 9712963286 7777999656
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	VIPUL PRAJAPATI
Date of Survey:	09-03-2021

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001	-	-	-	-
2.	2011	5442	2790	2652	2700

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	1368 - 69 - 21
2.	Forest Area (In hect.)	-
3.	Agricultural Land Area (In hect.)	1221 - 00 - 21
4.	Residential Area (In hect.)	20 - 12 - 13
5.	Other Area (In hect.)	-
6.	Distance to the nearest railway station (in kilometers):	KALOL 18 kms

7.	Name of Nearest Town with Distance:	KALOL (18kms)
8.	Distance to the nearest bus station (in kilometers):	At Main Gate (500m)
9.	Whether village is connected to all road for the any facility or town or City?	SH 217

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1. AGRICULTURE
	2. GOVERNMENT EMPLOYEES
	3. PRIVATE SECTOR

Major crops grown in the village:	1. COTTON
	2. WHEAT
	3. VEGETABLES

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Detail	Adequate	Inadequate	Remarks
A.	**Main Source of Drinking water**				
1.	**PIPED WATER**	✓			
	Piped Into Dwelling	Yes	✓		
	Piped To Yard/Plot	Yes	✓		
	Public Tap/Standpipe	Yes	✓		
	Tube Well Or Bore Well	Yes	✓		
2.	**DUG WELL**				
	Protected Well	Yes	✓		
	Un Protected Well				
3.	**WATER FROM SPRING**				
	Protected Spring	Yes	✓		
	Unprotected Spring				
	Rainwater				
	Tanker Truck				
	Cart With Small Tank				
4.	**SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/**	Yes			
	Irrigation Channel	Yes	✓		
	Bottled Water				
	Hand Pump	Yes			
	Other(Specify)Lake/ Pond	Yes	✓		

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Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:	2.25 Lkhs	2.50 Lkhs	2 Nos.
	Underground Sump	Capacity:	2.50 Lakh	2.50 Lakh	2 Nos.
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1 2 B. OPEN WITH OUTLET C. OPEN WITHOUT OUTLET	Yes	✓		
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	✓	✓		C C
	Main road	✓	✓		C C
	Internal streets	✓	✓		Cement Concrete Road
	Nearest NH/SH/MDR/ODR Dist. in kms.	SH 217	✓		
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	No			KALOL 18 kms
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Yes	✓		Paliyad Bus Station 0.4 kms
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Auto, Jeep etc	✓		
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Yes	✓		24 hrs

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	Power supply for Domestic Use	Yes	✓		
	Power supply for Agricultural Use	Yes	✓		
	Power supply for Commercial Use	Yes	✓		
	Road/ Street Lights	Yes	✓		
	Electrification in Government Buildings/ Schools/ Hospitals	Yes	✓		
	Renewable Energy Source Facilities (Y/ N)	No		✓	
	LED Facilities	Yes	✓		
Suggestions if any:					
G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	Yes	✓		
	Location Condition	Good			
	Community Toilet (With bath/ without bath facilities)	No	✓		
	Solid & liquid waste Disposal system available	No			
	Any facility for Waste collection from road	No			
Suggestions if any:					
H.	**Main Source of Irrigation Facility:**				
	TANK/POND STREAM/RIVER CANAL WELL TUBE WELL OTHER (SPECIFY)	 ✓ ✓	 ✓ ✓		
Suggestions if any:					
I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	Yes	✓		80% Pucca 20% Kutchha

V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	Yes	✓		
	Sub-Centre	No			
	PHC	Yes	✓		
	BLOCK PHC	Yes	✓		
	CHC/RH				
	District/ Govt. Hospital				
	Govt. Dispensary				
	Private Clinic	Yes	✓		
	Private Hospital/ Nursing Home				
	AYUSH Health Facility				
	sonography /ultrasound facility				
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	Yes	✓		
	Primary School	Yes	✓		
	Secondary school	Yes	✓		
	Higher sec. School	Yes	✓		
	ITI college/ vocational Training Center	No			
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	No			
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				

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Suggestions if any:

L.	Socio- Culture Facilities	Condition	Location	Available (YES)	Available (NO)
	Community Hall (With or without TV)	Good		Yes	
	Public Library (With daily newspaper supply: Y/N)				NO
	Public Garden				NO
	Village Pond			Yes	
	Recreation Center				NO
	Cinema/ Video Hall			-	NO
	Assembly Polling Station			Yes	
	Birth & Death Registration			Yes	

If any of the above Facility is not available in village than approx. distance from village: .....kms.

Suggestions if any:

M.	Other Facilities	Condition	Location	Available (YES)	Available (NO)
	Post-office	Good		Yes	
	Telecommunication Network/ STD booth				NO
	General Market	Good		Yes	
	Shops (Public Distribution System)	Good		Yes	
	Panchayat Building	Good		Yes	
	Pharmacy/Medical Shop				NO
	Bank & ATM Facility	Good		Yes	
	Agriculture Co-operative Society				NO
	Milk Co-operative Soc.	Good		Yes	
	Small Scale Industries				NO
	Internet Cafes/ Common Service Center/Wi Fi				NO
	Youth Club				NO
	Mahila Mandal				NO

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	Credit Cooperative Society Agricultural Cooperative Society Milk Cooperative Society Fishermen's Cooperative Society Computer Kiosk/ e-chaupal / Mills / Small Scale Industries				NO
	Other Facility				

Suggestions if any:

N.	Other Facilities	Condition		Available (YES)	Available (NO)
	1. Have these programme implemented the village?				
	2. Are there any beneficiaries in the village from the following programme?				
	3. Janani Suraksha Yojana				
	4. Kishori Shakti Yojana				
	5. Balika Samriddhi Yojana				
	6. Mid-day Meal Programme				
	7. Intergrated Child Development Scheme (ICDS)				
	8. Mahila Mandal Protsahan Yojana (MMPY)				
	9. National Food for work Programme (NFFWP)				
	10. National Social Assistance Programme				
	11. Sanitation Programme (SP)				
	12. Rajiv Gandhi National Drinking Water Mission				
	13. Swarnjayanti Gram Swarozgar Yojana				
	14. Minimum Needs Programme (MNP)				
	15. National Rural Employment Programme				
	16. Employee Guarantee Scheme (EGS)				
	17. Prime Minister Rojgar Yojana (PMRY)				
	18. Jawahar Rozgar Yojana (JRY)				
	19. Indira Awas Yaojna (IAY)				
	20. Samagra Awas Yojana (SAY)				
	21. Sanjay Gandhi Niradhar Yojana (SGNY)				
	22. Jawahar Gram Samridhi Yojana (JGSY)		1) PDDAY 2) BAAY 3) PMAY	Yes	
	23. Other (SPECIFY)	Good			

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VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Adoption of Non-Conventional Energy Sources/ Renewable Energy Sources	NO		✓	
2.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	NO		✓	
3.	Any Other				

VII. DATA COLLECTION FROM VILLAGE

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Village Base Map Available: Hard Copy/Soft Copy	Yes	✓		
2.	Recent Projects going on for Development of Village	Yes	✓		
3.	Any NGO working for village development	No			
4.	Any natural calamity in the village during the last one year: EARTHQUAKES FLOODS CYCLONE DROUGHT LANDSLIDES AVALANCHE OTHER (SPECIFY)	NO	✓		

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks

DAVE PRANAV P. (186710306010)
PATEL KRUTIK A. (186710306055)
TIWARI VIVEK H. (186710309092)
SWAMINARAYAN COLLEGE OF ENGG. SAIJ,KALOL

To,

Sarpanch ,

Paliyad Village,

Gandhinagar, Gujarat

Subject:- To visit Paliyad Village for Vishwakarma Yojana Phase-VIII Project.

Respected Sir,

As per above subject, we are studied at Swaminarayan College of Engg. Kalol In Civil Engg and Electrical Engg. Department. We select Paliyad village for the Vishwakarma Yojana phase VIII for training and development of village under university guidelines.

So, please give us permission for visit village for develop our ideas and knowledge.

We are taking responsibility for any kind of misbehavior in village.

Your's Faithfully

Dave Pranav P.
Patel Krutik A.
Tiwari Vivek H.

NODAL OFFICER :-

MONIKA BHATT:- M.V. Bhatt.

KRUSHNAKANT PATEL:-

H.O.D Sign:- M.V. Bhatt. J.J. Patel

Principal Sign:-

PRINCIPAL
SWAMINARAYAN COLLEGE OF
ENGG. & TECH. KALOL (DIPLOMA)

Sarpanch Sign

Talati Sign

12.3 SurveyfromofAllocatedVillage Scanned copy attachment in the report for part-1

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

An approach towards "Rurbanisation for Village Development"

Name of District:	GANDHINAGAR
Name of Taluka:	KALOL
Name of Village:	PALSANA
Name of Institute:	Shree Swaminarayan Institute of Engg & Tech.
Nodal Officer Name & Contact Detail:	MONIKA BHATT / KRUSHNAKANT PATEL 9712963286 / 7777999656
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	THAKOR HANSHABEN POPATJI
Date of Survey:	05-03-2021

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001	-	-	-	-
2.	2011	4500	2498	2002	1000

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	1049.19
2.	Forest Area (In hect.)	-
3.	Agricultural Land Area (In hect.)	818.36
4.	Residential Area (In hect.)	230.82
5.	Other Area (In hect.)	
6.	Distance to the nearest railway station (in kilometers):	6 Km KALOL

7.	Name of Nearest Town with Distance:	KALOL 4-Km
8.	Distance to the nearest bus station (in kilometers):	2 Km
9.	Whether village is connected to all road for the any facility or town or City?	Yes

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1.	AGRICULTURE
	2.	PRIVATE SECTOR
	3.	SHOPKEEPER'S

Major crops grown in the village:	1.	COTTON
	2.	WHEAT
	3.	VEGETABLES

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Detail	Adequate	Inadequate	Remarks
A.	**Main Source of Drinking water**				
1.	**PIPED WATER** Piped Into Dwelling Piped To Yard/Plot Public Tap/Standpipe Tube Well Or Bore Well	Yes	✓		
2.	**DUG WELL** Protected Well Un Protected Well	NO	✓		
3.	**WATER FROM SPRING** Protected Spring Unprotected Spring	NO			
	Rainwater Tanker Truck Cart With Small Tank				
4.	**SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/** Irrigation Channel Bottled Water Hand Pump	Yes	✓		

	Other(Specify)Lake/ Pond	NO			
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:	50,000	80,000	2 NOS
	Underground Sump	Capacity:	—	—	—
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1	Yes	✓		
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	Yes	✓		R.C.C Road
	Main road	Yes	✓		Bituminous
	Internal streets	Yes	✓		C.C.
	Nearest NH/SH/MDR/ODR Dist. in kms.	SH 41	Yes		
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	Yes	✓		KALOL 6 Kms
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Yes	✓		At main gate
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	All	✓		
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	GEB	✓		24 hrs

	Power supply for Domestic Use	Good	✓		
	Power supply for Agricultural Use	Good	✓		
	Power supply for Commercial Use	Good	✓		
	Road/ Street Lights	Good	✓		
	Electrification in Government Buildings/ Schools/ Hospitals	Good	✓		
	Renewable Energy Source Facilities (Y/ N)	No			
	LED Facilities	Good	✓		
Suggestions if any:					
G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	No			
	Location Condition				
	Community Toilet (With bath/ without bath facilities)	No			
	Solid & liquid waste Disposal system available	No			
	Any facility for Waste collection from road	No			
Suggestions if any:					
H.	**Main Source of Irrigation Facility:**				
	TANK/POND STREAM/RIVER CANAL WELL TUBE WELL OTHER (SPECIFY)	Good		✓	
Suggestions if any:					
I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)			✓	80 % Pucca 20 % Kutchha

V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)		Yes		
	Sub-Centre			✓	
	PHC			✗	
	BLOCK PHC		Yes		
	CHC/RH			✓	
	District/ Govt. Hospital			✓	
	Govt. Dispensary			✓	
	Private Clinic			✓	
	Private Hospital/		Yes		
	Nursing Home			✓	
	AYUSH Health Facility			✓	
	sonography /ultrasound facility			✓	
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	Yes	✓		
	Primary School	Yes	✓		
	Secondary school	Yes	✓		
	Higher sec. School	Yes	✓		
	ITI college/ vocational Training Center	No			
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	NO			

	If any of the above Facility is not available in village than approx. distance from village: .....kms.				
Suggestions if any:					
L.	**Socio- Culture Facilities**	Condition	Location	Available (YES)	Available (NO)
	Community Hall (With or without TV)	Good		Yes	
	Public Library (With daily newspaper supply: Y/N)				No
	Public Garden				No
	Village Pond				No
	Recreation Center				No
	Cinema/ Video Hall				No
	Assembly Polling Station				No
	Birth & Death Registration Office				No
If any of the above Facility is not available in village than approx. distance from village: .....kms.					
Suggestions if any:					
M.	**Other Facilities**	Condition	Location	Available (YES)	Available (NO)
	Post-office				No
	Telecommunication Network/ STD booth				No
	General Market	Good			
	Shops (Public Distribution System)	Good			
	Panchayat Building	Good			
	Pharmacy/Medical Shop				
	Bank & ATM Facility	Good		Yes (only Bank)	
	Agriculture Co-operative Society				No
	Milk Co-operative Soc.	Good		Yes	
	Small Scale Industries				No
	Internet Cafes/ Common Service Center/Wi Fi				No
	Youth Club				No
	Mahila Mandal				No

	Credit Cooperative Society Agricultural Cooperative Society Milk Cooperative Society Fishermen's Cooperative Society Computer Kiosk/ e-chaupal / Mills / Small Scale Industries				
	Other Facility				

Suggestions if any:

N.	Other Facilities	Condition		Available (YES)	Available (NO)
	1. Have these programme implemented the village? 2. Are there any beneficiaries in the village from the following programme? 3. Janani Suraksha Yojana 4. Kishori Shakti Yojana 5. Balika Samriddhi Yojana 6. Mid-day Meal Programme 7. Intergrated Child Development Scheme (ICDS) 8. Mahila Mandal Protsahan Yojana (MMPY) 9. National Food for work Programme (NFFWP) 10. National Social Assistance Programme 11. Sanitation Programme (SP) 12. Rajiv Gandhi National Drinking Water Mission 13. Swarnjayanti Gram Swarozgar Yojana 14. Minimum Needs Programme (MNP) 15. National Rural Employment Programme 16. Employee Guarantee Scheme (EGS) 17. Prime Minister Rojgar Yojana (PMRY) 18. Jawahar Rozgar Yojana (JRY) 19. Indira Awas Yaojna (IAY) 20. Samagra Awas Yojana (SAY) 21. Sanjay Gandhi Niradhar Yojana (SGNY) 22. Jawahar Gram Samridhi Yojana (JGSY) 23. Other (SPECIFY)				

VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Adoption of Non-Conventional Energy Sources/ Renewable Energy Sources	NO	✓		
2.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	NO	✓		
3.	Any Other				

VII. DATA COLLECTION FROM VILLAGE

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Village Base Map Available: Hard Copy/Soft Copy	Yes	✓		
2.	Recent Projects going on for Development of Village	Yes	✓		
3.	Any NGO working for village development	No			
4.	Any natural calamity in the village during the last one year: EARTHQUAKES FLOODS CYCLONE DROUGHT LANDSLIDES AVALANCHE OTHER (SPECIFY)	NO	✓		

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Repair & Maintenance of Existing Public Infrastructure facilities, School Building Health Center Panchayat Building Public Toilets & any other	—	—
2.	Additional Information/ Requirement	—	—
3.	During the last six months how many times CLEANING ..... FOGGING..... Drive was undertaken in the village?	—	—

IX. Smart Village / Heritage Details

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	IS THEIR ANY THING FOR THE VILLAGE ENHANCEMENT POSSIBLE ?		

Note: Photographs/ Video/ Drawings of all existing Infrastructure facilities & conditions should be taken by students of respective villages for their record and information.

For Any Administration queries/ Difficulties:
GTU VY Section
Contact No – 079-23267588
Email ID: rurban@gtu.edu.in

DAVE PRANAV P. (186710306010)
PATEL KRUTIK A. (186710306055)
TIWARI VIVEK H. (186710309092)
SWAMINARAYAN COLLEGE OF ENGG. SAIJ,KALOL

To,

Sarpanch ,

Palsana Village, Kalol,

Gandhinagar, Gujarat

Subject:- To visit Palsana Village for Vishwakarma Yojana Phase-VIII Project.

Respected Sir,

As per above subject, we are studied at Swaminarayan College of Engg. Kalol In Civil Engg and Electrical Engg. Department. We select Palsana village for the Vishwakarma Yojana phase VIII for training and development of village under university guidelines.

So, please give us permission for visit village for develop our ideas and knowledge.

We are taking responsibility for any kind of misbehavior in village.

Your's Faithfully

Dave Pranav P.
Patel Krutik A.
Tiwari Vivek H.

NODAL OFFICER :-

MONIKA BHATT:- M.V.Bhatt

KRUSHNAKANT PATEL:- K.Patel

H.O.D Sign:- M.V.Bhatt, K.Patel

Principal Sign:-

05-03-2021

01.03.21
- સરપંચ
પાલસાણા ગ્રામ પંચાયત
તા. કલોલ જિ.ગાંધીનગર

SWAMINARAYAN COLLEGE OF ENGG. & TECH DIPLOMA

Talati Sign

12.4 Gap Analysis Of The Allocated Village

VILLAGE GAP Analysis					
Village Facillities	Planning Commission/UDPFI Norms	Village Name:	PALSANA		
		Population:	1055		
		Existing	Required as perNorms	Smart village/cities Heritage Future Projection Design	Gap
SocialInfrastructureFacillities					
Education					
Anganwadi	Each or Per 2500population	1	1	-	0
Primary School	EachPer2500population	1	1	-	0
Secondary School	Per7,500 population	0	0	-	0
Higher Secondary School	Per15,000 Population	0	0	-	0
College	Per125,000 Population	0	0	-	0
Tech. Training Institute	Per100000 Population	0	0	-	0
Agriculture Research Centre	Per100000 Population	0	0	-	0
Skill Development Center	Per100000 Population	0	0	-	0
Health Facility					
Govt/Panchyat Dispensary or Sub PHC or Health Centre	Each Village	0	1	-	-1
Primary Health & Child Health Center	Per 20,000 population	0	0	-	0
Child Welfare and Maternity Home	Per 10,000 population	0	0	-	0

Multispeciality Hospital	Per 100000 Population	0	0	-	0
Public Latrines	1 for 50 families (if toilet is not there in home, specially for slump lockets & kutcha house)	0	1	-	-1
Physical Infrastructure Facilities					
Transportation		**Adequate/ Inadequate**			
PuccaVillageApproach Road	Each village	**Adequate**	-	-	0
Bus/Auto Stand provision	All Villages connectedby PT (ST Bus or Auto)	**Adequate**	-	-	0
Drinking Water (Mini. 70lpcd)		**Adequate**	-	-	0
Over Head Tank	1/3of TotalDemand	**1,00,000**	-	-	0
U/G Sump	2/3of TotalDemand	**1,00,000**	-	-	0
Drainage Network - Open		**-**	-	-	0
Drainage Network - Cover		**Adequate**	-	-	0
Waste Management System		**Inadequate**	NeedaStoragefor waste	-	Need aSystem for wastemanagement
Socio-Cultural Infrastructure Facilities					
Community Hall	Per10000 Population	1	0	-	
Community Hall and Public Library	Per15000 Population	0	0	-	0
Cremation Ground	Per20,000 population	1	0	-	
Post Office	Per10,000 population	0	0	-	0
Gram Panchayat Building	Eachindividual/group panchayat	1	1	-	0

APMC	Per 100000 Population	0	0	-	0
Fire Station	Per 100000 Population	0	0	-	0
Public Garden	Pervillage	0	1	-	-1
Police post	Per 40,000Population	0	0	-	0
Shopping Mall		ShopesAre Available			
Electrical Design					
Electricity Network		Adequate		66KvSub-Station	
Any Smart Village Facility					
Technology					
		ESRcap	0		
		Sumpcap	0		
		Lat	0		

Table12.1 Gap Analysis

12.5 Summary Details Of Allocaed The Villages Designs As Part-I And Part-II,In Table Format

Sr. No	Village	Discipline	Part-I	Part-II
1	Palsana	CIVIL	**Solid Waste Management**	**Medical Shop**
			Animal Water Pond (Avedo)	**Public Toilet**
			Government Clinic	**Public Library**
			Public Garden	**Bank**
			Cybercafe	**Post Office**
			Waste Water Treatment	**Student Stationary Shop**
2	Palsana	ELECTICAL	Main Feeder Line	2 Point Wiring diagram
			Single phase line and three phase line with Single line diagram	House wiring plan Diagram
			Power Packaging Design	Cad wiring Diagram

Table12.2 Summary Details Of All The Villages Designs As Part-I And Part-II

12.6 DrawingA3

Note:- Attached At End Of The Report

12.7 Summary Of Good Photographs In Table Format (Ideal Village, Smart Village & Allocted Village)

Ideal Village (Bhat-Village)

FrontViewOf BHATVillagePHC-GramPanchayatOffice

School, Bhat village

EducationBuildingOf aVillage

❖ Smart Village (Paliyad-Village)

Gram Panchayat Office- PaliyadGramin Bank - Paliyad

Roads of Paliyad

❖ Allocated Village (Palsana-Village)

Main Gate

School

Panchayat office

Bank

Distribution panel

Road

Over head water tanks

12.8 Village Interaction With Sarpanch Report With The Photograph

- ❖ As per the circular GTU guideline, VY section informed all the teams of VishwakarmaYojana to present their work in village for the effective implementation of VishwakarmaYojana. Under this guideline Student's team presented the village development plan of design requirement & benefits at Palsana of village.
- ❖ After going through techno economic survey forms and by doing survey on the field, we addressed our design proposal to people of Palsana. During this we interacted with following persons and sarpanch of the village Mrs. Batukbhai Chauhan to get propersc Bhatrio of various design implementation of our designs mentionedin our report.
- ❖ After interacting with them, defining problems and required designs by UDPFI Guidelines/Gap Analysis we chose following main design proposal for primary importance. From all the designs, we explained the benefits & how it will contribute to village development solving unwanted situationin daily life.

