VISHWAKARMA YOJNA: VIII AN APPROACH TOWARDS RURBANISATION

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Abstract: Gujarat Technological University (GTU) is allotted important and prestigious project of Vishwakarma Yojana by the Government of Gujarat. Which was allotted as a real time situation type project provides to GTU for provide knowledge in the development of rural infrastructure planning & management by students. Development of rural people by providing adequate and quality social services and minimum basic needs becomes essential, This Project deals with the same. This project is one of the approaches to reduce urban city Pressure and lower the migration rate by developing village with a rural soul but with all urban amenities that a city may have. It is also to provide the benefit of real work experience to us and simultaneously apply our technical knowledge in the development of infrastructure in rural development. We would study the identified villages and make the recommendations on the application of technology to achieve integrated and comprehensive development, through project preparation and management.

Ranasan is located at Gandhi Nagar district of Gujarat. Ranasan is 18 km far from Gandhinagar. Total Population of Ranasan village is 1804 and 350 household as per census 2011. Main Occupation of villagers is agriculture 60%, animal husbandry 30%, and job 10%.

Virtual reality (VR) refers to a computer-generated simulation in which a person can interact within an artificial three-dimensional environment using electronic devices, such as special goggles with a screen or gloves fitted with sensors. In this simulated artificial environment, the user is able to have a realistic-feeling experience. This technology has implemented by us in this project.

After fulfill all basic facilities like proposed designs Government can develop village further development with industrialization because of nearby industrial area and also as little tourism place because of lakes and religious place in village. With development and growth of Ahmadabad city village will get develop and get all city like amenities. Villagers will get better employment, better education and better lifestyle of villagers.

***Index Terms*- Rural development, Reduce urban city, Lower the migration rate, Urban amenities, infrastructure planning.**

I.INTRODUCTION

"Vishwakarma Yojana" is important and prestigious project allotted to GTU by the Government of Gujarat. Which was allotted as a real time situation type project provides to GTU for provide knowledge in the development of rural infrastructure planning & management by students. This project is one of the approaches to reduce urban city Pressure and lower the migration rate by developing village with a rural soul but with all urban amenities that a city may have. It is also to provide the benefit of real work experience to us and simultaneously apply our technical knowledge in the development of infrastructure in rural development.

Village can consider as "Ideal Village" if it consists all basic amenities like basic infrastructure, Proper sanitation and drainage facilities, sufficient source of water, Education facelifts, Healthcare centers, Market, Good connectivity within the village.

There is no universally accepted definition of a smart village. It means different things to different people. The conceptualization of Smart Village, therefore, varies from country to country, depending on the level of development, willingness to change and reform, resources and aspirations of the village residents. A smart village would have a different connotation in India than, say, Europe. Even in India, there is no one way of defining a smart village. Smart village is an "Ideal Village With Technology".

Objectives:

- To Co-operate on planning and future development in consideration of the village as a whole.
- To prevent distress migration from rural to urban areas, which is a common phenomenon in India's villages due to lack of opportunities and facilities that guarantee a decent standard of living.
- To develop new transportation infrastructure for make the village safe and accessible via all modes of transportation.
- To provide easier, faster and cheaper access to urban markets for agricultural produce or other marketable commodities produced in such villages.
- To continue to increase the level and quality of services and infrastructure within the village.
- To create a healthy and sustainable community.