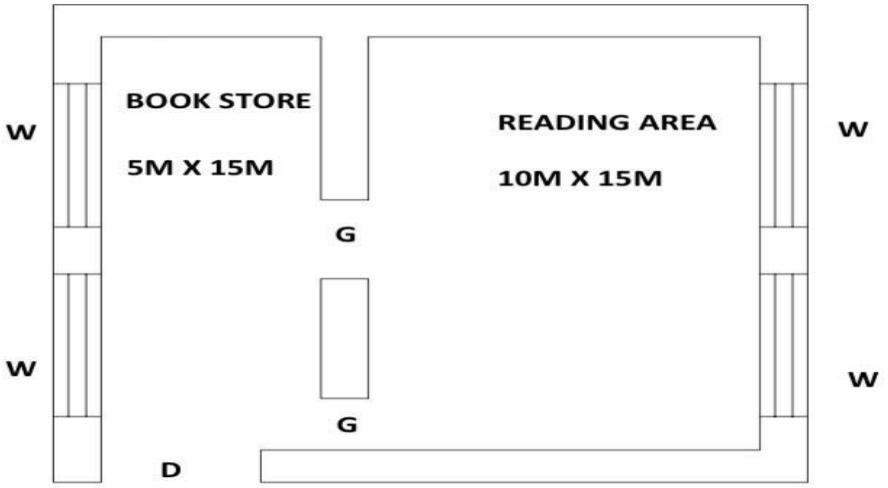
1) Solid Waste Management
2) Animal Water Pond (Avedo)
3) Government Clinic
4) Public Garden
5) Cyber Cafe
6) Waste-Water Treatment

Chapter-13
From the Chapter- 9 future designs of the aspects (Feasibility, Construction, Operation and maintenance of various design optioins in Rural Areas along with cost with AutoCAD designs / planning with any software)

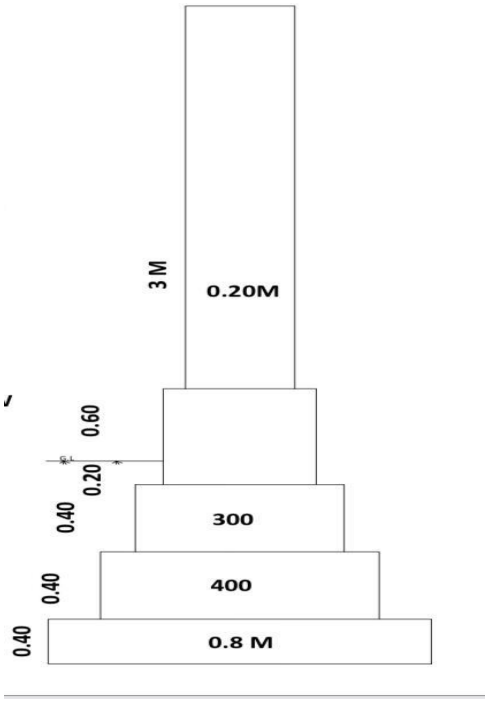
13.1 Design Proposals

- In theVishwakarma Yojana Phase – VII Part – II we have given total six design according to the village need and useful for the villagers.
- The design proposals are:
  - Public Library
  - Medical Shop
  - Public Toilet
  - Stationary Shop
  - Bank
  - Post Office

13.1.1 Public Liberary



D	1.2 X 2.1 M
W	1.5 X 1.2 M
G	1.2 X 2.1 M



- All the dimensions are in meter.
- The area of Public Liberary is 15 x 15 m.
- 2.5cm mortar be disused.

- 7.5cm BBCC is used above earth filling.
- Earth filling thickness is about 0.45 m.
- The step footing below the ground level is about 1.4m.

Measurement Sheet Of Public Library

SR NO	ITEM DESCRIPTIO N	NO	LENGTH	BREADTH	HEIGHT	QUANTITY
1	Excavation in foundation					
	Long wall	3	16	0.8	1.4	53.76
	Short wall (type 1)	2	4.4	0.8	1.4	9.856
	Short Wall (type 2)	2	9.4	0.8	1.4	21.05
				Total	Quantity	84.67M³
2	Plain cement concrete					
	In foundation (1:2:4)					
	Long Wall	3	16	0.8	0.4	15.3
	Short wall (type 1)	2	4.4	0.8	0.4	2.81
	Short Wall (type 2)	2	9.4	0.8	0.4	6.01
				Total	Quantity	24.1
3	Brick Masnory upto Plinth Level C.M(1:6)					
	Long Wall					
STEP :1	16-0.4 =15.6m	3	15.6	0.5	0.4	9.36
STEP :2	15.6-0.1 =15.5m	3	15.5	0.4	0.4	7.44
STEP :3	15.5-0.1 =15.4m	3	15.4	0.3	0.75	10.3
	Short Wall (Type 1)					
STEP :1	4.4+0.4 =4.8m	2	4.8	0.5	0.4	1.92
STEP :2	4.8-0.1 =4.9m	2	4.9	0.4	0.4	1.56
STEP :3	4.9-0.1 =5m	2	5	0.3	0.75	2.25
	Short Wall (Type 2)					

STEP :1	9.4+0.4 =9.8m	2	9.8	0.5	0.4	3.92
STEP :2	9.8+0.1 =9.9m	2	9.9	0.4	0.4	3.16
STEP :3	9.9+0.1 =10m	2	10	0.3	0.75	4.5
				Total quantity =		44.5M^3
4	Brick Masnory above Plinth level in C.M(1:6)					
	Long wall	3	15.3	0.2	3	27.54
	Short Wall (Type 1)	2	5.1	0.2	3	6.12
	Short Wall (Type 2)	2	10.1	0.2	3	12.12
				Total quantity =		45.78M^3
	Deduction of Dors and Windows					
	D	1	1.2	0.2	2.1	0.504
	W	4	1.5	0.2	1.2	1.44
	G	2	1.1	0.2	2.1	0.924
				Deduction =		-2.868M^3
				Total quantity =		42.651M^3
5	Smooth Plaster inside the Rooms and Celing in C.M(1:6)					
	Plaster of walls					
	Book Store	2	5		3	30
		2	15		3	90
	Reading Area	2	10		3	60
		2	15		3	90
	Plaster of Celing					
	Book Store	1	5	15		75
		1	10	15		150
				Total	Quantity=	495M^3
	Deduction for Doors snd Windows					
	D	0.4	1.2		2.1	1.26
	W	2	1.5		1.2	3.6
	G	2	1.2		2.1	5.04

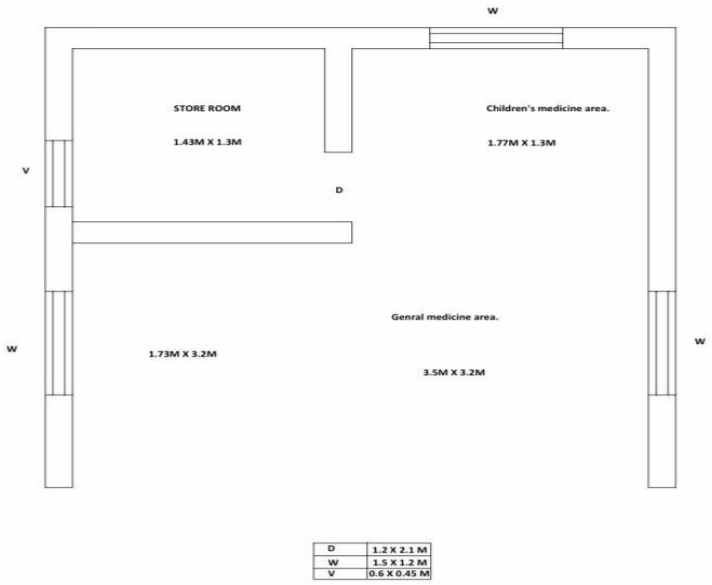
				Total quantity =		9.9m2
				Net Quantity =		485.1m2
6	DPC at Plinth Level					
	Long Wall	3	15	0.4		18
	Short Wall (Type 1)	2	4.9	0.4		3.92
	Short Wall (Type 2)	2	9.9	0.4		7.92
				Total	Quantity=	29.84m2
7	Earth Filling in Plinth					
	Book store	1	14.9	4.9	0.45	32.85
	Reading Area	1	14.9	9.9	0.45	63.3
				Total quantity =		96.22M^2

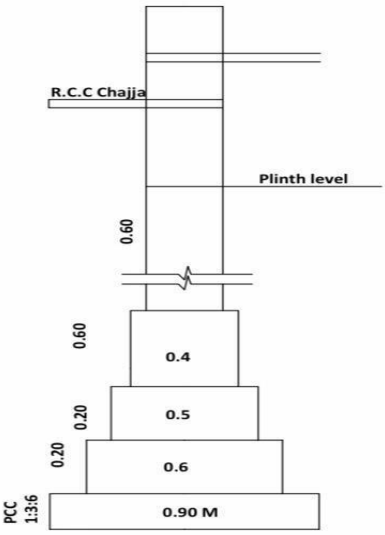
Abstract Sheet Of Public library

SR. NO	ITEM DESCRIPTION	QUANTITY	RATE	PER	AMOUNT
1	Excavation	84.67M^3	85	M3	7197
2	PCC	24.18M^3	3000	M3	72540
3	Brick Masonary Upto Plinth	44.5M^3	3200	M3	142400
4	D.P.C	0.984M^3	4700	M3	4606
5	Brick Masonary For Super Structure	42.651M^3	3500	M3	149278.5
6	Backfill	20.000M^3	50	M3	1000
7	Concreting Below Flooring	3.000M^3	4300	M3	12900
8	Flooring	41.272M^2	450	M2	18572
9	RCC Work	0.673M^3	13000	M3	8749
10	RCC Slab	5.98M^3	8800	M3	52624

11	Partition	31.350M^2	550	M_2	17243
12	Partition Wall	11.400M^2	715	M_2	8151
14	Plaster	485M^2	150	M_2	72750
15	White Washing	220.135M^2	16.00	M_2	3522
16	Door Wood Work	8.820M^2	1600.00	M_2	14112
17	Window Wood Work	1.200M^2	1500.00	M_2	1800
18	Ventilator Wood Work	0.250M^2	1550.00	M_2	388
19	Wash Basing	1NOS.	350.00	NOS.	350
20	Slab				
	Concreting	7.977M^3	4100.00	M_3	32706
	Shuttering	45.580M^2	250.00	M_2	11395
	Rebar	405.000 Kg.	42.00	Kg.	17010
21	Beam				
	Concreting	0.517M^3	4100.00	M_3	2120
	Rebar	36.000 Kg.	42.00	Kg.	1512
		Total Amount			652925
		Add 3% contingenciesRs.			19587
		Add 2%charged establishmentRs.			13058.5
		Grand total			685570.5

13.1.2 Medical Shop





- All the dimensions are in meter.
- The area of Avedo is 15 x 15 m.
- 2.5cm mortar be disused.
- 7.5cm BBCC is used above earth filling.
- Earth filling thickness is about 0.45 m.
- The step footing below the ground level is about 1.4m.

Measurement Sheet Of Medical Shop

SR NO	ITEM DESCRIPTIO N	NO	LENGTH	BREADTH	HEIGHT	QUANTITY
1	Excavation in foundation					
	Long wall	2	5.7	0.9	1.5	15.39
	Short wall (type 1)	2	0.83	0.9	1.5	2.24
	Short Wall (type 2)	1	0.7	0.9	1.5	0.94
	Short Wall (type 3)	1	1.17	0.9	1.5	1.57
				Total	Quantity	$20.14M^3$
2	Plain cement concrete					
	In foundation (1:2:4)					

	Long Wall	2	5.7	0.9	0.3	3.07
	Short wall (type 1)	2	0.83	0.9	0.3	0.44
	Short Wall (type 2)	1	0.7	0.9	0.3	0.18
	Short Wall (type 3)	1	1.17	0.9	0.3	0.31
				Total	Quantity	$4M^3$
3	Brick Masnory upto Plinth Level C.M(1:6)					
	Long Wall					
STEP :1	5.7-2*0.15=5.4m	2	5.4	0.6	0.2	1.29
STEP :2	5.4-2*0.05=5.3m	2	5.3	0.5	0.2	1.06
STEP :3	5.3-2*0.05=5.2m	2	5.2	0.4	0.2	0.83
STEP :4	5.2-2*0.05=5.1m	2	5.1	0.3	1.2	3.67
	Short Wall (Type 1)					
STEP :1	0.83+2*0.15=1.13m	2	1.13	0.6	0.2	0.27
STEP :2	1.13+2*0.05=1.23m	2	1.23	0.5	0.2	0.24
STEP :3	1.23+2*0.05=1.33m	2	1.33	0.4	0.2	0.21
STEP :4	1.33+2*0.05=1.43m	2	1.43	0.3	1.2	1.02
	Short Wall (Type 2)					
STEP :1	0.7+2*0.15=1m	1	1	0.6	0.2	0.12
STEP :2	1+2*0.05=1.1m	1	1.1	0.5	0.2	0.11
STEP :3	1.1+2*0.05=1.2m	1	1.2	0.4	0.2	0.96
STEP :4	1.2+2*0.05m	1	1.3	0.3	1.2	0.46
	Short Wall (type 3)					
STEP :1	1.17+2*0.15=1.47m	1	1.47	0.6	0.2	0.17

STEP :2	1.47+2*0.05=1.57m	1	1.57	0.5	0.2	0.157
STEP :3	1.57+2*0.05=1.67m	1	1.67	0.4	0.2	0.133
STEP :4	1.67+2*0.05=1.77m	1	1.77	0.3	1.2	0.63
				Total quantity =		11.33M^3
4	Brick Masnory above Plinth level in C.M(1:6)					
	Long wall	2	5	0.3	3	9
	Short Wall (Type 1)	2	1.53	0.3	3	2.75
	Short Wall (Type 2)	1	1.4	0.3	3	1.26
	Short Wall (type 3)	1	1.87	0.3	3	1.68
				Total quantity =		14.69M^3
	Deduction of Dors and Windows					
	D	1	1.2	0.3	2.1	0.756
	W	3	1.5	0.3	1.2	1.62
	G	1	0.6	0.3	0.45	0.081
				Deduction =		-2.457M^3
				Total quantity =		12.236M^3
5	Smooth Plaster inside the Rooms and Celing in C.M(1:6)					
	Plaster of walls					
	General Medicine Area	1	1.73		3	5.19
		2	3.2		3	19.2
	Store Room	2	1.43		3	8.58
		2	1.3		3	7.8
	Children's Medicine Area	2	1.77		3	10.62
		2	1.3		3	7.8
	Plaster of Celing					
	General Medicine Area	1	3.5	3.2		11.2
	Store Room	1	1.43	1.3		1.85
	Children's Medicine Area	1	1.77	1.3		2.301
				Total	Quantity=	74.54M^3
	Deduction for Doors snd					

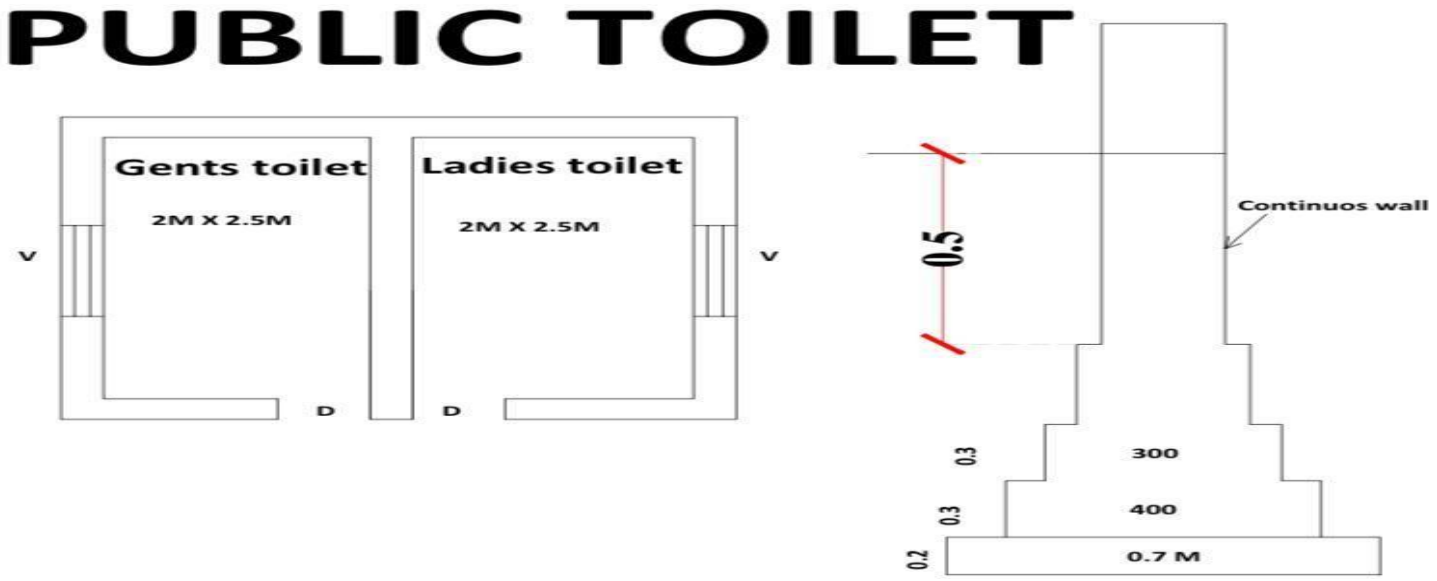
	Windows					
	D	1	1.2		2.1	2.52
	W	1.5	1.5		1.2	2.7
	G	0.5	0.6		0.45	0.135
				Total quantity =		5.355m2
				Net Quantity =		69.185m2
6	DPC at Plinth Level					
	Long Wall	2	5.3	0.3		3.18
	Short Wall (Type 1)	2	1.23	0.3		0.73
	Short Wall (Type 2)	1	1.1	0.3		0.33
	Short Wall (type 3)	1	1.57	0.3		0.471
				Total	Quantity=	4.711m2
7	Earth Filling in Plinth					
	General Medicine Area	1	3.5	3.2	0.48	5.37
	Store Room	1	1.43	1.3	0.48	0.89
	Children's Medicine Area	1	1.77	1.3	0.48	1.10
				Total quantity =		7.36 M^3

Abstract Sheet Of Medical Shop

SR. NO	ITEM DESCRIPTION	QUANTITY	RATE	PER	AMOUNT
1	Excavation	20.14M^3	85	M_3	1712
2	PCC	4M^3	3000	M_3	12000
3	Brick Masonary Upto Plinth	11.33M^3	3200	M_3	36256
4	D.P.C	4.711m2	4700	M_3	22137
5	Brick Masonary For Super Structure	12.236M^3	3500	M_3	42826
6	Backfill	7.36 M^3	50	M_3	368
7	Plaster	69.185m2	150	M_2	10378

		Total Amount	**125677**
		Add 3% contingenciesRs.	**3771**
		Add 2%charged establishmentRs.	**2513.54**
		Grand total	**131962**

13.1.3 Public Toilet



- All the dimensions are in meter.
- The area of Public Toilet is 15 x 15 m.
- 2.5cm mortar be disused.
- 7.5cm BBCC is used above earth filling.
- Earth filling thickness is about 0.48 m.
- The step footing below the ground level is about 1.3m.

Measurement Sheet Of Public Toilet

SR NO	ITEM DESCRIPTIO N	NO	LENGTH	BREADTH	HEIGHT	QUANTITY
1	**Excavation in foundation**					
	Long wall	**3**	**3.4**	**0.7**	**1.3**	**8.44**
	Short wall	**4**	**1.5**	**0.7**	**1.3**	**5.46**
				Total	**Quantity**	**13.9M^3**
2	**Plain cement concrete**					
	In foundation (1:2:4)					

	Long Wall	3	3.4	0.7	0.2	1.42
	Short wall	4	1.5	0.7	0.2	0.84
				Total	Quantity	2.26 M^3
3	Brick Masnory upto Plinth Level C.M(1:6)					
	Long Wall					
STEP :1	3.4-2*0.15=3.1m	3	3.1	0.4	0.3	1.11
STEP :2	3.1-2*0.05=3m	3	3	0.3	0.3	0.81
STEP :3	3-2*0.05=2.9m	3	2.9	0.2	0.5	0.87
	Short Wall					
STEP :1	1.5+2*0.15=1.8m	4	1.8	0.4	0.3	0.86
STEP :2	1.8+2*0.05=1.9m	4	1.9	0.3	0.3	0.68
STEP :3	1.9+2*0.05=2m	4	2	0.2	0.5	0.8
				Total quantity =		5.144M^3
4	Brick Masnory above Plinth level in C.M(1:6)					
	Long wall	3	2.8	0.2	3	5.04
	Short Wall	4	2.1	0.2	3	5.04
				Total quantity =		10.08M^3
	Deduction of Dors and Windows					
	D	2	0.9	0.2	2.1	0.756
	V	2	0.6	0.2	0.6	1.44
				Deduction =		-0.9M^3
				Total quantity =		9.18M^3
5	Smooth Plaster inside the Rooms and Celing in C.M(1:6)					
	Plaster of walls					
	Gents Toilet	2	2		3	12

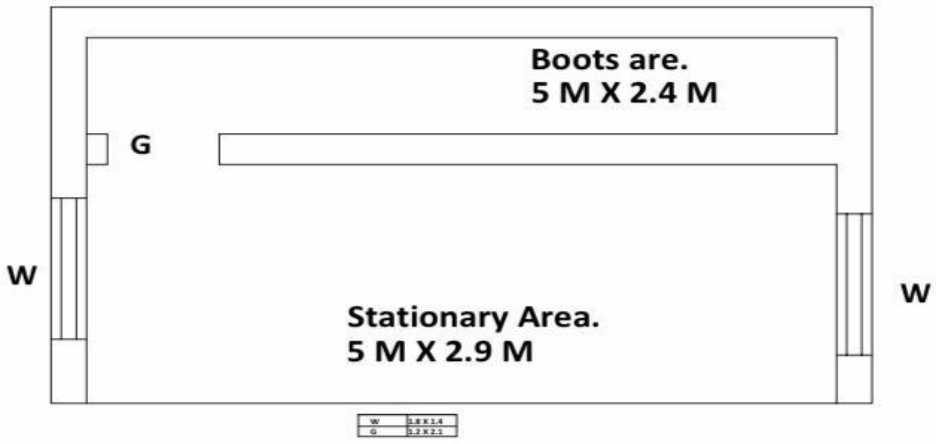
		2	2.5		3	15
	Ladies Toilet	2	2		3	12
		2	2.5		3	15
	Plaster of Celing					
	Gents Toilet	1	2	2.5		5
	Ladies Toilet	1	2	2.5		5
				Total	Quantity=	$64M^3$
	Deduction for Doors snd Windows					
	D	1	0.9		2.1	1.89
	V	1	0.6		0.6	0.36
				Total quantity =		2.25m2
				Net Quantity =		61.75m2
6	DPC at Plinth Level					
	Long Wall	3	3	0.3		2.7
	Short Wall	4	1.9	0.3		2.28
				Total	Quantity=	4.98m2
7	Earth Filling in Plinth					
	Gents Toilet	1	2	2.5	0.48	2.4
	Ladies Toilet	1	2	2.5	0.48	2.4
				Total quantity =		$4.8M^3$

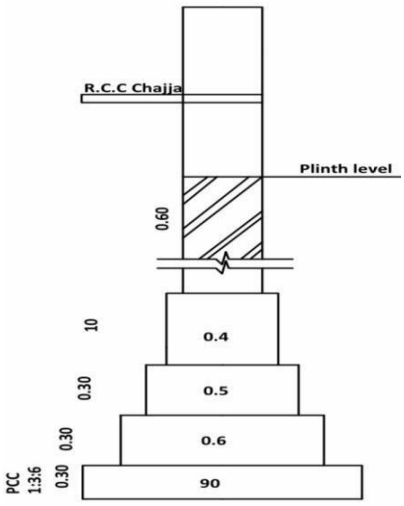
Abstract Sheet Of Public Toilet

SR. NO	ITEM DESCRIPTION	QUANTITY	RATE	PER	AMOUNT
1	Excavation	$13.9M^3$	85	M3	1181.5
2	PCC	$2.26M^3$	3000	M3	6780
3	Brick Masonary Upto Plinth	$5.144M^3$	3200	M3	16460
4	D.P.C	4.98m2	4700	M3	23406
5	Brick Masonary For Super Structure	$9.18M^3$	3500	M3	32130

6	**Backfill**	**4.8M^3**	**50**	**M3**	**240**
7	**Plaster**	**61.75m2**	**150**	**M2**	**9262.5**
		Total Amount			**89460**
		Add 3% contingenciesRs.			**2683.8**
		Add 2%charged establishmentRs.			**1789.2**
		Grand total			**93933**

13.1.4 Stationary Shop





- All the dimensions are in meter.
- The area of Stationary Shop is 15 x 15 m.
- 2.5cm mortar be disused.
- 7.5cm BBCC is used above earth filling.
- Earth filling thickness is about 0.48 m.
- The step footing below the ground level is about 1.5m.

Measurement Sheet Of Stationary Shop

SR NO	ITEM DESCRIPTIO N	NO	LENGTH	BREADTH	HEIGHT	QUANTITY
1	**Excavation in foundation**					

	Long wall	2	6.6	0.9	1.5	17.82
	Short wall	2	4.3	0.9	1.5	11.61
				Total	Quantity	29.43M^3
2	Plain cement concrete					
	In foundation (1:2:4)					
	Long Wall	2	6.6	0.9	0.3	3.56
	Short wall	2	4.3	0.9	0.3	2.32
				Total	Quantity	5.88 M^3
3	Brick Masnory upto Plinth Level C.M(1:6)					
	Long Wall					
STEP :1	6.3-2*0.15=6m	2	6	0.6	0.2	1.44
STEP :2	6-2*0.05=5.9m	2	5.9	0.5	0.2	1.18
STEP :3	5.8-2*0.05=5.8m	2	5.8	0.4	0.8	3.71
	Short Wall					
STEP :1	4.3+2*0.15=4.6m	2	4.6	0.6	0.2	1.10
STEP :2	4.6+2*0.05=4.7m	2	4.7	0.5	0.2	0.94
STEP :3	4.7+2*0.05=4.8m	2	4.8	0.4	0.8	3.07
				Total quantity =		11.44M^3
4	Brick Masnory above Plinth level in C.M(1:6)					
	Long wall	2	5.7	0.3	3	10.26
	Short Wall	2	4.9	0.3	3	8.82
				Total quantity =		19.08M^3
	Deduction of Dors and Windows					
	G	1	1.2	0.3	2.1	0.756
	W	3	1.8	0.3	1.4	2.26
				Deduction =		-3.024M^3
				Total quantity =		16.05M^3

5	Smooth Plaster inside the Rooms and Celing in C.M(1:6)					
	Plaster of walls					
	Books Area	2	5		3	30
		2	2.4		3	14.4
	Stationay Area	1	5		3	15
		2	2.9		3	17.4
	Plaster of Celing					
	Books Area	1	5	2.4		12
	Stationay Area	1	5	2.9		14.5
				Total	Quantity=	103.3M^3
	Deduction for Doors snd Windows					
	G	1	1.2		2.1	2.52
	W	1.5	1.8		1.4	3.78
				Total quantity =		6.3m2
				Net Quantity =		97m2
6	DPC at Plinth Level					
	Long Wall	2	5.1	0.4		4.08
	Short Wall	2	4.8	0.4		3.84
				Total	Quantity=	7.92m2
7	Earth Filling in Plinth					
	Books Area	1	4.9	2.3	0.48	5.40
	Stationay Area	1	4.9	2.8	0.48	6.58
				Total quantity =		11.98M^3

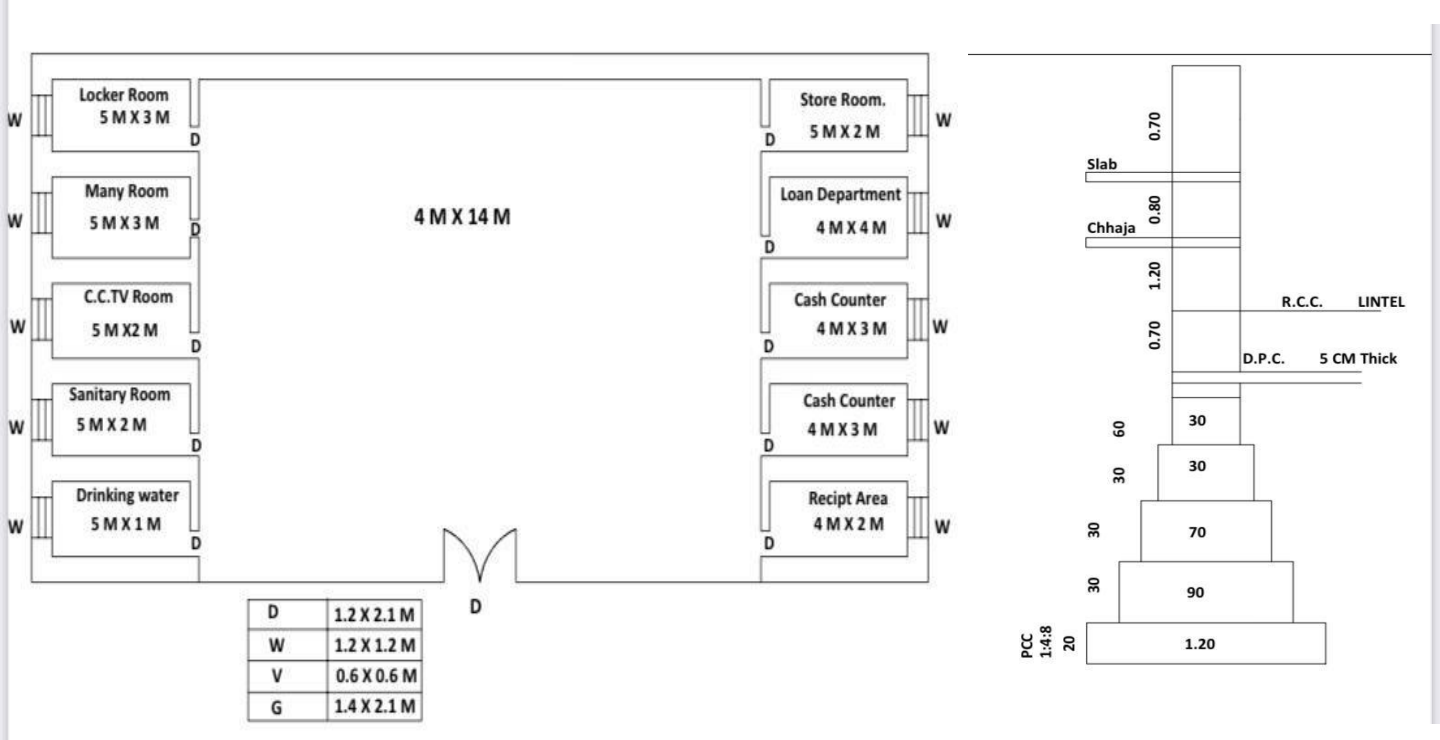
Abstract Sheet Of Stationary Shop

SR. NO	ITEM DESCRIPTION	QUANTITY	RATE	PER	AMOUNT
1	Excavation	29.43M^3	85	M3	2501.5
2	PCC	5.88 M^3	3000	M3	17640

3	Brick Masonary Upto Plinth	11.44M^3	3200	M3	36608
4	D.P.C	7.92m2	4700	M3	37224
5	Brick Masonary For Super Structure	16.05M^3	3500	M3	56175
6	Backfill	11.98M^3	50	M3	599
7	Plaster	97m2	150	M2	14550
		Total Amount			165298
		Add 3% contingenciesRs.			4958.9
		Add 2%charged establishmentRs.			3305.9
		Grand total			173563

13.1.5 Bank

- All the dimensions are in meter.



- The area of Bank is 13 x 14 m.
- 2.5cm mortar be disused.

- 7.5cm BBCC is used above earth filling.
- Earth filling thickness is about 0.55 m.
- The step footing below the ground level is about 1.1m.

Measurement Sheet Of Bank

SR NO	ITEM DESCRIPTIO N	NO	LENGTH	BREADTH	HEIGHT	QUANTITY
1	Excavation in foundation					
	Long wall	4	15.7	1.2	1.1	82.89
	Short wall (type 1)	6	4.1	1.2	1.1	32.47
	Short Wall (type 2)	8	3.1	1.2	1.1	32.73
				Total	Quantity	148.09M^3
2	Plain cement concrete					
	In foundation (1:2:4)					
	Long Wall	4	15.7	1.2	0.2	15.07
	Short wall (type 1)	6	4.1	1.2	0.2	5.9
	Short Wall (type 2)	8	3.1	1.2	0.2	5.9
				Total	Quantity	26.872M^3
3	Brick Masnory upto Plinth Level C.M(1:6)					
	Long Wall					
STEP :1	15.7-2*0.15=154m	4	15.4	0.9	0.3	16.6
STEP :2	15.4-2*0.1=15.2m	4	15.2	0.7	0.3	12.7
STEP :3	15.2-2*0.1=15m	4	15	0.5	0.3	9
STEP :4	15-2*0.1=14.8m	4	14.8	0.3	0.55	9.76
	Short Wall (Type 1)					
STEP :1	4.1+2*0.15=4.4m	6	4.4	0.9	0.3	7.12

STEP :2	4.4+2*0.1=4.6m	6	4.6	0.7	0.3	5.79
STEP :3	4.6+2*0.1=4.8m	6	4.8	0.5	0.3	4.32
STEP :4	4.8+2*0.1=5m	6	5	0.3	0.55	4.95
	Short Wall (Type 2)					
STEP :1	3.1+2*0.15=3.4m	8	3.4	0.9	0.3	7.34
STEP :2	3.4+2*0.1=3.6m	8	3.6	0.7	0.3	6.04
STEP :3	3.6+2*0.1=3.8m	8	3.8	0.5	0.3	4.56
STEP :4	3.8+2*0.1=4m	8	4	0.3	0.55	5.28
				Total quantity =		93.46M^3
4	Brick Masnory above Plinth level in C.M(1:6)					
	Long wall	4	14.6	0.3	2.8	49.05
	Short Wall (Type 1)	6	5.2	0.3	2.8	26.2
	Short Wall (Type 2)	8	4.2	0.3	2.8	28.22
				Total quantity =		103.47M^3
	Deduction of Dors and Windows					
	D	1	2	0.3	2.1	1.26
	D1	7	1.2	0.3	2.1	2.64
	W	2	1.2	0.3	1.2	0.86
	G	3	1.4	0.3	2.1	2.64
	V	6	0.6	0.3	0.6	0.648
				Deduction =		-10.69M^3
				Total quantity =		92.77M^3
5	Smooth Plaster inside the Rooms and Celing in C.M(1:6)					
	Plaster of walls					
	Drinking Area	2	5		2.8	2.8
		2	1		2.8	5.6

	Sanitary Area	2	5		2.8	2.8
		2	4		2.8	22.4
	C.C.T.V Roonm	2	5		2.8	28
		2	2		2.8	11.2
	Manager Room	2	5		2.8	28
		2	3		2.8	16.8
	Locker Room	2	5		2.8	28
		2	3		2.8	16.8
	Passage Area	2	4		2.8	22.4
		2	14		2.8	78.4
	Store Room	2	4		2.8	22.4
		2	2		2.8	11.2
	Loan Department	4	4		2.8	44.8
	Cash Counter 1	2	4		2.8	22.4
		2	3		2.8	16.8
	Cash Counter 2	2	4		2.8	22.4
		2	3		2.8	16.8
	Recipt Area	2	4		2.8	22.4
		2	2		2.8	11.2
	Plaster of Celing					
	Drinking Area	1	5	1		5
	Sanitary Area	1	5	4		20
	C.C.T.V Roonm	1	5	2		10
	Manager Room	1	5	3		15
	Locker Room	1	5	3		15
	Passage Area	1	4	14		56
	Store Room	1	4	2		8
	Loan Department	1	4	4		16
	Cash Counter 1	1	4	3		12
	Cash Counter 2	1	4	3		12
	Recipt Area	1	4	2		8
				Total	Quantity=	681M^3
	Deduction for Doors snd Windows					
	D	0.5	2		2.1	2.1
	D1	7	1.2		2.1	17.64

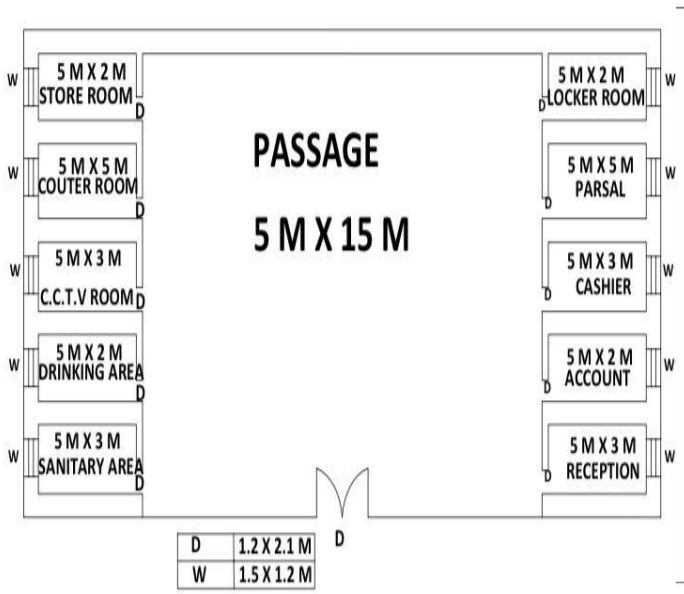
	W	1	1.2		1.2	1.44
	G	3	1.4		2.1	8.82
	V	3	0.6		0.6	1.08
				Total quantity =		31.08m2
				Net Quantity =		626.92m2
6	DPC at Plinth Level					
	Long Wall	4	14.8	0.3		17.76
	Short Wall (Type 1)	6	3.2	0.3		5.76
	Short Wall (Type 2)	8	2.2	0.3		5.28
				Total	Quantity=	28.8m2
7	Earth Filling in Plinth					
	Drinking Area	1	5	1	0.55	2.75
	Sanitary Area	1	5	4	0.55	11
	C.C.T.V Roonm	1	5	2	0.55	5.5
	Manager Room	1	5	3	0.55	8.25
	Locker Room	1	5	3	0.55	8.25
	Passage Area	1	4	14	0.55	30.8
	Store Room	1	4	2	0.55	4.4
	Loan Department	1	4	4	0.55	8.8
	Cash Counter 1	1	4	3	0.55	6.6
	Cash Counter 2	1	4	3	0.55	6.6
	Recipt Area	1	4	2	0.55	4.4
				Total quantity =		97.35 M^3

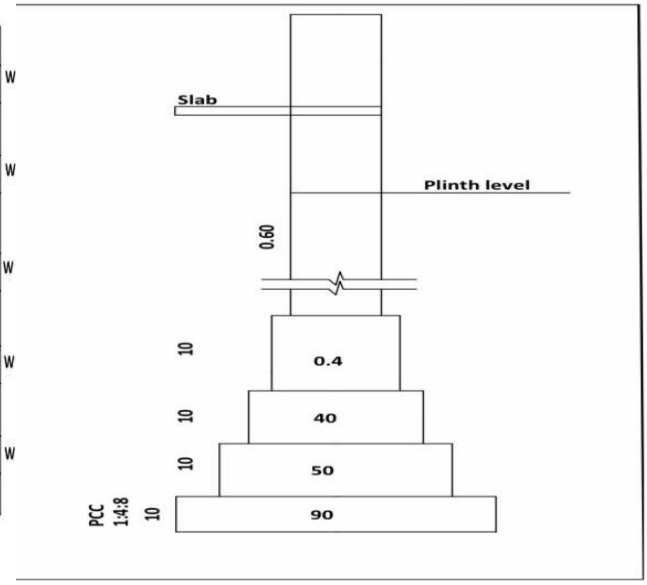
Abstract Sheet Of Bank

SR. NO	ITEM DESCRIPTION	QUANTITY	RATE	PER	AMOUNT
1	Excavation	148.09M^3	85	M_3	12588
2	PCC	26.872M^3	3000	M_3	80616
3	Brick Masonary Upto Plinth	93.46M^3	3200	M_3	299072
4	D.P.C	28.8m2	4700	M_3	135360

5	**Brick Masonary For Super Structure**	**92.77M^3**	**3500**	**M3**	**324695**
6	**Backfill**	**97.35M^3**	**50**	**M3**	**4868**
7	**Plaster**	**626.9m2**	**150**	**M2**	**94035**
		Total Amount			**951234**
		Add 3% contingenciesRs.			**28537.02**
		Add 2%charged establishmentRs.			**19024**
		Grand total			**998795.7**

13.1.6 Post Office





- All the dimensions are in meter.
- The area of Post Office is 15 x 15 m.
- 2.5cm mortar be disused.
- 7.5cm BBCC is used above earth filling.
- Earth filling thickness is about 0.30 m.
- The step footing below the ground level is about 1.5m.

Measurement Sheet Of Post Office

SR NO	ITEM DESCRIPTIO N	NO	LENGTH	BREADTH	HEIGHT	QUANTITY
1	Excavation in foundation					
	Long wall	4	17.4	0.9	1.5	93.96
	Short wall	14	4.4	0.9	1.5	83.16
				Total	Quantity	177.12M^3
2	Plain cement concrete					
	In foundation (1:2:4)					
	Long Wall	4	17.4	0.9	0.3	18.87
	Short wall	14	4.4	0.9	0.3	16.6
				Total	Quantity	35.42M^3
3	Brick Masnory upto Plinth Level C.M(1:6)					
	Long Wall					
STEP :1	17.4-2*0.15=17.1m	4	17.1	0.6	0.2	8.2
STEP :2	17.1-2*0.05=17m	4	17	0.5	0.2	6.8
STEP :3	17-2*0.05=16.9m	4	16.9	0.4	0.2	5.4
STEP :4	16.9-2*0.05=16.8m	4	16.8	0.3	1	20.1
	Short Wall					
STEP :1	4.4+2*0.15=4.7m	14	4.7	0.6	0.2	7.89
STEP :2	4.7+2*0.05=4.8m	14	4.8	0.5	0.2	6.72
STEP :3	4.8+2*0.05=4.9m	14	4.9	0.4	0.2	5.48
STEP :4	4.9+2*0.05=5m	14	5	0.3	1	21
				Total quantity =		81.67M^3
4	Brick Masnory above Plinth level in C.M(1:6)					
	Long wall	4	16.7	0.3	3.2	64.128
	Short Wall	14	5.1	0.3	3.2	68.54

				Total quantity =		**132.66M^3**
	Deduction of Dors and Windows					
	D	**1**	**2**	**0.3**	**2.1**	**1.26**
	D1	**7**	**1.2**	**0.3**	**2.1**	**5.29**
	W	**4**	**1.2**	**0.3**	**1.5**	**3.02**
	G	**3**	**1.4**	**0.2**	**2.21**	**2.64**
	V	**5**	**0.6**	**0.3**	**0.6**	**0.54**
				Deduction =		**-12.75M^3**
				Total quantity =		**280.23M^3**
5	**Smooth Plaster inside the Rooms and Celing in C.M(1:6)**					
	Plaster of walls					
	Sanitary Area	**2**	**5**		**3.2**	**32**
		2	**3**		**3.2**	**19.2**
	Drinking Area	**2**	**5**		**3.2**	**32**
		2	**2**		**3.2**	**12.8**
	C.C.T.V Room	**2**	**5**		**3.2**	**32**
		2	**3**		**3.2**	**19.2**
	Courier Room	**4**	**5**		**3.2**	**64**
	Store Room	**2**	**5**		**3.2**	**32**
		2	**2**		**3.2**	**12.8**
	Passage Area	**2**	**5**		**3.2**	**32**
		2	**15**		**3.2**	**9.6**
	Locker Room	**2**	**5**		**3.2**	**32**
		2	**3**		**3.2**	**19.2**
	Parsal Room	**2**	**5**		**3.2**	**32**
		2	**4**		**3.2**	**25.6**
	Cashier Room	**2**	**5**		**3.2**	**32**
		2	**3**		**3.2**	**19.2**
	Acount Room	**2**	**5**		**3.2**	**32**
		2	**3**		**3.2**	**19.2**
	Reception	**2**	**5**		**3.2**	**32**
		2	**3**		**3.2**	**19.2**