II.SWOT ANALYSIS OF IDEAL VILLAGE

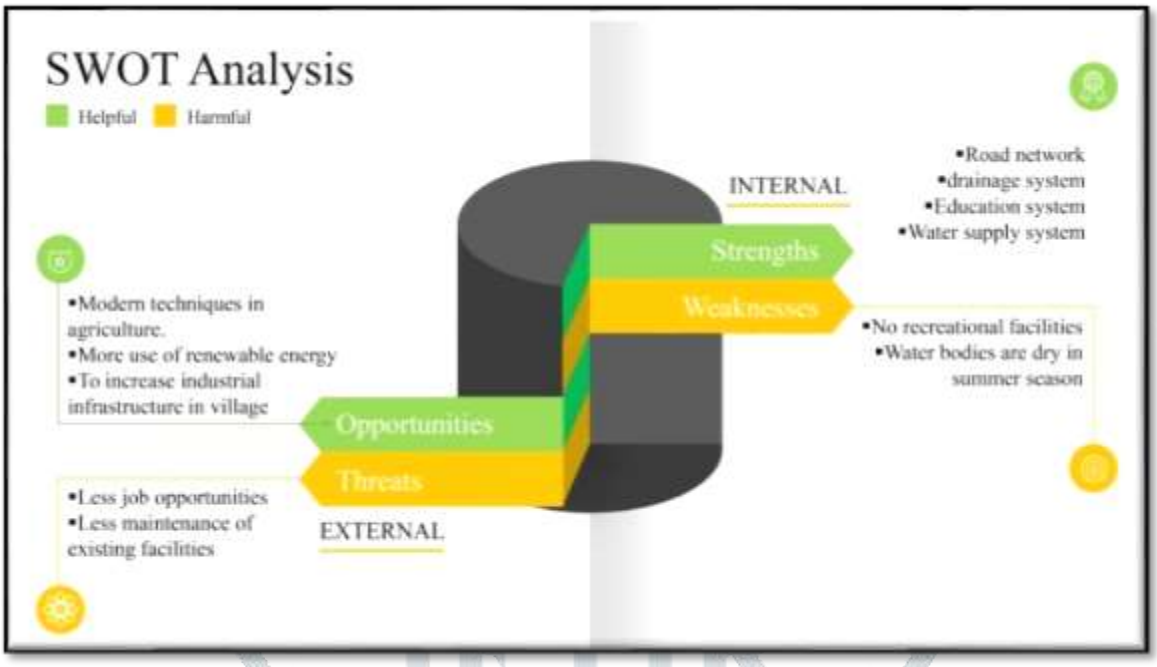


Figure II.1SWOT ANALYSIS

III.ALLOCATED VILLAGE:

1) INTRODUCTION:

- Village Name :Ranasan
- Taluka :Gandhinagar
- District :Gandhinagar
- State :Gujarat
- Pincode : 382330
- Longitude :23°06'34.7"N
- Latitude :72°41'07.0"E
- Area : 290 hectares
- Population :1804
  (As per census 2011)
- Households : 350
- Nearest Town : Gandhinagar (18 km)

Figure III.1 Ranasan location in Gandhinagar

2) NEED OF THE STUDY:

- To know the current development going on in village.
- To know the problems which villagers are facing.
- To provide basic and sustainable facilities to rural area to reduce the pressure on urban areas.
- To improve the living standard of rural people by providing facilities and better Infrastructure.