	Plaster of Celing					
	Sanitary Area	**1**	**5**	**3**		**15**
	Drinking Area	**1**	**5**	**2**		**10**
	C.C.T.V Roonm	**1**	**5**	**3**		**15**
	Courier Room	**1**	**5**	**5**		**25**
	Store Room	**1**	**5**	**2**		**10**
	Passage Area	**1**	**5**	**15**		**75**
	Locker Room	**1**	**5**	**3**		**15**
	Parsal Room	**1**	**5**	**4**		**20**
	Cashier Room	**1**	**5**	**3**		**15**
	Acount Room	**1**	**5**	**3**		**15**
	Inquiry Room	**1**	**5**	**2**		**10**
				Total	**Quantity=**	**230.4M^3**
	Deduction for Doors snd Windows					
	D	**0.5**	**2**	**2.1**		**2.1**
	D1	**7**	**1.2**	**2.1**		**17.64**
	G	**3**	**1.4**	**2.1**		**8.82**
	W	**2**	**1.2**	**1.5**		**3.6**
	V	**2.5**	**0.6**	**0.6**		**0.9**
				Total quantity =		**33.06m2**
				Net Quantity =		**197.34m2**
6	**DPC at Plinth Level**					
	Long Wall	**4**	**16.8**	**0.3**		**20.16**
	Short Wall	**14**	**5**	**0.3**		**21**
				Total	**Quantity=**	**41.16m2**
7	**Earth Filling in Plinth**					
	Sanitary Area	**1**	**5**	**3**	**0.3**	**4.5**
	Drinking Area	**1**	**5**	**2**	**0.3**	**3**
	C.C.T.V Roonm	**1**	**5**	**3**	**0.3**	**4.5**
	Courier Room	**1**	**5**	**5**	**0.3**	**7.5**
	Store Room	**1**	**5**	**2**	**0.3**	**3**
	Passage Area	**1**	**5**	**15**	**0.3**	**22.5**
	Locker Room	**1**	**5**	**3**	**0.3**	**4.5**
	Parsal Room	**1**	**5**	**4**	**0.3**	**6**
	Cashier Room	**1**	**5**	**3**	**0.3**	**4.5**

	Acount Room	1	5	3	0.3	4.5
	Inquiry Room	1	5	2	0.3	3
				Total quantity =		$67.5M^3$

Abstract Sheet Of Post Office

SR. NO	ITEM DESCRIPTION	QUANTITY	RATE	PER	AMOUNT
1	Excavation	$117.12M^3$	85	M_3	99552.2
2	PCC	$35.42M^3$	3000	M_3	106260
3	Brick Masonary Upto Plinth	$81.67M^3$	3200	M_3	261344
4	D.P.C	41.16m2	4700	M_3	193452
5	Brick Masonary For Super Structure	$280.23M^3$	3500	M_3	980805
6	Backfill	$67.5M^3$	50	M_3	3375
7	Plaster	197.34m2	150	M_2	29601
		Total Amount			1674389.2
		Add 3% contingenciesRs.			50232
		Add 2%charged establishmentRs.			33487
		Grand total			1758108.2

13.1.7 Electrical Design 1

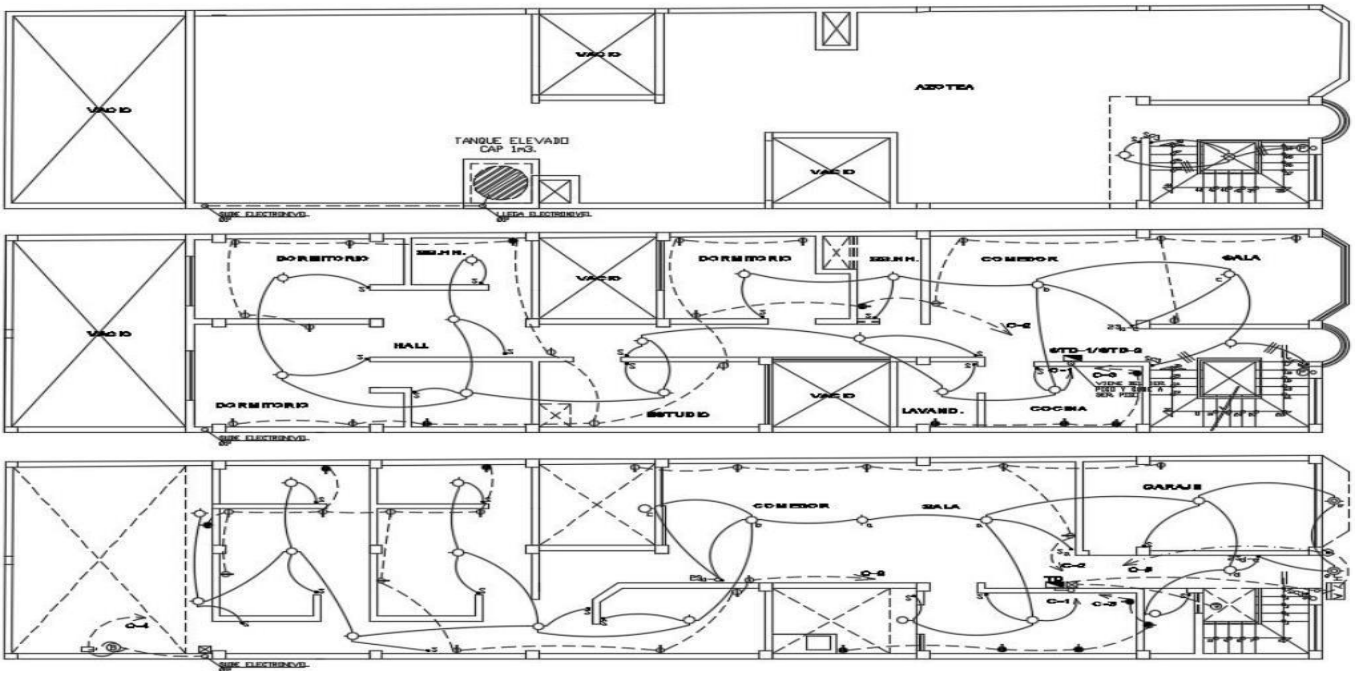


Fig13.1 Two Point wiring diagram

Explaination:-

- A **wiring diagram** is simply a pictorial representation of all the electrical connections in a specific circuit.
- The wiring diagram shows different components in a circuit via different shapes and symbols.
- These diagrams are an effective way of showing how wires are interconnected with different components in a system.

Defination :- A wiring diagram is a simple visual representation of the physical connections and physical layout of an electrical system or circuit. It shows how the electrical wires are interconnected and can also show where fixtures and components may be connected to the system.

Technology:-

- In two point wiring diagram technology used is Ladder diagram and Point to point supply.

- A ladder diagram represents, in schematic form, the logical flow of electrical current. The form is traditionally used to design (from scratch) an electrical control system. Named so because of its resemblance to a ladder (really?), the typical diagram consists of “rails and rungs”. The rails are power, be it 24-volt, 120-volt, or whatever, the left rung is considered the “hot” and the right rung is the “common” or “neutral”.

- This is where the rubber meets the road. Point-to-points (heretofore referred as PTPs), represent the actual physical wiring of an electrical system. As such, a PTP will show devices as how they’re physically connected to with wires, showing terminal designations of used and even unused terminals.

For instance, if a relay has two sets of contacts and only one is being used in the circuit, a PTP will often show even the terminals of the unused set of contacts as well (for added realism!).

Cost :- Two point wiring diagram costs minimum 500/- to maximum 1000/- for per room of house.

13.1.8 Electrical Design 2

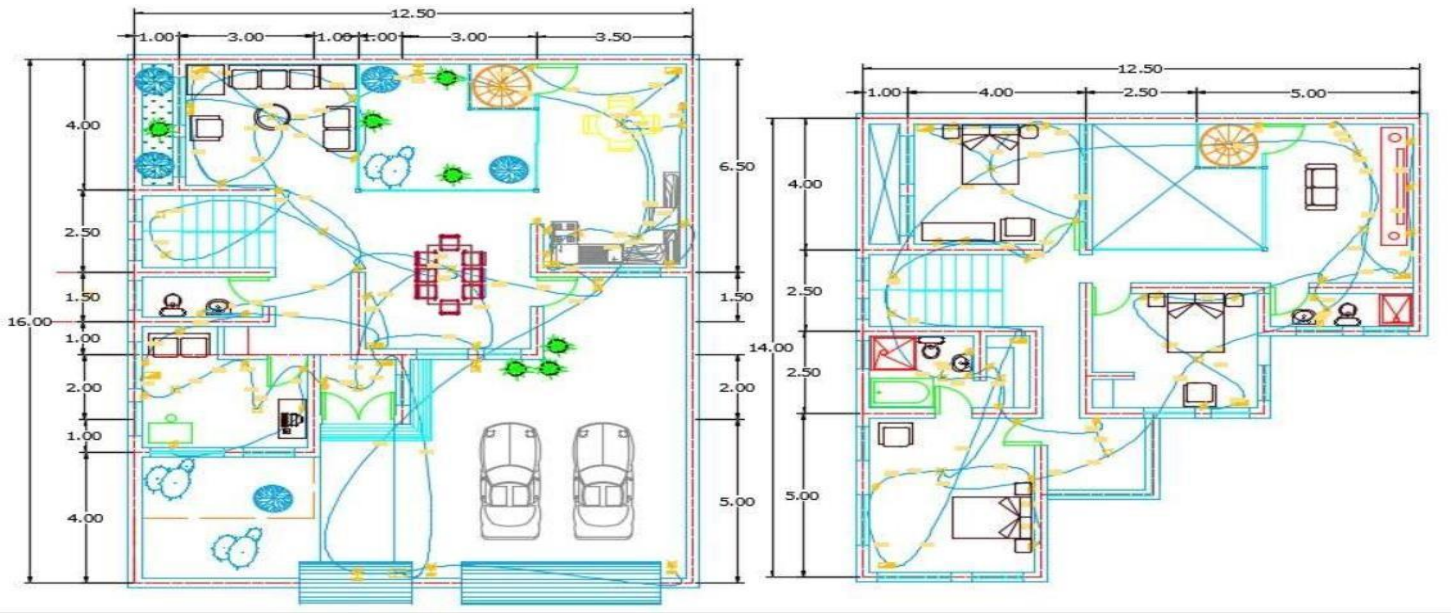


Fig13.2 House wiring plan diagram

Explaination:-

- In architecture and building engineering, a **floor plan** is a drawing to scale, showing a view from above, of the relationships between rooms, spaces, traffic patterns, and other physical features at one level of a structure.
- Dimensions are usually drawn between the walls to specify room sizes and wall lengths.
- It is also called a *plan* which is a measured plane typically projected at the floor height of 4 ft (1.2 m), as opposed to an *elevation* which is a measured plane projected from the side of a building, along its height, or a section or *cross section* where a building is cut along an axis to reveal the interior structure

Defination:- A house plan is **a set of construction or working drawings** (sometimes called blueprints) that define all the construction specifications of a residential house such as the dimensions, materials, layouts, installation methods and techniques.

Technology:-

- Technology used in house wiring plan diagram is AutoCAD and others.

Cost :- House wiring diagram costs minimum 2500/- to maximum 3000/- as done simply.

13.1.9 Electrical Design 3

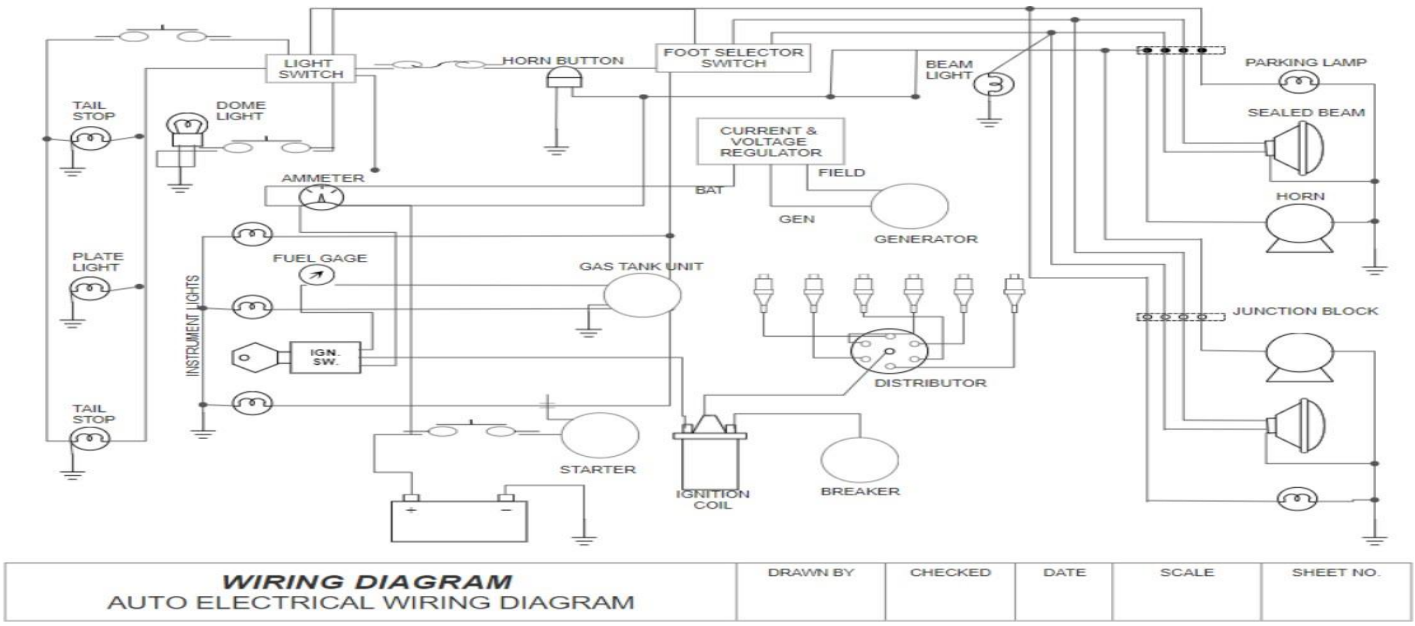


Fig13.3 Auto Electrical Wiring diagram

Explanation :-

- The electrical system comprises a storage battery, generator, starting (cranking) motor, lighting system, ignition system, and various accessories and controls**.**
- Originally, the electrical system of the automobile was limited to the ignition equipment.
- The extent to which a wire resists the flow of current is called resistance , and is measured in ohms .

Technology :-

- It had only switches, wires, relays and controlled motors as its key components but today's electrical system includes **sensors, actuators, alternators, battery, oxygen sensors, generator, starter solenoid, starter drive, high power electrical system and other devices**.

- The battery provides juice to the starter. Then, the alternator gives that battery the energy it needs to power.

Cost :- Auto Electrical wiring diagram costs minimum 3500/- to maximum 4000/-

13.2 Reason For Students Recommending This Design

- There is no Public library for students to read books and gain knowledge out of his/her study syllubas. So we design a Public Library, they will come and read

different kinds of books from library.

- There is no Medical Shop in Palsana village for collecting medicines and other healthy suppliments. For collecting medicines villagers have to travel 6 to 7 km to purchase any kind of Medicine or any other suppliments. So we design a Medical shop to improve health of people and to consume time.
- There is no General Public Toilet in the village for Swatch Bharat Abhiyam so it is necessary to provide it.
- There is no Stationary Shop in the village for purchasing study materials for the Students, Students have to travel 6 to 7 km to purchase any kind of Stationary Material. So we design a Stationary shop to reduce students study time.
- There is no bank in the village. For money transaction people have to travel 5-6 km. so we design a Bank to reduce time of villagers.
- There is no Post Office in the village. To courier any parsal or for some money Transcations people have to travel 5-6 km. By our and villagers suggestion, we design a Post Office.
- For good loking houses.
- For reducing the chances of accident.

13.3 About Designs Suggestions / Benefit Of The Villagers

- Due to construction of Public Library in the village the students will get a proper reading facility.
- Due to construction of Medical Shop in the village's people will get a proper medicines and any other healthy suppliments, they don't have to go out of their village .
- Due to construction of Stationary Shop in the village the students will get a good stationary materials for study.
- Due to construction of Bank villagers don't have to travel for any money Transaction.
- To reduse axcident chances in the village by giving this
- Reduces losses in power.
- Chances in fault in device or circuit also reduces.
- Easy to operator in villages.
- Time consumption reduces due to this technology.

Chapter – 14
Technical option with Case Studies

14.1 Civil Engineering

14.1.1 Advanced Earthquake Resistant

Introduction

Whenever there is an earthquake related disaster in the news with collapsed buildings &other structure all over the place, one may think that earthquake resistant design(EQRD) of structure are still in dark age. Thus we desperately need advanced earthquake resistant design to make structure less vulnerable to earthquake even for large earthquake.

Advanced Earthquake Resistant Design
Seismology is the branch of Geophysics concerned with the study and analysis of Earthquakes and the science of energy propagation through the Earth's crust.Engineering Seismology is concerned with the solution of engineering problems connected with the Earthquakes. Seismology is extremely important because:

- Study of earthquakes gives us important clues about the earth's interior
- Understanding earthquakes allows us to minimize the damage and loss of life

What is an earthquake?

- An earthquake is the vibration of Earth produced by the rapid release of accumulated energy in elastically strained rocks
- Energy released radiates in all directions from its source, the focus
- Energy propagates in the form of seismic waves
- Sensitive instruments around the world record the event

What causes an earthquake?

Movement of Tectonic Plates
Earth is divided into sections called Tectonic plates that float on the fluid-like interior of the Earth. Earthquakes are usually caused by sudden movement of earth plates

Rupture of rocks along a fault
Faults are localized areas of weakness in the surface of the Earth,sometimes the plate boundary itself

How Earthquake Causes Damage

- The severe shaking produced by seismic waves can damage or destroy building & bridges , topple utility poles & fracture gas and water mains.
- S wave can put stress on building to tear them apart. Also trigger landslide or avalanches.

Construction Methods

- Base-isolation are designed in buildings . It is a building designed to reduce amount of energy that reaches the building during earthquake.

- Flexible joints and automatic shut off valves can be installed.

Protecting Against Earthquake Damage

- Prepare a Seismic Risk Map for the globe which identifies rock types, liquefaction potential, landslide potential.
- Extensive geologic surveying has to be done to identify all active faults, including hidden faults.
- Earthquake Resistant Design of Structures
- Enact building codes to design and build earthquake-resistant structures in high seismic risk areas. wood, steel and reinforced concrete are preferred as they tend to move with the shaking ground (unreinforced concrete and heavy masonry tend to move independently and in opposition to the shaking, battering one another until the structure collapses)

Earthquake resistant expansion joint(ERJ)

Engineered Structure

Buildings need to be designed and constructed as per the building by laws to withstand ground shaking. Architectural and engineering inputs need to be put together to improve building design and construction practices. The soil type needs to be analyzed before construction.

Conclusion

In the coming years the work in the field of EQRD is very important to have safe structures which can take the effect of earthquake with less damage to the society.

14.1.2 Seismic Retrofitting of Buildings

Definition

Retrofitting is the addition of new technology or features to older systems, for example, home energy retrofit, the improving of existing buildings with energy efficiency equipment. seismic retrofit, the process of strengthening older buildings in order to make them earthquake-resistant.

Seismic retrofitting importance

Generally, the structural retrofit of concentrically braced frames improved the seismic resistance of the building and it can be considered in the retrofit of moment frame structures to prevent the risk of structural collapse under the design load with much more confidence. Retrofitting is the process of addition of new features to older buildings, heritage structures, bridges etc. Retrofitting reduces the vulnerability of damage of an existing structure during a near future seismic activity. Retrofitting helps to increase the strength, resistivity and overall lifespan of the structure.

Shear Wall Seismic Resisting Systems

1 Wood Shear Walls

Wood is an economical choice building material compared to the higher priced steel and concrete structural components. The general range of the usage of wood structures to total structures is assumed to be between 80% and 90% in all regions of the US and the majority relies on wood shear walls which makes it the most common of the elements discussed here (Malik 1995). Therefore, their ability to adequately resist random and cyclic lateral forces is critical to the safety of the inhabitants and to the soundness of our residential

infrastructure. When properly constructed, its performance in past earthquakes has typically been reliable. Fasteners for shear wall construction may be staples, screws or nails. Sheathing connections resist shear forces, whereas anchors resist uplift forces. The choice of the anchorage method affects the shear wall stiffness, capacity, and failure mode as well as ductility and seismic resistance of the shear wall. The inertial forces generated by the ground movement of the earthquake concentrate lateral forces in the roof and floors where the mass of the building is greatest. The forces in the roof and floors must be adequately connected to the foundation shown in Figure.

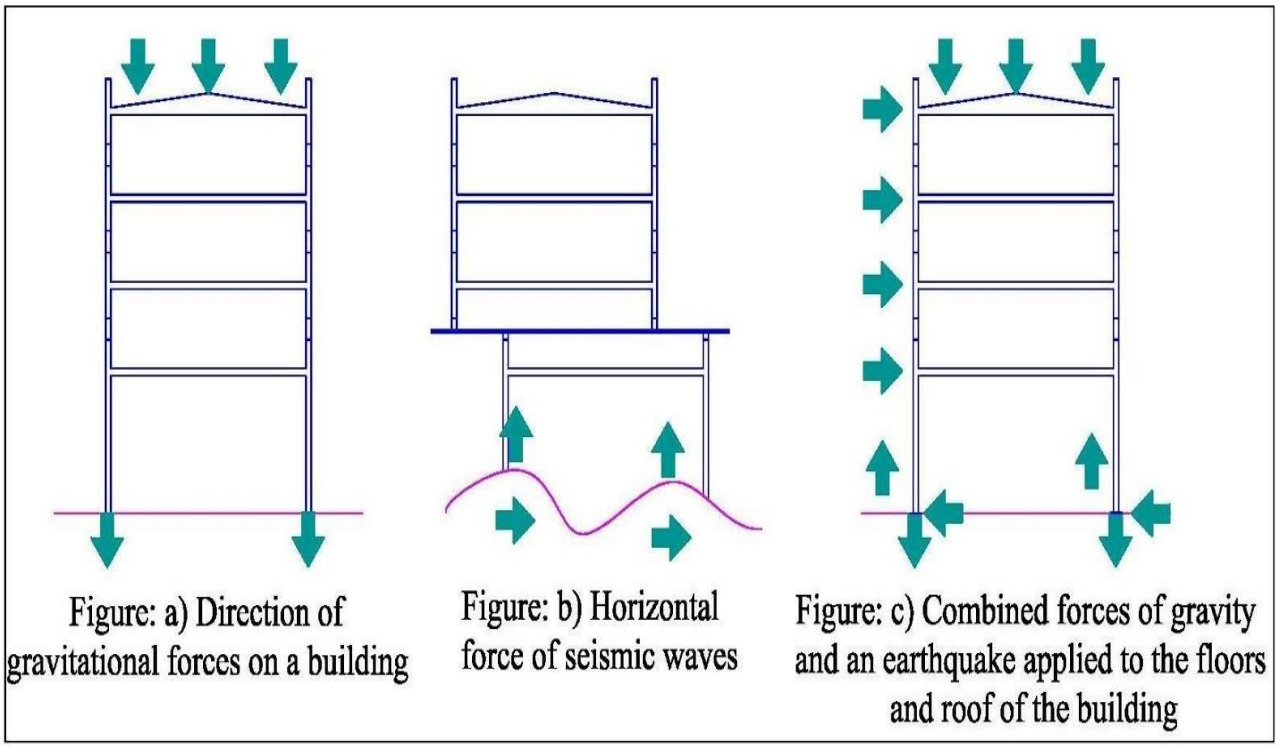


Fig14.1 Seismic forces on a building

2. Reinforced Concrete Shear Walls :-

The reinforced concrete shear walls generally start at foundation level and are continuous throughout the building height. Shear walls are usually provided along both length and width of buildings as shown in Figure . Shear walls are like vertically-oriented wide beams that carry earthquake loads downwards to the foundation. Most of the reinforced concrete buildings with shear walls also have columns and these columns primarily carry gravity loads. Figure -93 Reinforced Concrete Shear Wall reduces lateral side-sway of the building. Due to shear walls carry large horizontal earthquake forces, the overturning effects on them are large. Thus, design of their foundations requires special attention. For higher overturning demands, pile foundations, possibly including tension tie-down capacity, can be used.

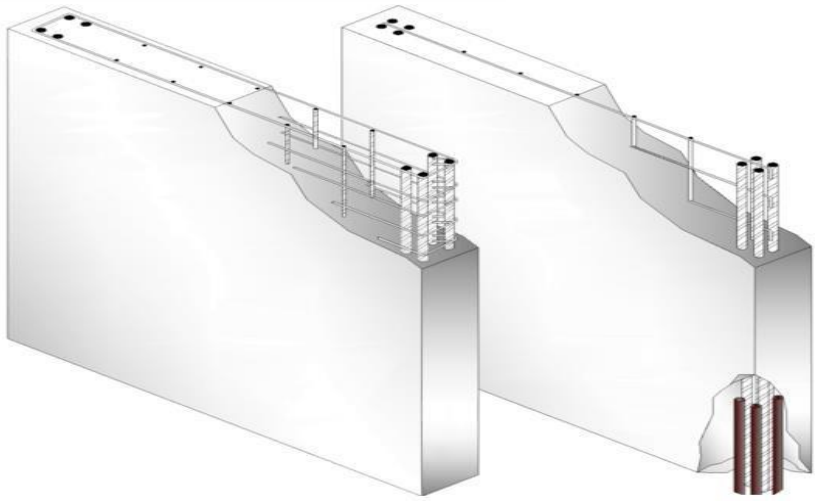


Fig14.2 Reinforced Concrete Shear Wall

3 Reinforced Masonry Shear Wall

Masonry is one of the oldest construction materials and most of the buildings studied in architectural history are made of masonry: Egyptian and Greek temples, Roman coliseum, Persian palaces, Byzantine domes, Islamic minarets, Gothic cathedrals and the list goes on. This is because;

(1) masonry was chosen for its high quality;

(2) it aesthetically complemented many different styles;

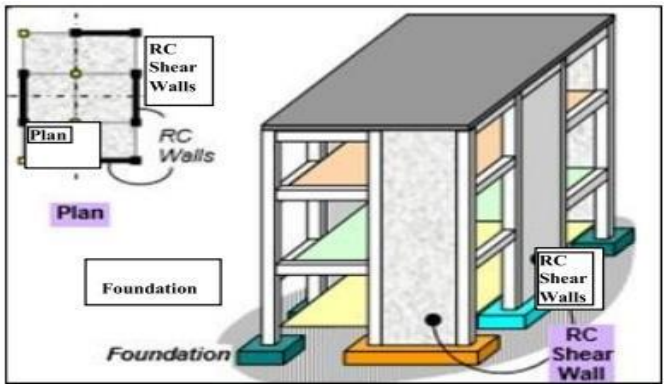


Fig14.3 Reinforced Masonry Shear Walls

Although, in current practice most seismically designed masonry buildings in the USA in high seismic zones are made of concrete block (also called concrete masonry unit or CMU) is more common, clay masonry construction have been widely used in the past along with concrete masonry. Depending on the distribution of vertical and horizontal reinforcement, the MSJC code (2005) classifies reinforced masonry into the following three categories: Ordinary, intermediate and special reinforced masonry shear walls. Besides the distribution of reinforcing steel, reinforced masonry walls can also be distinguished based on the grouting; partially grouted masonry walls typically only have grout placed where reinforcement is located whereas fully grouted masonry walls have grout placed in every cell. Although in terms of construction practice and economy, partially grouted masonry is widely used, fully grouted walls are superior in terms of structural behavior since the tensile and shear strength are better.

4 Steel Shear Walls

A tremendous lateral load capacity can result with a solid wall rather than frame from the Strongest of the structural materials. Steel shear walls, which more common in ship design, are only rarely used in buildings and relatively new to structural engineering. This type of element offers the designer an option that can concentrate massive amounts of earthquake resistance into compact spaces where other types of elements would not be strong enough. As a result, steel shear walls can be very efficient and economical lateral load resisting systems and due to having high initial stiffness it is very effective in limiting the drift.

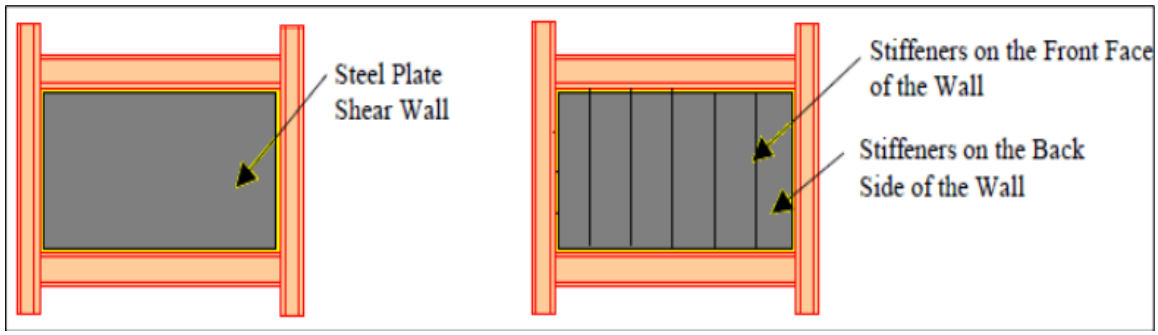


Fig14.4 Stiffened and un-stiffened shear wall

There are three different steel shear wall systems systems:
(1) Unstiffened, thin steel shear wall
(2) stiffened steel shear wall,
3) composite concrete steel shear wall.

The most common application in North America is the un-stiffened thin, while In Japan, the stiffened steel shear wall system is more common as shown in Fig However, steel plate shear wall systems are usually more costly in comparison to concrete shear walls, primarily due to their flexural flexibility. Therefore, when using steel plate shear walls in tall buildings, the engineer must provide additional flexural stiffness. Another disadvantage is excessive initial compressive force in the steel plate panel may delay the development of the tension-field action. It is important that the construction sequence be designed to avoid excessive compression in the panel.

14.1.4 Engineering Aspects Of Soil mechanics - Environmental Impact Assessment

ENVIRONMENTAL ASSESSMENT PROCES

The main objective of the Environmental Impact Assessment (EIA) is to evaluate the Project likely i mpacts on the environment as described in section 4 of this ESIA. One of the key objective softheESIA is to assist in ensuring environmentally and socially sound management of the Project during its entire lifecycle. The description of the existing conditions of the local environment provides a comprehensive data collection and analysis of the baseline conditions at the Project site. The baseline data permits the identification of the main socioenvironmental factors that might be asso ciated with the Project activities. The interaction between the Project activities and the environmenta l and social baseline conditions of the ecosystem at the Project site is at the core of the ESIA…

The objectives of the new Environment impact assessment are as follows

.Develop knowledge of soil, water, air, and noise pollution, their sources, and why they are regulated.
Predict the transport and transformation of pollutants in and across the environment.
Recommend and apply environmental engineering practices to reduce the impact of a potential activity on the environment.
Apply the National Environmental Policy Act (NEPA) and the New York State Environmental Quality Review Act (SEQRA) to determine the extent of assessment required of a particular project based on the project actions and its location.

Assessment

Course The EIA course has been conducted twice thus far, in Fall of 2004 and Fall of 2005. Although both short term and long term assessment tools are in place, this discussion does not address long term assessments of the new course since the data are not yet available. Instead the discussion focuses on data collected using the formal anonymous end of course survey administered by the school, and the grades earned by students in the course.

Environment impact:

Soil impact: - Properties (e.g., soil classifications and properties, soils in NYC) .
Transport of soil (e.g., soil loss by erosion using Universal soil loss equation)
Transport and transformation of pollutants (e.g., infiltration of water and water pollutants into unsaturated soil using Horton and across saturated soils using Darcy)
Pollutant mitigation (e.g., erosion minimization, well extraction)

Water impact: - Properties (e.g., hydrologic cycle, aquatic environment, NYC watershed)
Pollutants (e.g., pollutants, sources of water pollutants nationally and in NY, water quality of surface and ground waters and rate of Fishkill in NY)
Transport and transformation of pollutants (e.g., pollutants in surface water using mass balances and Streeter Phelps equation, and in ground water using soil methods).

Air impact: - Properties (e.g., meteorology, stability and terrain effects, NYC airshed)
Pollutants (e.g., criteria and hazardous air pollutants, sources of air pollutants nationally and in New York, violations of NAAQS and releases of HAPs in NY)
Pollutant transport and transformation (e.g., pollutant concentrations predicted using steady and unsteady box models and Gaussian plume model)

Sound impact: - Properties (e.g., power and power level, rating systems)
Pollutants (e.g., noise in NYC)
Pollutant transport and transformation (e.g., near field and far field attenuation)
Pollutant mitigation (e.g., reduction of vibration, use of physical barriers)
EIA description of sound attributes (e.g., physical and psychological effects, communication and performance effects) and example of sound EIA using Belleayre Resort project.

14.5 Water Supply-Sewerage system-Waste Water- Sustainable development techniques

order to develop sustainable wastewater treatment it is needed to view the wastewater treatment systems in a broad sense. In addition to cost and treatment performance energy aspects, recycling and social issues are important when evaluating sustainability of a wastewater treatment system and selecting an appropriate system for a given condition. This requires a multidisciplinary approach where engineers cooperate social scientists, economists, biologists, health officials and the public. Wastewater contains organic matter and the three main nutrients for plant production: nitrogen, phosphorus and potassium. Theoretically speaking, the nutrients in domestic wastewater and organic household waste are nearly sufficient to produce enough food for the world population. Nitrogen fertilizer is energy consuming to produce and phosphorus is a limited mineral resource. Recycling and energy aspects are thus important factors of sustainable system design. Scandinavia is pioneering sustainable solutions to wastewater treatment. Energy efficient moving bed are developed for tertiary treatment in traditional "end of pipe" wastewater collection and treatment systems. A variety of watersaving and urine diverting toilets can nearly halve water consumption.

SUSTAINABILITY ANALYSIS OF WASTEWATER TREATMENT SYSTEMS

In earlier times and even to day, engineers and politicians nearly always use a simple /benefit analysis when choosing a wastewater system. This means that, for instance, only the discharge of organic matter (BOD) or phosphorus and the cost is looked upon. However, the quest for sustainability is necessary because we see many problems are coming like global warming, acidification, diminishing ozone layer, micro-organic pollutants and other toxic chemical matters, eutrophication, diminishing important resources like phosphorus, potassium and oil and other threats to mankind, flora and fauna. This shows that many indicators must be used when deciding what type of wastewater systems we should implement.

1. Local, where hygienic and health aspects are of concern in time scales of hours or days.
2. Regional, where classic environmental problems operate in time scales of months or years.
3. Global, where sustainability matters in a time scale of decades or centuries. To compare two wastewater alternatives the following indicators may be considered as relevant for a sustainability analysis.

Discharge of pollution to local recipients and major recipients. For instance:

- Phosphorus, nitrogen and organic matter (BOD).
- The amount of micro-organic pollutants and heavy metals in the sludg going to agriculture.
- Amount of phosphorus, potassium and nitrogen recirculated for plant production.
- Discharge of climate gases like methane and CO2.
- Use of electric energy and fossil energy.
- Use of products with hazardous components.
- Use of finite or critical resources.
- Costs as present value of investments, operation and maintenance.
- The use of area, influence on the landscape, aesthetic- and recreational values.
- The service levels like clogging of sewers and flooding of basements.

- Noise, smell, insects and other disturbances in the operation and construction period.
- Safety for children.
- Indicators that are approximately the same for both alternatives may be eliminated. The system borders for the analysis of the sustainability of a wastewater system are.

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14.2 Electrical Engineering

14.2.1 Design of Power Electronics converter

Introduction

Modern power electronic converters are involved in a very broad spectrum of applications: switched-mode power supplies, electrical-machine-motion-control, active power filters, distributed power generation, flexible AC transmission systems, renewable energy conversion systems and vehicular technology, among them. Power Electronics Converters Modeling and Control teaches the reader how to analyze and model the behavior of converters and so to improve their design and control. Dealing with a set of confirmed algorithms specifically developed for use with power converters, this text is in two parts: models and control methods. The first is a detailed exposition of the most usual power converter models: * switched and averaged models; * small/large-signal models; and * time/frequency models.

Nonisolated and Isolated

Power electronics converters are generally consist of only semiconductor switches and energy storage elements. Nonisolated converters are often preferred in applications that electrical isolation is not a necessity, because they are less bulky and costly, and more efficient and reliable. shows a general layout of nonisolated power electronics converters in which the circuit do not consist of magnetic or electric isolation. On the other hand, isolated power converters often use either transformer or coupled inductor for multiple purposes such as voltage level shifting, obtaining multiple outputs, providing galvanic isolation and ground loop avoidance. illustrates a general layout of the isolated power electronics converters in which a transformer is employed to provide electrical isolation. The AC transformer in those converters need an AC voltage or a square/quasisquare wave voltage at the primary side for proper operation and saturation avoidance.

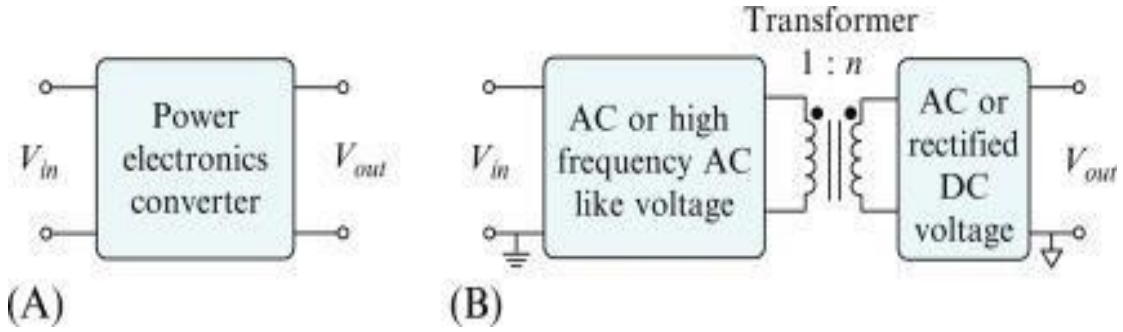


Fig14.5 General layouts of (A) nonisolated and (B) isolated power electronics converters.

14.2.2 Electronic Soft Starter for 1/3 Phase Induction Motor for Agriculture

Introduction

With day by day development in industry, largeequipment are use for their application purpose. It is importantto control these equipment in effective way as energyconservation, promoting automation and environmental protection.Induction motor is used in industry as well asdomestic applications. Induction motor is the main powersource of these devices, so the startup problem is mostlyfocused. The power motor starting directly will have largerimpact on power grid as well as equipment. Avoiding the problems effective solution is to install the soft start device between motor and mechanical load[1].Starting of inductionmotors creates many challenging problems to the motor, andto power supply system. Engineers and technicians must takethese into consideration and account when deciding on astarting methodology of the induction motor. Requireddynamic characteristics during the starting process are incontradiction, and often tradeoffs must be made to satisfycertain requirements. These characteristics include: systemrobustness, efficiency, equipment cost, and motor lifetime[2].Whenever a squirrel-cage induction motor is started, theelectrical system experiences a current surge, and themechanical system experiences a torque surge. These currentand torque surges can be reduced substantially by reducing thevoltage supplied to the motor during starting [3].Soft starterworks on principle that by reducing impressed voltage uponthe motor during starting, reduces the starting current & torque pulsation. By properly adjusting the applied effective voltageduring start up, the starting torque and current can be reduced[4]. The electronic soft starter avoid the disadvantages andgreatly improved production efficiency.A PIC microcontroller is used to give an instruction to thecircuit at which instant and voltage it get started.

PRINCIPLE OF THE ELECTRONIC SOFTSTARTER.

.Electronic soft starter based on three reverse parallelMOSFETs to make the AC voltage regulating device, ByControlling the six way MOSFET angle, the output voltage isincreased gradually in some a certain function, until the motorrated. running state. The electronic soft starter cannot onlyguarantee the starting torque of the motor and the rotatingspeed of the motor, but also can greatly reduce the startingcurrent and avoid the impact to the large impact current tothe power grid. When MOSFET conducted completely, motorwill get started.There are six MOSFETs connected in three sets to supplythree phases. As per instruction from PIC controller each phase will get supply in steps and not at same time so that itinsures low voltage and smooth supply to all phases and softstart can be achieved.As the torque of an induction motor.

BLOCK DIAGRAM & DESCRIPTION

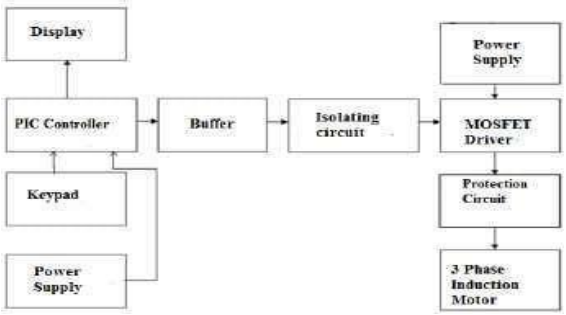
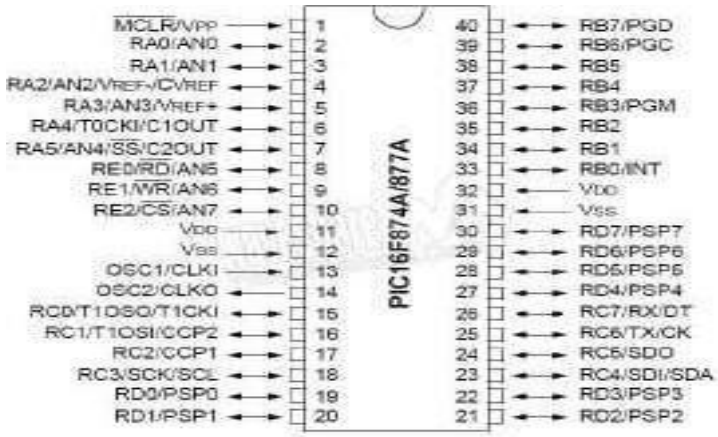


Fig14.6 Soft Starter Block Diagram

A. Pic Controller



- Fig14.7 Three point test method

PIC is a family of Harvard architecturemicrocontrollers made by Microchip Technology, derivedfrom the PIC1640 originally developed by GeneralInstrument's Microelectronics Division. The name PIC initiallyreferred to "Peripheral Interface Controller".We are using PIC16 microcontroller as it is suitable for ourrequirements and also cost effective.The microcontroller is a central part of our system,which is continuously present in contact with all monitoringequipment in the system. Here various types ofmicrocontrollers are present in the market, It is easily availablewith 40 pins in the market, The programming and coding ofthis controller is also easier.

B. MOSFET Driver

The IR2110/IR2113 are high voltage, high speed power MOSFET and IGBT drivers with independent high andlow side referenced output channels. It works on the principleof bootstraps. This driver consists of two inputs and twooutputs. When one pair acts for high voltage and another forlow voltage.In this driver unit two IR2110 and 4 MOSFETs areselected to form bridge. Two bootstrap capacitors are used.One is across the high voltage supply and return and anotherone across low voltage supply and return. Signals from bufferare given to the driver through optoisolator. When the first2110 receive high voltage input it drives the first mosfet at thesame time second 2110 receives low voltage input whichtriggers the fourth mosfet. Now mosfets 1 & 4 are conductingwhich connects the motor to the supply and it forms the positive half cycle in a motor.When the first 2110 receive low voltage input itdrives the second MOSFET at the same time second 2110receives high voltage input which triggers the third mosfet. Now mosfets 2 & 3 are conducting which connects the motorto the supply and it forms the negative half cycle in a motor.Therefore motor gets two half cycles.

C. Buffer & Isolating Circuit

An opto isolator provides isolation between twocircuits. i.e. there is no any electrical connection between PICcircuit and MOSFET circuit. It connects two circuits withoutany electrical connection.A buffer is a unity gain amplifier packaged in anintegrated circuit. Its function is to provide sufficient drivecapability to pass signals or data bits along to a succeedingstage. In either case, the buffer protects and the output of thesupplying device while providing a sufficiently robust signalto the next stage. Some data buffers are bi-directional,allowing data to pass in either direction.

D. Power Supply

There are two power supplies used in this circuit. Onefor PIC circuit and one for motor.PIC circuit requires a 5 volts power supply for its operationand motor gets 230 volts supply through MOSFET driver forits operation.

E. Keypad

A keypad is a set of buttons arranged in a block or"pad" which usually bear digits, symbols and usually acomplete set of alphabetical letters. Keypads are found onmany alphanumeric keyboardsand on other devices such ascalculators, push-button telephones, combination locks, and digital door locks, which require mainly numeric input.It is connected to microcontroller which gives input by keys.

F. Display

Liquid crystal cell displays (LCDs) are used in similarapplications where LEDs are used. These applications aredisplay of display of numeric and alphanumeric characters indot matrix and segmental displays.The display will show the values of voltage, current, speed etcas it is connected to the controller.