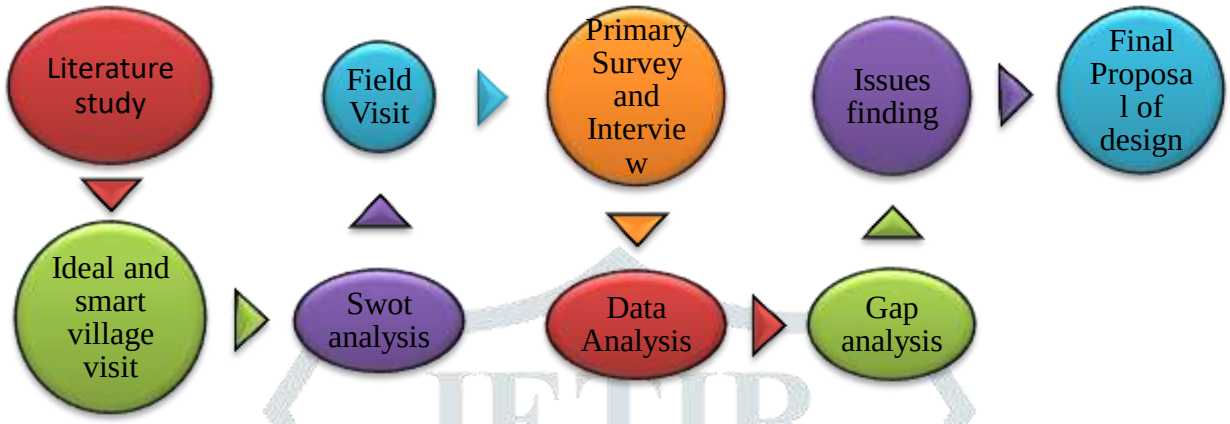
Figure III.2 Ranasan Village

3) OBJECTIVES OF THE STUDY:

- To analyze existing condition of village.

- To reduce migration from rural area to urban area.
- To provide the necessary designs of the public buildings which are not available in the village.
- To check Existing Public Buildings, if they are damaged and require repair & maintenance for longer life of building.
- To promote integrated development of Ranasan village with provision of required facilities, better life style, better connectivity and other.

4) METHODOLOGY:



IV.ELECTRICAL CONCEPT:

India is one of the largest countries in the world, where the people's occupation is predominantly agriculture and most of the population lives in villages. Many of these villages are remotely located and their connectivity with the grid is very difficult resulting in their being not electrified at all or lack of continuous supply. For the development of the region, there is every need to utilize energy efficient techniques and potential of available renewable energy resources.Renewable energy is energy generated from natural resources such as sunlight, wind, rain, tides and geothermal heat which are renewable.Renewable energy is energy that is generated from natural processes that are continuously replenished.

V.AWARENESS ACTIVITY:

1) SWATCHH BHARAT ABHIYAN (CLEAN INDIA):

- Village need to be clean in current situation. There is no solid waste management collection system in village. Also no dustbins are in use for collect waste. Villagers throw waste on empty unused land and road sides. Lake of village is also polluted and water can't be used due to drainage network of also get discharge in lake.
- Swatch bharat activity is done by us at village. In this activity major public buildings (including Panchayat, Anganwadi, primary school, Dudh dairy, temples, community hall; etc.) and main road of village at entry of village cleaned by us. Where all villagers easily can get attention to this activity. When villagers saw us and ask why this activity getting done by us, we aware them about importance of swatchhta in village.
- The villager aware by us and insist to use dustbins at every houses and public buildings and increase the cleaning village process regularly.

Figure V.1 SWATCHH BHARAT ABHIYAN

2) COVID-19 AWARENESS:

- In Ranasan village all villagers strictly followed all government guideline about covid-19. All villagers stayed at home during lockdown period excepting villagers working in daily needed things.
- Hence we planned to aware villagers about symptoms and precautions of covid-19. And check temperature of outsiders coming to village and sanitize them. And distribute mask and aware them to wear mask compulsory.
- Poster of symptoms and precautions for covid-19 had prepared by us. Poster putted on entry of village and Panchayat building by us. After that explained poster and aware villagers about symptoms and precautions. Checking temperature, sanitize every passing person into village and distribute mask done by us whole day at entry of village.

Figure V.2 COVID-19 Awarness activity

Figure V.3 Awarness poster

VI.PROPOSED DESIGNS:

Proposed designs are:

1)	**Internet cafe**	**2)**	**Medical store**
3)	**Healthcare Centre**	**4)**	**Post office**
5)	**Control room for smart pole**	**6)**	**Bank with ATM**
7)	**Water tank**	**8)**	**Farmer help Centre**
9)	**Library**	**10)**	**Bus stand**
11)	**Storage yard**	**12)**	**Public garden**
13)	**Electrical design for bank with ATM**	**14)**	**Electrical design for on grid solar rooftop**

1) INTERNET CAFÉ:

Due to growing digitalization of India villagers and mostly youngsters needs to do their work online with computers with high speed internet connection. For villagers, regular visits to an internet cafe are cheaper than maintaining a home computer. Internet cafe offers all of the computer, software, hardware and internet connection that they need. Attached printing shop will provide printing needs of students in all project work and office work with different types of print.