G. Protection Circuit

Simple protection circuit is provided with MOSFETdriver in the form of resistors and some electronics circuitryfor overload protection, voltage fluctuations etc.

H. Three Phase Induction Motor

An induction motor (IM) is a type of asynchronousAC motor where power is supplied to the rotating device bymeans of electromagnetic induction. Other commonly usedname is squirrel cage motor due to the fact that the rotor barswith short circuit rings resemble a squirrel cage (hamsterwheel).Anelectric motorconverts electrical power tomechanical power in its rotor(rotating part). There are severalways to supply power to the rotor. In a DC motorthis power issupplied to the armaturedirectly from a DC source, while inan induction motor this power is induced in the rotatingdevice. An induction motor is sometimes called a rotatingtransformer because the stator(stationary part) is essentiallythe primary side of the transformerand the rotor (rotating part)is the secondary side. Induction motors are widely used,especially polyphaseinduction motors, which are frequentlyused in industrial drives.We are using a 0.5 H.P., 3 phase squirrel cage induction motorfor which the soft starter is designed.

ADVANTAGES

1. It will reduce mechanical stresses on motor and shaft.
2. It will extend equipment life.
3. Motor will draw less starting & inrush current.
4. It will be multifunctional purpose application.

APPLICATION

1. . It will be useful in milling machines with dynamic braking.
2. It will be useful in agriculture sector for pumping.
3. It will be useful in elevators.

4. It will be useful in conveyor system.

CONCLUSION

Hence, based on all the result obtaining, the objectiveof smooth and reliable motor starting will achieve. It willcontrol starting current and torque of motor will give lessstarting current. We can calculate starting current and torque by formulas and can prove that motor starts softly.

14.2.3 Advanced Wireless Power Transfer System

Introduction

Role of electricity in modern machine era is considered like circulation of blood in human body. Electrical energy has made human life easy and luxurious. Electricity is being distributed using the conventional grid which is in service for last hundred years. Conventional grid is characterized by out dated infrastructure, delayed communication and heavy transmission losses. One of the solutions of the heavy line losses is the transmission of electricity wirelessly which is called Witricity.

Goal of wireless power transmission is to transfer electricity from source to destination in order to reduce high transmission losses. Wireless power transmission increases the portability and convenience. It also fulfils the demand of recent devices and technologies which already use wireless technique for different operations and communications like Wi-Fi being used in laptops and cellular phones for the access to internet. Transfer of electric power without using wires is possible by using three major methods

WIRELESS POWER TRANSMISSION

WIRELESS POWER TRANSMISSION USING MICROWAVES

microwaves. The microwave source acts as a transmitting antenna and a microwave receiver is attached with the load which acts as
receiving antenna. The received microwaves are then converted back in to electrical energy through which the load is driven. Different parts of the wireless power transmission through microwaves are briefed as following.
The microwave source antenna acts as transmitting antenna at the base station. It uses the microwaves of high frequency ranging from 1GHz to 1000 GHz [5].
The microwave receiving antenna is mounted at the load end and due to high frequency of microwaves it could be used for large distance applications of wireless power transmission. At the load end the microwaves are received by microwaves receiving antenna and then the received microwaves are converted back into dc power. The unit which receives microwaves and then converts back to the dc power is called rectenna. The rectenna is mounted at the load end.
A typical rectifying antenna used to produce dc power from microwave energy is called rectenna. . These are extensively used in microwave wireless power transmission systems. As defined in [7], “simple rectenna consists of a dipole antenna with an RF diode connected across the dipole elements. The diode rectifies the AC current induced in the antenna by the microwaves, to produce dc power, which powers a load connected across the diode.”

WIRELESS POWER TRANSMISSION USING LASER

The second technique is the wireless power transmission using laser beam which acts as a source. The laser beam of high intensity is thrown from some specific distance to the load end. Depending onthe range and intensity of the beam this method is used for small distance applications. This process is similar to the solar cells photovoltaic generation which uses the solar energy of the sun light and converts it into electricity. At the load end highly efficient photo voltaic cells are used which receive the laser beam, energize laser light and finally convert light energy in to electrical energy.
Experiments have shown that the wireless power transmission through laser beam is 50 percent efficient with respect to other methods but by using advance technology of laser photovoltaic cells receivers the efficiency could be increased. Various stages of process are described as following.
The laser source transmits the laser beam through an efficient lens. The lens is used to converge the beam of the laser to the specific place where the receiver is present. The laser receiver consists of a series of highly efficient photovoltaic cells which receives the laser beam and then convert them into electrical energy. The load is attached with the photovoltaic cells which after being energized through laser beam convert light energy of laser beam into electrical energy [8]. Laser power transmission is shown in Fig. 1 as following

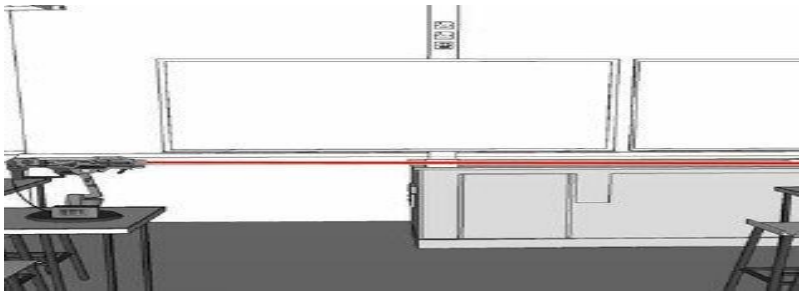


Fig14.8 Wireless Power Transmission Through Laser

WIRELESS POWER TRANSMISSION USING MAGNETIC RESONANCE.

The mutual induction phenomena between two coils work on the principle that if there is a continuous varying current passes through one coil produces the magnetic field in the space around first coil called primary coil.
As this varying magnetic field interacts with the secondary coil it produces an induced current in the secondary coil.
This is also called magnetic resonance between two coils operating at a same resonance frequency. Principle of mutual induction is elaborated.

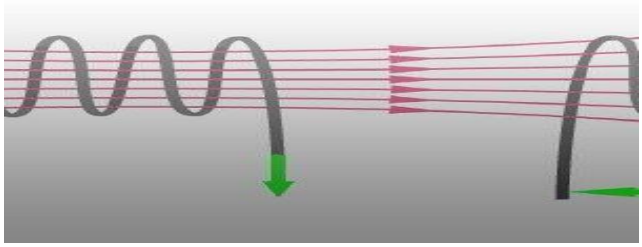


Fig14.9 – Mutual Induction Process

The frequency at which the amplitude of the waves produced in the system is maximum called resonance frequency. The resonance frequency is attained by varying different parameters affecting the gain of voltage produced within the coils [9]. The phenomena of wireless power transmission using mutual induction consist of primary and secondary coils which act as transmitting and receiving antenna respectively. The process is described in block diagram.

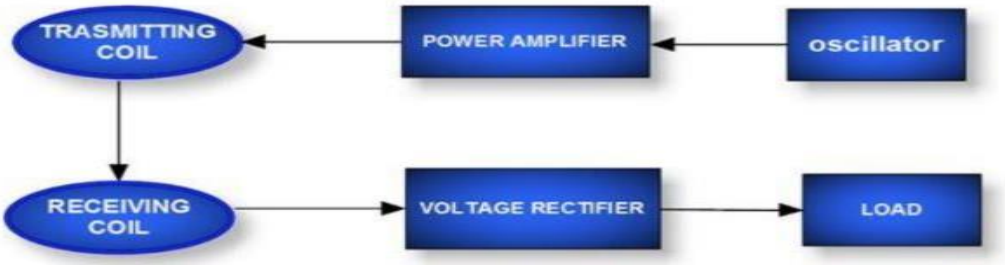


Fig14.10– Magnetic Resonance Method

ADVANTAGES, DISADVANTAGES AND APPLICATIONS

Wireless power transmission is the only process through which we could eliminate the existing system of high power transmission lines, towers and substations, which is inefficient and costly way of energy transmission. This will lead to a globally efficient and cheap transmission system. The cost of the transmission and receiving power would lower for the daily users and the large scale reduction of power tariff would be easily visible. The loss of transmission will be decreased and the power could easily be transferred to any place irrespective of the geographical situations. Power failures minimization will become possible which are caused by short circuit and faults [11]. It will make the system more efficient and environment friendly system. The natural disasters such as floods, earthquakes, landslides or tornados would not become the reason for power cuts and damages to the system.

Disadvantages of the system include very high initial cost for the system's practical installation. Since microwaves are used for the transmission then the line of sight becomes the basic need. Any sort of interference in the line of sight could actually stop the transmission. The microwave power transmission can cause high interference problems for telecommunication infrastructure. As the energy will be available freely in the air energy; chances of the theft will be increased [13]. Applications of the wireless power transmission are elaborated as following.

CONCLUSION

The wireless power energy concept is indeed a great and a noble one. It has entirely changed the concept of power transmission. It has the potential to bring complete revolution in scientific development. Ranging from charging of the handset up to the reduction in global warming; wireless power transmission has many applications and solutions. It could reduce the human dependency on the fossil fuels and other petroleum products due to its efficiency in order to achieve sustainable development. We have reviewed and compared different methods of wireless power transmission. Different applications in context of smart grid have also been covered. Researchers are trying to make this technology more efficient and to overcome the challenges being faced. Though the practical implementation of this technology is quiet limited due to the technological barriers but this could be the biggest breakthrough in the field of power transmission.

14.2.4 Industrial Temperature Controller
Introduction

As the name implies, a **temperature controller** is an instrument used to control temperatures, mainly without extensive operator involvement. A controller in a temperature control system will accept a temperature sensor such as a thermocouple or RTD as input and compare the actual temperature to the desired control temperature, or setpoint. It will then provide an output to a control element.

Learn more about Digital Controllers

What Are the Different Types of Process or Temperature Controllers, and How Do They Work? There are three basic types of process controllers: on-off, proportional and PID. Depending upon the system to be controlled, the operator will be able to use one type or another to control the process.

On/Off temperature Controller

An on-off temperature controller is the simplest form of control device. The output from the device is either on or off, with no middle state. An on-off controller will switch the output only when the temperature crosses the setpoint. For heating control, the output is on when the temperature is below the setpoint, and off above setpoint.

Proportional Control

Proportional controls are designed to eliminate the cycling associated with on-off control. A proportional controller decreases the average power supplied to the heater as the temperature approaches setpoint.

This has the effect of slowing down the heater so that it will not overshoot the setpoint, but will approach the setpoint and maintain a stable temperature. This proportioning action can be accomplished by turning the output on and off for short time intervals. This "time proportioning" varies the ratio of "on" time to "off" time to control the temperature. The proportioning action occurs within a "proportional band" around the setpoint temperature.

PID Control

The third controller type provides proportional with integral and derivative control, or PID. This controller combines proportional control with two additional adjustments, which helps the unit automatically compensate for changes in the system.

These adjustments, integral and derivative, are expressed in time-based units; they are also referred to by their reciprocals, RESET and RATE, respectively. The proportional, integral and derivative terms must be individually adjusted or "tuned" to a particular system using trial and error. It provides the most accurate and stable control of the three controller types, and is best used in systems which have a relatively small mass, those which react quickly to changes in the energy added to the process.

In this other article, how to tune a PID controller is covered in more detail.

It is recommended in systems where the load changes often and the controller is expected to compensate automatically due to frequent changes in setpoint, the amount of energy available, or the mass to be controlled.

OMEGA offers a number of controllers that automatically tune themselves. These are known as autotune controllers.

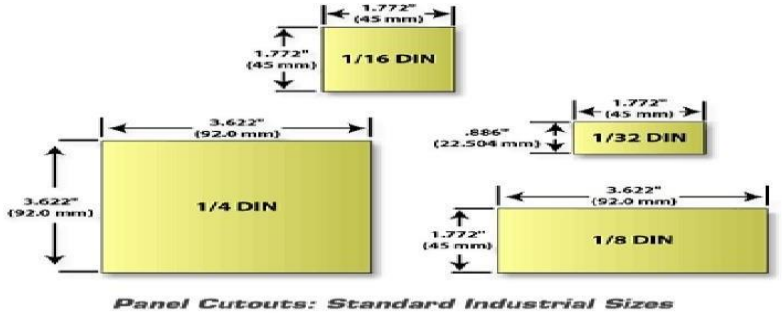


Fig14.11 Standard Industrial Sizes

14.2.5 Accident Alerts in Modern Traffic Signal Control System- Camera Surveillance System

Introduction

The concept of a smart city is linked to a paradigm shift where interest is being directed towards proposals and technological initiatives, which seek to make cities smart so that the quality of the lives of the people living in these cities can be improved [1, 2]. For instance, in Europe, the European Commission has established the European Initiative on Smart Cities in 2010. This initiative seeks to address the four important elements in the life of a city: climate management systems, building, transport, and electricity.

Traffic congestion, as one of the leading problems affecting modern societies, has been given increasing attention. The delay in the arrival of emergency services at accident scenes like ambulances, the police, and fire, and rescue operations is one of the critical results of traffic congestion. This is an undesirable situation as the safety of the general public depends on these services being able to arrive at the scene of an accident in the efficient and shortest time possible. Intelligent transportation systems (ITSs) have not yet been able to resolve the challenge of traffic congestion. For example, Google Maps still uses communication networks that exist such as Wi-Fi, global positioning system (GPS), and cellular networks to plan journeys and mitigate the challenge of being stuck in traffic. However, apart from being expensive, these technologies still do not have the capacity to respond with speed when there is an emergency resulting from a road accident. These systems have limited access to real-time traffic data. Hence, it is important that these emergency services should be equipped with a system that can enhance the adaptability of route planning so information can be collected more efficiently and real-time traffic data can be further exploited to avoid traffic congestion.

Firstly, emerging vehicular ad hoc networks (VANETs) can be used to deliver on ITS system with improved communications capabilities for obtaining real-time traffic information more efficiently and in a cost-effective manner [4]. VANETs support vehicle-to-roadside unit (V2R) and vehicle-to-vehicle communications [5, 6], so that real-time updates can be transmitted from and to vehicles and roadside units (RSUs) [7, 8]. This real-time information which will be collected can then be consequently used for route planning in individual vehicles [9], freeway-traffic-flow management [10, 11], and vehicle localization [12–14]. Secondly, once the real-time traffic information has been obtained, various algorithms can be designed with the aim of discovering the most efficient routes that individual vehicles can take [15, 16]. However, if the route planning is deployed in a manner which is not coordinated, this could lead to even more congestion. While most of the available routes planning global

algorithms pay attention to the improvements linked to networks, they generally overlook driver preferences, such as travel distances and times. This is important, particularly if one considers that replanning decisions are a consequence of the need to avoid traffic congestion and balancing of traffic as opposed to the discovery of optimal routes. Hence, some drivers may actually prefer to take longer routes even though this may entail higher costs. Hence, the design of algorithms should be done in a way that considers both the reduction of the average cost of running the vehicle and network traffic.

Related Works

There are many consequences of an unbalanced flow of traffic and the subsequent accidents and incidents it causes: arriving late and suffering added cost are some of the results drivers have to contend with. Route navigation and planning can, however, mitigate the challenges linked to traffic congestion.

Some of the methods which can be used to manage and plan vehicle routes include the shortest-route based GPS navigation, advance route reservation, and accident duration prediction [17–19]. However, all these methods do not have the capacity to deliver immediate information when an accident or congestion happens suddenly, considering the fact that they lack a timely update capacity to deliver information on traffic conditions. Hence, the availability of real-time traffic information becomes vital for supporting vehicular real-time route planning algorithms.

A variety of studies have concentrated on real-time route planning assisted by VANETs. A method for distributed route planning was advanced to mitigate the challenge of congestion through the employment of real-time data obtained from VANETs, with the increase in the flow of traffic [15]. With regard to fuel saving in vehicles, [29] has designed a navigation system which assists drivers to steer away from congested roads.

Hence, in this study, a route planning algorithm which is globally optimal is proposed to assist vehicles to avoid traffic congestion as a consequence of accidents within an urban setting. It is expected that the collected real-time traffic data and the efficient route decision-making will help facilitate better use of the resources within the road

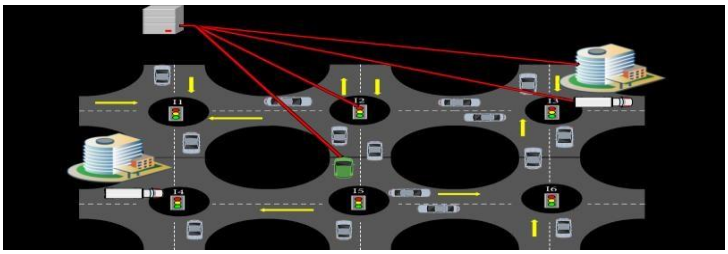


Fig14.12 model of accident management

System Model:- Within the urban environment, we consider a vehicular network that incorporates intersections and their roads. Within every road, there are two lanes in which the vehicles move in opposite directions as is illustrated in Figure 1.

The circle, in which intersection ID is found, represents the intersection, while the arrow is an indication of the direction in which the vehicles in the lane are travelling. Hospitals 1 and 2 denote the destinations that are assumed to be placed within two of the intersections. In each intersection, an RSU is located. There is one ambulance located near each hospital.

System Architecture

The accident management system consists of five units as is illustrated in Figure 2: vehicular, central server, RSUs, ambulance, and hospital. In this section, we will discuss each unit in detail as follows.

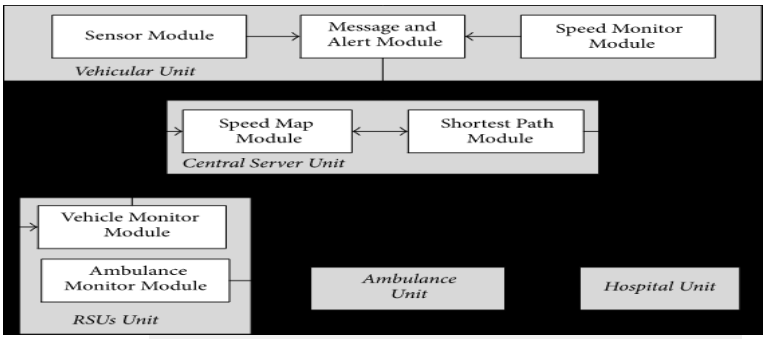


Fig14.13 Architecture of accident management system.

Proposed Traffic Routing Algorithms

In this section, we discuss the postaccident action in our system. Traffic routing consists of two proposed algorithms. First, we introduce the multihop optimal forwarding algorithm which provides the optimal route between accident vehicle and ambulance. Second, we introduce the optimal route planning algorithm which provides the optimal route algorithm from ambulance to accident vehicle and then to hospital.

Multihop Optimal Forwarding Algorithm

This section provides the details of how we plan to use the sources (accident vehicle) to identify the optimal route to the destination (ambulance) on a hop-by-hop basis. The algorithm is based on a V2V communications. Figure 3 shows the green vehicle as the source and Ambulance 1 is shown as destination 1 (D1), which is located at I3, while Ambulance 2 is destination 2 (D2) whose location is I4.

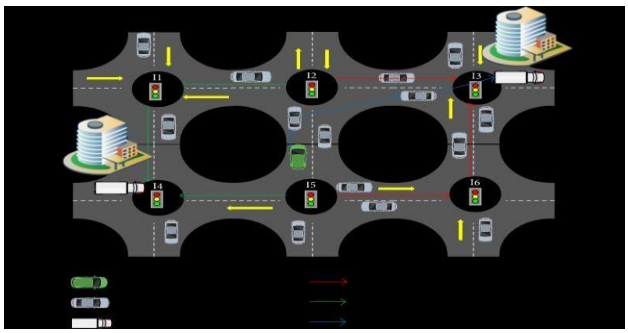


Fig14.13 Source vehicle calculates the path length to destination

In case of an accident, the source sends a packet to the ambulance nearest to it. The accident vehicle computes the length of the path from all intersections that link it with both destinations and chooses the destination whose path length (PL) is the shortest. With regard to D1, from Figure 3, using the red arrows PL2D1 < PL5D1, it can be shown that the packet forwarded to D1 from intersection I2-I3 will be faster than the one to D1 from I5-I6-I3. Accordingly, the accident will require two intersections to get to Ambulance 1. Meanwhile, with regard to D2, as shown in Figure 3 by green arrows, PL5D2 < PL2D2, the packet to intersection I5-I4 to D2 will be quicker when compared to the packet transmitted from I2-I1-I4. Based on this, the accident vehicle will choose the path that has more vehicles to ensure continuous connectivity. Consequently, two intersections are required by the accident

vehicle in order for it to reach Ambulance 2. What this implies is that we have two paths whose length is similar: I5-I4-D2 and I2-13-D1. For this case, it would be more prudent for the accident vehicle to choose a path that has more vehicles so that maximum connectivity can be maintained. According to Figure 3, the path chosen by the accident vehicle is PL2.

Optimal Route Planning Algorithm

Our aim in this section is to identify the optimal route planning algorithm (ORPA) from the ambulance to the accident vehicle and then to the hospital. The reasoning behind this algorithm is the avoidance of traffic congestion and the reduction of the average cost of travelling. Where p represents a nonnegative accumulative function used to measure the effect of the increase in path length [37]. V represents the number of vehicles travelling on a road segment .

Performance Evaluation

For purposes of conducting the case study, a general Manhattan grid model has been selected. In order to design the scenario and extract the intersection images, MATLAB and Google Maps are used, respectively. Simulations that deploy assistance mobility models with the capacity to make vehicles accelerate, change direction, and decelerate, can enable realistic scenarios to be achieved. For this part of the study, a familiar mobility model which is car following model [4] is used. Using the average speed information obtained from the RSUs, the map road segment is separated into two speed zones. If the average vehicle speed on a certain road segment is low, then that segment is considered congested and those with high average speeds are seen as free from congestion. However, the method of incessantly averaging speeds of vehicles is prone to errors as a result of accumulated historical data. The result of this is that the data represents a historical characteristic as opposed to the prevailing average speed at a given time. To mitigate against this challenge, we create divisions based on 5-minute time slots with the aggregate average being computed in any slot using the data obtained from only that slot. Another challenge is the high overhead resulting from regular updates of speed between central servers and RSUs. To mitigate this problem, the speed will be separated into time zones, with the RSU only updating the average speed if there are any changes in the average speed from one time zone to the next. Based on the RSU, the central server update will dynamically provide updates of the time zone to reflect the road segment's congestion.

Conclusion

Through this paper, we have developed a common system to manage accidents so that vehicles are able to avoid congested areas within an ITS. Initially, we established an accident management system which employs cellular systems of the public transportation systems and VANETs to make efficient real-time communication between vehicles possible, including ambulances, hospitals, RSUs, and central servers. We subsequently propose a real-time algorithm for planning routes with the aim of improving the overall use of space while at the same time reducing the cost of travelling, through vehicles' ability to avoid congested road segments. Finally, we have shown that the path planning algorithm we propose will reduce the time taken by ambulances to be alerted and dispatched to a scene of accident through being able to avoid road segments that are congested and will increase the chance of saving the lives of accident victims.

CHAPTER 15

Smart and/or Sustainable features of Chapter 8 & 13 designs, Impact on society. (For Allocated village development, villagers happiness, comfortable and for enhancement of the village) (With the Smart village development Concept As Per Your Idea And Village Visit, modern technology with innovation). with doing small changes, Period, Amount Expenditure and Benefit – a) Immediately b) Within 1 year c) Long term (3-5 years) along with cost estimation. b) If possible, List the sources of the funding available with the Village gram panchayat**.**

SR. NO	DESIGN NAME	PERIOD	AMOUNT EXPENDITURE	BENEFITS
01	**PUBLIC TOILET**	Immediately	**3,25,000**	• It will improve sanitation facility • It will be helpful to people who don't havetoilets in their home • It will promote cleanliness in village
02	**HEALTH CENTER**	Immediately	**45,000**	• It will provide medicines to villagers • It will improve healthfacility. • Villagers will get all the primary treatmentin village.
03	**BIO GAS PLANT**	Within 1 year	**2,90,000**	• It will help to generateenergy from the pressure and motion of Moving vehicles with the help of

				Piezoelectric Sensor
04	**CO OPERATIVE BANK**	Within 1 year	**61018**	• There is no Co Oprative bank the village and it is uncomfortable for the villagers
05	**CONCILLED WIRING IN HOUSES**	Immediately	**24800**	There is open wiring in houses which is dangerous. After getting concilled accident changes decreases.
06	**UNDERGROUND WIRING**	Within 1 year	**53317.51**	Underground wiring reduces the chances of accident in the village.
07	**SOLAR PLANT**	Within 1 year	**26,90,000**	Reducton in the electricity bills of villagers .

CHAPTER 16

Survey By Interviewing With Talati And/Or Sarpanch

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Survey with Interviewing

SURVEY BY INTERVIEWING WITH TALATI AND/OR SARPANCH

Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

An approach towards **"Rurbanisation for Village Development"**

CHAPTER- 16

Sr.	Questions	Yes/ No	Remarks
1	What are the sources of income in village?	Yes	Agriculture & Labour work
2	What are the chances of employment in village?	No	
3	What are the special technical facilities in village?	No	
4	Is any debt on village dwellers?	No	
5	Are village people getting agricultural help?	Yes	
6	Is women health awareness Program organized in village?	No	
7	Are women having opportunity to work and income?	Yes	
8	Child girl education is appreciated in village?	Yes	
9	Facility of vaccination to child is available in village?	No	
10	Are village people aware about child vaccination and done to each and every child as per norms?	Yes	
11	Women help line number information is provided to village people?	No	
12	Is water scarcity in village? How many days per year?	No	
13	Is village under any debt?		
14	Is any serious issue due to debt from bank or any person happened in village?	No	
15	Is any suicide like incident observed in village due to government policy, debt or threatening?	No	
16	Is any death of patient occurred due to unavailability of medical facility in village?	No	
17	How many disabled (physically challenged) is observed in village? Provide list with Male/female/girl/boy with age and type of disability and reason of disability.	-	
18	Is village improvement is observed in comparative scenario from past to present?	No	
19	Is any unavoidable difficulty village people are facing? Any natural calamity is there?	No	
20	Life Living standard of girls and women is appreciated and uplifted in village?	Yes	Many government policies for girls.

Nodal officer and students can add more questions. This is a sample. Having Minimum requirement.

Administration queries/ Difficulties:
GTU VY Section
Contact No – 079-23267588
Email ID: rurban@gtu.edu.in

૪૧.૬.૧૫
સરપંચ
પલસાણા ગ્રામ પંચાયત
તા.કલોલ, જિ.ગાંધી-નગર

CHAPTER 17

Irrigation / Agriculture Activites And Agro Industry, Altenate Technics And Solution

The various irrigation techniques used a

Ther are 6 types of irrigation techniques:-

1.Surface Irrigation 2. Localized Irrigation 3. Sprinkler Irrigation

4. Centre Pivot Irrigation 5.Sub Irrigation 6. Manual Irrigation Method

1.Traditional Methods

2.Modern Methods

-Modern Methods

-Drip System

What is Irrigation?

Irrigation is the process of applying water to the crops artificially to fulfil their water requirements. Nutrients may also be provided to the crops through irrigation. The various sources of water for irrigation are wells, ponds, lakes, canals, tube-wells and even dams. Irrigation offers moisture required for growth and development, germination and other related functions.

The frequency, rate, amount and time of irrigation are different for different crops and also vary according to the types of soil and seasons. For example, summer crops require a higher amount of water as compared to winter crops. Let us have a look at different types of irrigation and the methods used for irrigation.

Fig17.1 -Modern Methods of irrigation

Types of Irrigation :-

There are different types of irrigation practised for improving crop yield. These types of irrigation systems are practised based on the different types of soils, climates, crops and resources. The main types of irrigation followed by farmers include:

Surface Irrigation

In this system, no irrigation pump is involved. Here, water is distributed across the land by gravity.

Localized Irrigation

In this system, water is applied to each plant through a network of pipes under low pressure.

Sprinkler Irrigation

Water is distributed from a central location by overhead high-pressure sprinklers or from sprinklers from the moving platform.

Drip Irrigation

In this type, drops of water are delivered near the roots of the plants. This type of irrigation is rarely used as it requires more maintenance.

Centre Pivot Irrigation

In this, the water is distributed by a sprinkler system moving in a circular pattern.

Sub Irrigation

Water is distributed through a system of pumping stations gates, ditches and canals by raising the water table.

Manual Irrigation

This a labour intensive and time-consuming system of irrigation. Here, the water is distributed through watering cans by manual labour.

Methods of Irrigation

Irrigation can be carried out by two different methods:

- Traditional Methods
- Modern Methods

Traditional Methods of Irrigation

In this method, irrigation is done manually. Here, a farmer pulls out water from wells or canals by himself or using cattle and carries to farming fields. This method can vary in different regions. The main advantage of this method is that it is cheap. But its efficiency is poor because of the uneven distribution of water. Also, the chances of water loss are very high. Some examples of the traditional system are pulley system, lever system, chain pump. Among these, the pump system is the most common and used widely.

Modern Methods of Irrigation

The modern method compensates the disadvantages of traditional methods and thus helps in the proper way of water usage.

The modern method involves two systems:

- Sprinkler system

Sprinkler System

A sprinkler system, as its name suggests, sprinkles water over the crop and helps in an even distribution of water. This method is much advisable in areas facing water scarcity. Here a pump is connected to pipes which generate pressure and water is sprinkled through nozzles of pipes.

Drip System

In the drip system, water supply is done drop by drop exactly at roots using a hose or pipe. This method can also be used in regions where water availability is less.

Importance of Irrigation

The importance of irrigation can be explained in the following points:

1. Insufficient and uncertain rainfall adversely affects agriculture. Droughts and famines are caused due to low rainfall. Irrigation helps to increase productivity even in low rainfall.
2. The productivity on irrigated land is higher as compared to the un-irrigated land
3. Multiple cropping is not possible in India because the rainy season is specific in most of the regions. However, the climate supports cultivation throughout the year. Irrigation facilities make it possible to grow more than one crop in most of the areas of the country.
4. Irrigation increases the availability of water supply, which in turn increases the income of the farmers.Irrigation should be optimum because even over-irrigation can spoil the crop production. Excess water leads to waterlogging, hinder germination, increased salt concentration and uprooting because roots can't withstand standing water. Thus the proper method is to be used for the best cultivation

The economic activities included in agriculture proper are:-

India is the world's largest producer of milk, pulses and jute, and ranks as the second largest producer of rice, wheat, sugarcane, groundnut, vegetables, fruit and cotton. It is also one of the leading producers of spices, fish, poultry, livestock and plantation crops.

(i) growing of field crops, fruits, nuts, seeds and vegetables,

(ii) management of tea, coffee and rubber plantations,

(iii) agricultural and horticultural services on a fee or on contract basis such as harvesting, baling and thrashing, preparation of tobacco .

Types of Agriculture farming:-

Short scale farming and large scale farming are the two types of Agriculture based on the availability of land cycle that maintains stable water availability Cropping pattern means there are different ways of growing crops. These different ways can be used to give maximum benefit.

Cropping season

India has three cropping season :

1. Kharif
2. Zaid
3. Rabi

Categories of Crops in India

1. Food
2. Commercial crop
3. Plantation crop
4. Horticulture

Fig17.2 Cropping Process

Ecological Concerns :-

Agriculture profoundly affects many ecological systems. Negative effects of current practices include the following:Decline in soil productivity can be due to wind and water erosion of exposed topsoil, soil compaction, loss of soil organic matter, water holding capacity, and biological activity; and salinization (increased salinity) of soils in highly-irrigated farming areas. Converting land to desert (desertification) can be caused by overgrazing of livestock and is a growing problem, especially in parts of Africa.

Other environmental ills include over 400 insects and mite pests and more than 70 fungal pathogens that have become resistant to one or more pesticides. Pesticides have also placed stresses on pollinators and other beneficial insect species. This, along with habitat loss due to converting wildlands into agricultural fields, has affected entire ecosystems (such as the practice of converting tropical rainforests into grasslands for raising cattle).

Impacts on Human Health :-

Many potential health hazards are tied to farming practices. The general public may be affected by the sub-therapeutic use of antibiotics in animal production and the contamination of food and water by pesticides and nitrates. These are areas of active research to determine the levels of risk. The health of farm workers is also of concern, as their risk of exposure is much higher.

CHAPTER 18

Social Activities – Any Activates Planned By Students e.g Teaching Learning activities, awareness camp, business idea for SELF HELP GROUP OR ANY OTHER

First – Turning waste into energy

One of the biggest innovations coming to the waste management industry is the ability to turn waste into actual power. Instead of sitting in a landfill, certain types of waste can simply be converted into energy. New machinery known as "digesters" can take the waste and the biogas it produces and turn it into energy that can be used on site. This kind of technology can be used on avariety of waste, including food, animal waste, agricultural leftovers, and more. Thermal conversion is another new technology that can be used to convert waste into specialty products. This process takes some cues from natural geothermal processes that use heat and pressure to turn useless materials into useful products.

Second – Indore method of compositing

Composting is any system of mixing and decaying natural wastes (manure, garbage, etc.) in a pileor pit, so as to obtain a product resembling what the forest makes on its floor. Compost is very richin humus. Humus is the final state of decomposing organic matter. It is humus which feeds the soilmicrobes and improves the texture of the soil. It makes the soil easier to work, have better aerationand absorb and holds more water. Nutrients are held best by a soil with good sponge structure. Compost provides nutrients for plant growth and the humic acid in compost helps release locked up nutrients.

The Indore compost pile is built 5 to 10 feet wide, 5 feet high and any length. Wooden stakes 3 or4 inches in diameter and 6 feet tall, are set two feet apart along the Centre of the pile. These will serve to allow air into the pile. The materials which can be used in this method are plant, animal, and garden wastes, kitchen waste, dustpan waste, wood ashes, weed cleanings from roadside ditches, bagasse, saw dust, and any other kind of organic materials that can be found in large enough quantities.

Third – Dry Composite

Toilet These dry compose toilet contains two special pans in which human excreta is separated from urineand wash water and it is stored in chamber provided below toilet. There are two pans and two chambers provided in toilet so when one chamber completely fills than toilet can be used with thehelp of another toilet chamber. After complete filling the one chamber ash and soil and saw dust. And after 5 to 6 months it will turn in to organic fertilizer. And if we want to use these toilets as public toilet than as shown in following fig. a plastic bag (container) is used in chamber for storing of excrete. After filled of container, it will be replaced with another container and we can continually use the toilet.

Fourth – Sewage and sanitation

1. 100 % household should have access to toilets
2. 100 % schools should have separate toilets for girls
3. 100 % households should be connected to the water network

Fifth - Smart Data Centre

Smart Data Centre Facilitiessolution provides a modern foundation for distributed cloud application for individual and corporations. As more computing power is used, data centers must:

1. Easily scale up or scale out to meet the growing demand for cloud computing, virtualization,and other advanced technologies.
2. Incorporate intelligent pug-and play micro modulus that address the requirements of branchand headquarters data centers.

Sixth - Adoption of latest technology from glob

1. After considering all the above parameters, a final step for village development is get in touchwith latest technology.
2. If we talk about water, Punsari village installed a R.O. cooling plant to provide safe drinking water to villagers. With little charge like 4/- Rs. And 15/- Rs. Villagers can get water as per their requirement.
3. Hence villagers don't require to purchase their own R.O. plant and these can save the cost.
4. We should also know the solar technology. Solar light, solar cooker, solar water heater these all are sustainable way of development.
5. Now a day central and state government providing subsidy on installing such systems. So, weshould need to aware of this.
6. Household Toilet: Making a toilet in all houses of thevillage under government schemes to make village clean.

Household Toilet:

Making a toilet in all houses of thevillage under government schemes to make village clean.

Solid Waste Management:

We are observing that in our village a big problem is solid waste so by providinga solid waste management with fixed dustbins in villageand also giving a dustbin collection managementsystemto make village clean.

1. Ban on plastic bag, use paper bags.
2. Avoiding of chewing of tobacco, gutka etc.
3. Giving a proper education of cleaning village to the villagers.
4. Motivate villagers to make clean village and improve the habit of use of dustbin in stand of throwing waste onground.

CHAPTER 19

ALLOCATED VILLAGE SAGY Questionnaire Survey form with the Sarpanch Signature

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

Village: PALSANA Gram Panchayat: PALSANA PANCHAYAT Ward No. ____

Block: ____ District: GANDHINAGAR

State: GUJARAT L S Constituency: ____

1. Family Identity and Size

Name of Head of Household	DHARMESH BHAI THAKOR							Male/ ~~Female~~	M
SECC Survey ID:		Family Size	04	Over 18	03	6 to 18	01	Under 6	–

2. Category & Entitlement Details (Tick as appropriate)

Social Category[1]	OBC	Life Insurance	1. All Adults 2. Some Adults 3. None	AABY	1. Yes 2. No	Kisan Credit Card	Yes / No
Poverty Status Year[2]:	1. BPL 2. APL	Health Insurance	1. All Adults 2. Some Adults 3. None	RSBY	1. Yes 2. No	MGNREGS Job Card Number	
PDS (If NFSA is not implemented)	Annapurna	Antyodaya	BPL	APL	Is any woman in the family member of an SHG? Yes / No		
PDS (If NFSA is implemented)	Annapurna	Antyodaya	Priority	Other			

2. Adults (above 18 years)

Name	Age	Sex M/F / O	Disability Status Y/N	Marital Status[3]	Education Status[4]	Adhaar Card (Y/ N)	Bank A/C (Y/N)	Social Security Pension[5]
Dharmesh bhai Thakor	47	M	N	married	9th Pass	Y	Y	N
Ramilaben Thakor	45	F	N	married	10th Pass	Y	Y	N
Jay Thakor	20	M	N	Unmarried	Engg.	Y	N	N

3. Children from 6 years and up to 18 years

Name	Age	Sex M/F/O	Disability Y/N	Marital Code*	Level of Education: Code#	Going to School /College (Y/N)	Current Class	Computer Literate Y/N
HITESH THAKOR	17	M	N	01	06	Y	12th	Y

4. Children below 6 years

Name	Age	Sex M/F/ O	Disability Yes/No	Going to School (Y/N)	Going to AWC Y/N	De-worming Done	Fully Immu-nised Y/N	Mother's Age at the time of Child's Birth

[1] Scheduled Caste 1, Scheduled Tribe 2, Other Backward Castes 3, Other 4
[2] Enter the BPL Survey round being used in the Gram Panchayat for identification of BPL Families (e.g. 1997/2002/2011)
[3] *Marital Status: Not Married – 1, Married – 2, Widowed – 3, Divorced/Separated – 4*
[4] *Level of Education: Not Literate – 01, Literate – 02, Completed Class 5 - 03, Class 8th – 04, Class 10th-05, Class 12th-06, ITI Diploma-07, Graduate-08, Post Graduate/Professional – 09 (write the highest level applicable)*
[5] No Pension – 0, Old Age Pension – 1, Widow Pension – 2, Disability Pension – 3, Other Pension – 4 (mention)

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

5. Hand washing

	Always		Sometimes		Never
After use of Toilet	Soap ✓	Other	Soap ✓	Other	
Before Eating	Soap	Other ✓	Soap ✓	Other	

6. Use of Mosquito Net
Children: Yes / No Adults: Yes / No

7. Do members take Regular Physical Exercise

	Yoga	Games	Other Exercises
Adults	Yes / ~~No~~	Yes / ~~No~~	Yes / ~~No~~
Children	Yes / No	~~Yes~~ / No	~~Yes~~ / No

8. Consumption of Tobacco

	Smoking	Chewing
Adults	Y	Y
Children	N	N

9. House & Homestead Data

Own House: ~~Yes~~ / No	No. of Rooms: 02
Type: Kutcha / Semi Pucca / Pucca ✓	
Toilet: ~~Private~~ / Community / Open Defecation	
Drainage linked to House: ~~Covered~~ / Open / None	
Waste Collection System	Door Step / Common Point / No Collection System ✓
Homestead Land: Yes / No ✓	Kitchen Garden : Yes / No ✓
Compost Pit: Individual/ Group/ ~~None~~	Biogas Plant: Individual/ Group/ ~~None~~

10. Source of Water (Distance from source in KMs)

Source of Water		Distance
Piped Water at Home	~~Yes~~ / No	250 m
Community Water Tap	~~Yes~~ / No	300m
Hand Pump (Public / Private)	Yes / No ✓	—
Open Well(Public / Private)	Yes / No ✓	—
Other (mention):		

11. Source of Lighting and Power

Electricity Connection to Household: ~~Yes~~ / No
Lighting: Electricity/Kerosene/Solar Power
Mention if Any Other:
Cooking: LPG/Biogas/Kerosene/Wood/Electricity
Mention if Any Other:
If cooking in Chullah: Normal/ Smokeless

12. Landholding (Acres)

1. Total	2 Acres	2. Cultivable Area	1·6 Acre
3. Irrigated Area	0·4 Acre	4. Uncultivable Area	—

13. Principal Occupations in the Household

Livelihood	Tick if applicable
Farming on own Land	✓
Sharecropping /Farming Leased Land	✓
Animal Husbandry	✓
Pisciculture	—
Fishing	—
Skilled Wage Worker	✓
Unskilled Wage Worker	✓
Salaried Employment in Government	✓
Salaried Employment - Private Sector	✓
Weaving	—
Other Artisan(mention)	
Other Trade & Business (mention)	

14. Migration Status
Does any member of the household migrate for Work: Yes / ~~No~~. If Yes Entire Year / ~~Seasonal~~
Does anyone below 18 years migrate for work: ~~Y~~/N

15. Agriculture Inputs

Do you use Chemical Fertilisers ✓	Yes/No
Do you use Chemical Insecticides ✓	Yes/No
Do you use Chemical Weedicide ✓	Yes/No
Do you have Soil Health Card	Yes/No ✓
Irrigation: None/ Canal/ Tank/ Borewell/Other	
Drip or Sprinkler Irrigation: Drip /Sprinkler / None	

16. Agricultural Produce in a normal year (Top 3)

Name	Unit	Quantity
~~Wheat~~	35 mann	35mann
Rice	35 mann	35 mann
Sorghum	25 mann	25mann

17. Livestock Numbers

Cows: 02	Bullocks: —	Calves: 01
Female Buffalo: 01	Male Buffalo: —	Buffalo Calves: 01
Goats/ Sheep: —	Poultry/ Ducks: —	Pigs: —
Any other: Type —		No.
Shelter for Livestock: Pucca / Kutcha / None		
Average Daily Production of Milk(Litres): 09 L		

18. What games do Children Play
Cricket, Kabaddi, Kho-Kho

19. Do children play musical instrument (mention)
No.

Schedule Filled By:
Principal Respondent:
Date of Survey:

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

(Note: Please aggregate information from village level questionnaires wherever relevant)

I. Basic Information

a. Gram Panchayat: PALSANA

b. Block: –

c. District: GANDHINAGAR

d. State: GUJARAT

e. Lok Sabha Constituency: _____

f. Number of Wards in the Gram Panchayat: –

g. Number of Villages in the Gram Panchayat: 01

h. Names of Villages:

Demographic Information

Number of Households 1000 Total Population 4500 Male 2498 Female 2002

SC HHs _____ ST HHs _____ OBC HHs _____ Other HHs _____

I. Access to Infrastructure / Facilities / Services

	Infrastructure Facilities / Services	Located within the GP Yes (Y)/No (N)	If located elsewhere (N), distance from the GP office
a.	ANM/ Health Sub Centre	Y	
b.	Nearest Primary Health Centre (PHC)	N	
c.	Nearest Community Health Centre (CHC)	N	
d.	Nearest Post Office	Y	
e.	Nearest Bank Branch (Any)	Y	
f.	Nearest Bank with CBS Facility	N	
g.	Nearest ATM	N	
h.	Nearest Primary School	Y	
i.	Nearest Middle School	Y	
j.	Nearest Secondary School	Y	
k.	Nearest Higher Secondary School / +2 College	Y	
l.	Nearest Graduate College	N	At mochid @ 3Km
m	Nearest ITI / Polytechnic Centre	N	At Hudia @ 2.9Km
n	Kisan Seva Kendra	N	

1

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

(Note: Please aggregate information from village level questionnaires wherever relevant)

	Infrastructure Facilities / Services	Located within the GP Yes (Y)/No (N)	If located elsewhere (N), distance from the GP office
o	Agriculture Credit Cooperative Society	No	No
p	Nearest Agro Service Centre	Yes	14 Km
p	MSP based Government Procurement Centre	No	–
q	Milk Cooperative /Collection Centre	Yes	08 Km
r	Veterinary Care Centre	Yes	12 Km
s	Ayurveda Centre	–	–
t	E – Seva Kendra	Yes	5 Km
u	Bus Stop	Yes	200 m
v	Railway Station	Yes	6.3 Km
w	Library	No	–
x	Common Service Centre	Yes	5 Km

IV. Sports Facilities in the Gram Panchayat

a. Number of Play Grounds in the GP: Total 01 Public Yes Private –

b. Mini Stadium : No Yes(Y) /No (N) *(Playground with equipment and sitting arrangement)*

V. Education, ICDS

a. Number of Angan Wadi Centres: 04

b. Number of villages without Angan Wadi Centres –

Names of such villages: –

c. Schools (Number)

Primary Private: – Primary Govt.: 01

Middle Private: – Middle Govt.: 01

Secondary Private: – Secondary Govt.: 01

Higher Secondary Private: – Higher Secondary Govt: 01

VI. Public Distribution System

	Item	Private Contractor	Women's SHG	Gram Panchayat	Cooperative	Other (Mention)	Location in GP (mention Location)	If outside GP, Location & distance from GP HQrs)
a.	Cereal (Rice/ Wheat/ Millets)	–	–	✓	–	–	Palsana	Kalol
b.	Kerosene	–	–	✓	–	–	Palsana	Kalol
c.	Other (mention)	–	–	✓	–	–	Palsana	Kalol

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

(Note: Please aggregate information from village level questionnaires wherever relevant)

VII. Coverage of Villages under different Facilities & Services

	Parameter	Villages Status[1]	Names of Villages Covered	Names of Villages not Covered
a.	Piped Water Supply Coverage to Villages	Covered ✓ Good / Not Covered	Ganpat pura	-
b.	Hand Pump Coverage in Villages:	Covered / Not Covered ✓	-	-
c.	Coverage under Covered Drains:	Covered ✓ / Not Covered	40% Sherisa	-
d.	Coverage under Open Drains:	Covered / Not Covered ✓	-	-
e.	Villages with Household Electricity Connection (Numbers)	Connected ✓ 95% / Not Connected	950 connected	50 (approx) not connected

VIII. Land and Irrigation

	Private Land	Area in Acres		Common Land	Area in Acres		Irrigation Structure	No.
a.	Cultivable Land		d.	Pasture / Grazing Land	-	g.	Check Dam	-
b.	Irrigated Land		e.	Forests/ Plantations	-	h.	Wells/Bore Wells	09
c.	Un-irrigated Land	-	f.	Other Common Land	-	i	Tanks /~~Ponds~~	02

[1] Mention the number of Villages Covered and Not Covered

3

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

(Note: Please aggregate information from village level questionnaires wherever relevant)

IX. Parameters relating to Households & Institutions

		Number
a)	Number of eligible Households for pension (old age, widow, disability)	15 %
b)	Number of Households receiving pension (old age, widow, disability)	13 %
c)	Number of eligible Households who are not receiving pension	-
d)	Number of Households eligible for Ration Card	90 %
e)	Number of eligible HHs having ration cards	-
f)	Number of households covered under RSBY (Rashtriya Swasthya Bima Yojana)	-
g)	Number of HHs covered under AABY (Aam Aadmi Bima Yojana)	-
h)	Number of active Job Card holders under MGNREGA	-
i)	Number of Job Card holders who completed 100 days of work during 2013-14	-
j)	Number of shops selling alcohol	-
k)	Number of BPL families	91 %
l)	Number of landless households	10 %
m)	Number of IAY beneficiaries	-
n)	Number of FRA[2] beneficiaries	-
o)	Number of Community Sanitary Complexes	-
p)	Number of Households headed by single women	5 to 7 %
q)	Number of Households headed by physically handicapped persons	-
r)	Total number of Persons with Disability in the village	-
s)	Number of SHGs	-
t)	Number of active SHGs	-
u)	Number of SHG Federations	-
v)	Number of Youth Clubs	-
w)	Number of Bharat Nirman Volunteers	-

Name and Signature of Surveyor and Respondent'

Surveyor	PRI Respondent (Preferably Gram Panchayat Chairperson)	Official Respondent (Preferably seniormost Government official in the Gram Panchayat)	Date of Survey

[2] The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006

4

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

This questionnaire should be filled for each of the villages in the selected Gram Panchayat[1]

I. Basic Information

a. Village: PALSANA

b. Ward Number: -

c. Gram Panchayat: PALSANA

d. Block: -

e. District: GANDHINAGAR

f. State: GUJARAT

g. Lok Sabha Constituency: _____

h. Number of Habitations / Hamlets in the Gram Panchayat: _____

i. Names of Habitations / Hamlets:

Demographic Information

Number of Households 1000 Total Population 4500 Male 2498 Female 2002

SC HHs _____ ST HHs _____ OBC HHs _____ Other HHs _____

II. Access to Infrastructure/Amenities etc.

i.	Access to Infrastructure / Facilities / Services	Located in the Village Yes (Y)/No(N)	If located elsewhere (N), distance in kms from the village
a.	Nearest Primary School	Yes	
b.	Nearest Middle School	Yes	
c.	Nearest Secondary School	Yes	
d.	Kisan Seva Kendra	NO	4 Km
e.	Milk Cooperative /Collection Centre	Yes	
g.	Health Sub Centre	NO	3.5 Km
h.	Bank	Yes	
i.	ATM	NO	2 Km
j.	Bus Stop	Yes	
k.	Railway Station	NO	6.3 Km

[1] While filling this the surveyor must collect the information from the Ward Member/s and relevant government officials

1

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

i.	Access to Infrastructure / Facilities / Services	Located in the Village Yes (Y)/No(N)	If located elsewhere (N), distance in kms from the village
l	Library	No	2.9 km
m	Common Service Centre	No	3.5 km
n	Veterinary Care Centre	No	5.7 km

ii. Road Connectivity
a. Habitations connected by All-weather Roads *(1-All 2-None 3-Some)*
If 3 mention the name of the habitations where not available: All

iii. Drinking Water Facilities
a.Piped Water Supply Coverage to Habitations: 3 *(1-All 2-None 3-Some)*
If 3 mention the name of the habitations not covered:

b.Hand Pump Coverage in Habitations: 2 *(1-All 2-None 3-Some)*
If 3 mention the name of the habitations not covered:

iv. Coverage of Habitations under Waste Management System
a. Coverage under Covered Drains: 1 *(1-All 2-None 3-Some)*
If 3 mention the name of the habitations not covered:

b. Coverage under Open Drains: 2 *(1-All 2-None 3-Some)*
If 3 mention the name of the habitations not covered:

c. Coverage under Doorstep Waste Collection: *(1-All 2-None 3-Some)*
If 3 mention the name of the habitations not covered:

v. Coverage of Habitations under Electrification
a. Coverage under Household Connections: *(1-All 2-None 3-Some)*
If 3 mention the name of the habitations not covered:

b.Coverage under Street Lighting: All *(1-All 2-None 3-Some)*
If 3 mention the name of the habitations not covered:

vi. Sports Facilities in the Village
a.Number of Play Grounds in the Village (minimum size 200 square meters): None
b.Mini Stadium : No Yes(Y) /No (N)

vii. Education, ICDS
a. Number of Anganwadi Centres: 04
c. Schools (Number)
Primary Private: — Primary Govt.: 01
Middle Private: — Middle Govt.: 01
Secondary Private: — Secondary Govt.: 01
Higher Secondary Private: — Higher Secondary Govt: 01

2

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

viii. Land Category		Area in Acres		Land Category	Area in Acres		Irrigation Structure	No.
a.	Cultivable Land		d.	Pasture / Grazing Land		g.	Check Dam	
b.	Irrigated Land		e.	Forests/ Plnatations		h.	Wells/Bore Wells	
c.	Un-irrigated Land		f.	Other Common Land		I	Tanks /Ponds	

ix. Entitlement Related Parameters		
1	Number of active Job Card holders under MGNREGA	
2	Number of active Job Card holders who have completed 100 days of work	
3	Number of shops selling alcohol	
4	Number of BPL families	
5	Number of landless households	
6	Number of IAY beneficiaries	
7	Number of FRA beneficiaries	
8	Number of common sanitation complexes	
9	Number of SHGs	
10	Number of active SHGs	
11	Existence of SHG Federation in the Village (Yes / No)	
12	Number of Youth Clubs	
13	Number of Bharat Nirman Volunteers	

Name and Signature of Surveyor and Respondent'

Surveyor	PRI Respondent (Preferably a ward member from a ward that is fully or partially covered under the Village)	Official Respondent (Preferably seniormost Government official in the Gram Panchayat)	Date of Survey

3

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

viii. Land Category	Area in Acres		Land Category	Area in Acres		Irrigation Structure	No.
a. Cultivable Land		d.	Pasture / Grazing Land		g.	Check Dam	
b. Irrigated Land		e.	Forests/ Plnatations		h.	Wells/Bore Wells	3
c. Un-irrigated Land		f.	Other Common Land		I	Tanks /Ponds	

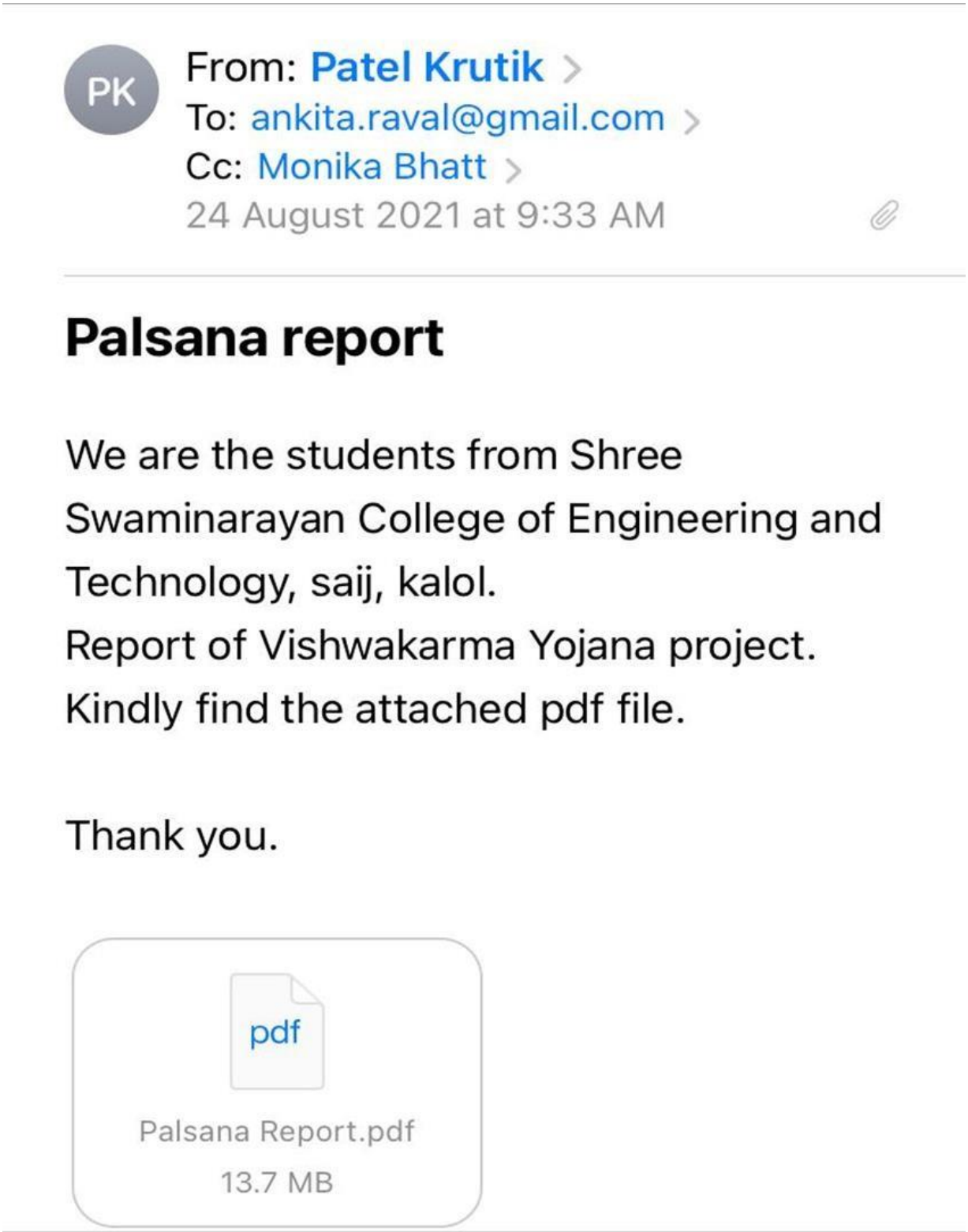
ix. Entitlement Related Parameters		—
1	Number of active Job Card holders under MGNREGA	—
2	Number of active Job Card holders who have completed 100 days of work	—
3	Number of shops selling alcohol	
4	Number of BPL families	9/ ·/·
5	Number of landless households	10·/·
6	Number of IAY beneficiaries	—
7	Number of FRA beneficiaries	—
8	Number of common sanitation complexes	—
9	Number of SHGs	—
10	Number of active SHGs	—
11	Existence of SHG Federation in the Village (Yes / No)	—
12	Number of Youth Clubs	—
13	Number of Bharat Nirman Volunteers	—

Name and Signature of Surveyor and Respondent'

Surveyor	PRI Respondent (Preferably a ward member from a ward that is fully or partially covered under the Village)	સરપંચ પલસાણા ગ્રામ પંચાયત તા.કલોલ, જિ.ગાંધીનગર Official Respondent (Preferably seniormost Government official in the Gram Panchayat)	Date of Survey

CHAPTER 20

TDO-DDO-Collector email sending Soft copy attachment in the report



CHAPTER- 21

Comprehensive report for the entire village

VISHWAKARMA YOJANA PROJECT is a very good initiative by GTU to find out and develop the backward villages in Gujarat, with the help of young talents. Through this project we aim at the study and development of POR VILLAGE located in Gandhinagar District. Palsana is located around 28 kilometer away from its Gandhinagar.Kalol railway station is the nearest railway station which is 6 km away and Sardar Vallabhbhai Patel International Airport is the nearest air port located 27.5 km As per 2011 Census 68.84% of India's population lives in villages. The backwardness of the rural areas would be a major cause to the overall progress of Indian economy. Major part of rural population depends on farming for their livelihood. Due to the unawareness about modern farming technologies and changing climate adversely affects the economical development of rural occupants away from the village. Literacy rate in Palsana town area is 73%. 3707 out of total 4500 population is educated here. Among males the literacy rate is 92.28 %whereas female literacy rate is 82.39%The number of occupied persons of Palsana village area is 1874 however 3195 are un-employed. And out of 1874 occupied individual 146 individuals are completely dependent on cultivation.

Objectives:- To study the existing growth, characteristics and development of villages.To study the existing infrastructure facilities and its management issues phasing by villages.To study strategic planning development of villages. Proposal in the form of Physical, Social and Renewable infrastructure facilities.To provide modern technologies of agriculture facilities for growing crops and take production off arm.To provide Bank and ATM facilities for easier and faster transaction

Scope Of The Study:- To study the future growth and future scenario of village.The study will focus the development trend intensity of growth of the village find out the problems related to the physical development of the area and infrastructure services ofthe village.The information of the village is collected based on different categories like, Education, water facilities, drainage facilities, transportation facilities, primary health center, bank facilities, public toilets, community hall and otheramenities.Based on these studies the requirement can be known and the further plan based on this requirement can be visualize for compacted development of the village To study how to improve facilityof ruralarea.

Location of Village:- Palsana is a Village in Kalol Taluka in Gandhinagar District of Gujarat State, India. It is located 18 KM towards North from District head quarters Gandhinagar. from . 28 KM from State capital Gandhinagar Palsana Pin code is 38271 and postal head office is Palsana

Condition of Village

In Palsana village same Infrastructure Available like a Primary health center, Gram panchayt, Water Tank, Aanganwadi, Primary School for Boys, Primary School for Girls, Post office, Bus stand, there are three number of tube wells is provided in village.Two bore well's , tow water tank, Overhead tank with Capacity of 50,000 liters, and another with capacity 80,000 litters. Generally villagers use water for irrigation from tube wells. One pond is exist in village. For education only two primary school is exist in village and school is in good condition need no to maintenan from leakage in rainy season. There is also availability of higher school, colleges etc.One dudh mandali (small dairy) is available in

village. Gram panchayat is available in village with good condition.There is no availability of community hall, Library, public garden. Post office, market, and ATM facilities, Internet cafesetc.


Fig21.1 Condition of village

As per census of India total population of Palsana village in 2011 total population of Palsana Village is 4500 out of this male population is 2498 and female population is 2002. Total no of Households in 2011 are 1000. Literacy rate in Palsana village is 2001 out of total 4500 population is Literate here. In males the literacy rate is 2557 males out of total 1536 are literate while female Literacy rate is 871 out of total 985 females are educated in Palsana Village. The house condition in the village is very nice among this there is 80% Pucca house and 20% Kutchha house Palsana is large village of kalol In Palsana village there is no private clinics and sub center for any other facility the peoples have.To travel nearby area like Kalol. In Palsana village there is 2 nos. of the primary school and 4 nos. of Aanganwadi and higher secondary school is also in the village. There is no library in the village but the design proposal is given by the development the library in the village

Geographical Detail

Sr. No.	Description	Information/ Detail
1	Area of village (Approx.).	1049.19 hectors.
2	Forest area.	0 hector.
3	Agricultural area.	250 hectors.
4	Residential area.	300 hectors.
5	Distance to the nearest railway station.	In Village
6	Name of the nearest town.	Kalol
7	Distance to the nearest bus station.	In Village

Table12.13 Geographical Details

Economic profile

- The major population of Palsana village is engaged with agricultural activities and other some people is doing business and services.
- The main crops are grown in Palsana villageis: Wheat, bajra/ pearlmillet and costar and agriculture commodities grow in this village.

Social scenario

Particulars	Total	Male	Female
Total No. of Houses	1000	-	-
Population	4500	2498	2002
Child (0-6)	843	459	384
Schedule Caste	263	134	129
Schedule Tribe	24	0	14
Literacy	69.7 %.	70.7 %	29.3 %.
Total Workers	2901	2183	718
Main Worker	2559	-	-
Marginal Worker	342	94	248

Table12.14 social scenario

Occupational Detail:-

- In Palsana village most of the peoples are connected with farming and laborworks.

Services Cluster:-

- Small-scale industries are not available in village.

Agricultural Details:-

- In Palsana village 346 hector agricultural land is available for farming and bore well and piped water is used for irrigationpurpose.
- Palsana village people mostly depends on agriculture product like Cotton, Ground nut, Sugar can, Wheat, Vegetables,etc.

Tourism Cluster:-

- There is no any tourism cluster in Plasana village

List the items from smart cities with the village concept as per Survey and visit, modern technology with innovation can be used in Nardipur village：

First-Smart energy

- "Lighting is ubiquitous—it's everywhere that people work, travel, shop, dine, and relax. Digital communications and energy-efficient LED lighting are revolutionizing urban lighting infrastructures

already in place, transforming them into information pathways with the capacity to collect and share data and offer new insights that enable, and really drive, the smart city," said Susanne Seating, PhD., Philips Lighting, professional systems.

Second- Smart Care

- The Smart Care electronic health record system (EHR) has been developed and deployed by the Zambia Ministry of Health (MoH) in collaboration with the Centres for Disease Control and Prevention (CDC) and many other implementing partners. A fully integrated electronic health record system to provide continuity of care.
- To adapt to changes in population demographics, the development of smarter healthcare services will provide quality services also in the future. Smarter care will reduce costs and connect users within the healthcare industry to provide necessary patient information. Giving caretakers access to patient information will help doctors collaborate in new ways to give the best patient care possible.

Third- infrastructure :Smart

- A smart system uses a feedback loop of data, which provides evidence for Informed decisionmaking. The system can monitor, measure, analyze, communicate and act, based on information captured from sensors. Different levels of smart systems exist.
  A system may:
- Collect usage and performance data to help future designers to produce the next, more efficientversion.
- Collect data, process them and present information to help a human operator to take decisions (for example, traffic systems that detect congestion and inform drivers).

Fourth- Health care facilities :

- Availability of telemedicine facilities to 100% residents.
- 30 minutes‘ emergency response time.
- 1 dispensary for every15,000residents Nursing home, child, welfare and maternity.
- Center - 25 to 30 beds per lakh population.

Fifth- Smart Public Services :

- Smart technologies are making their mark in the public service. One of the main roles of governments involves enhancing provision of smart public services that meets the increasing citizens' expectation. The public sector is essential in society.
- By connecting village residents and authorities using innovative communication technology, villages can become safer, cleaner and the general village standard will improve. If residents have the possibility to report trash or infrastructural problems.

- **List of important survey for comfortable & enhancement of the village :**
- **First**- The Main road of the village is not properly design. So firstly provide proper R.C.C. road village.
- **Second**- A higher education. for students don_t have to go far for
- **Third**- Steps towards enforcement of ―SWACHHTA OF VILLAGE ―which is one initiative towards
- ―SWACHHBHARATABHIYAN‖.
- **Forth**- Provides clear water facilities of villagers and educates them to use water after filter or boil.
- **Five**- Help them to understand about technologies and then understand new farming technologies.

Design Proposals:-

In the Vishwakarma Yojana Phase-VII we amid to provide some facility is require in Palsana village like Health Center, Public Toilet ,Bus Stand, Community Hall, Library, Public Park, Bank, Road design, Samaj seva Kendra, Bio gas Plant, West water treatment, Vertical shaft all destine attached in report All Desgine included Plan, Elevation, Section

Conclusion

The conclusion operates a return on the objective of this work, which was to provide elements of understanding on the dynamics of rural and peri-urban territories, combining regional science and works more explicitly dedicated to rural development and the policy relating thereto. The need to take fully into account the territorial dimension—i.e. a fine knowledge of identity, governance, organizational aspects and local resources, etc.—is emphasized as a central element for understanding the diversity of trajectories and patterns of rural and peri-urban areas, and implement appropriate public policies. But think future patterns of development rural areas also means paying attention to adaptation and resilience processes, energy transition and climate change issues, and new initiatives—often marked by technology and collaborative dimensions—that bloom everywhere on the planet. The development and implementation of experimental, interdisciplinary and participatory research devices is in this context a crucial need.