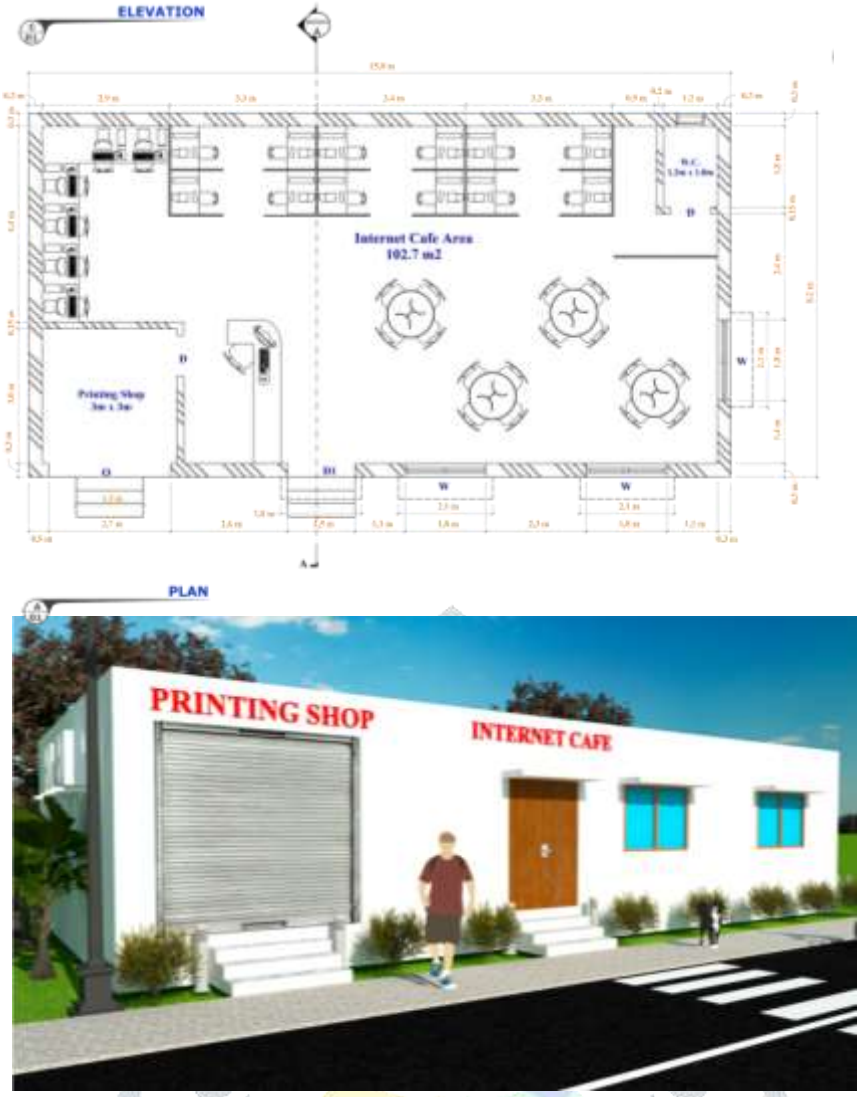


Figure VI.1 PLAN & 3DRENDER

2) MEDICAL STORE:

Medical store will be great beneficial for aged and alone people in village. They can buy their medicine them self. They would not be depend on others for bring this medicine form city. Shop can provide all medicine for regular illness for all villagers. It can be much helpful in medical emergency situation.Get The Genuine Products. Then the bulk pharmacist, retail sellers of drugs are more experienced. Knowledgeable Pharmacists At villager'sService.Home Delivery on a Rapid Basis. Maintaining the Privacy.

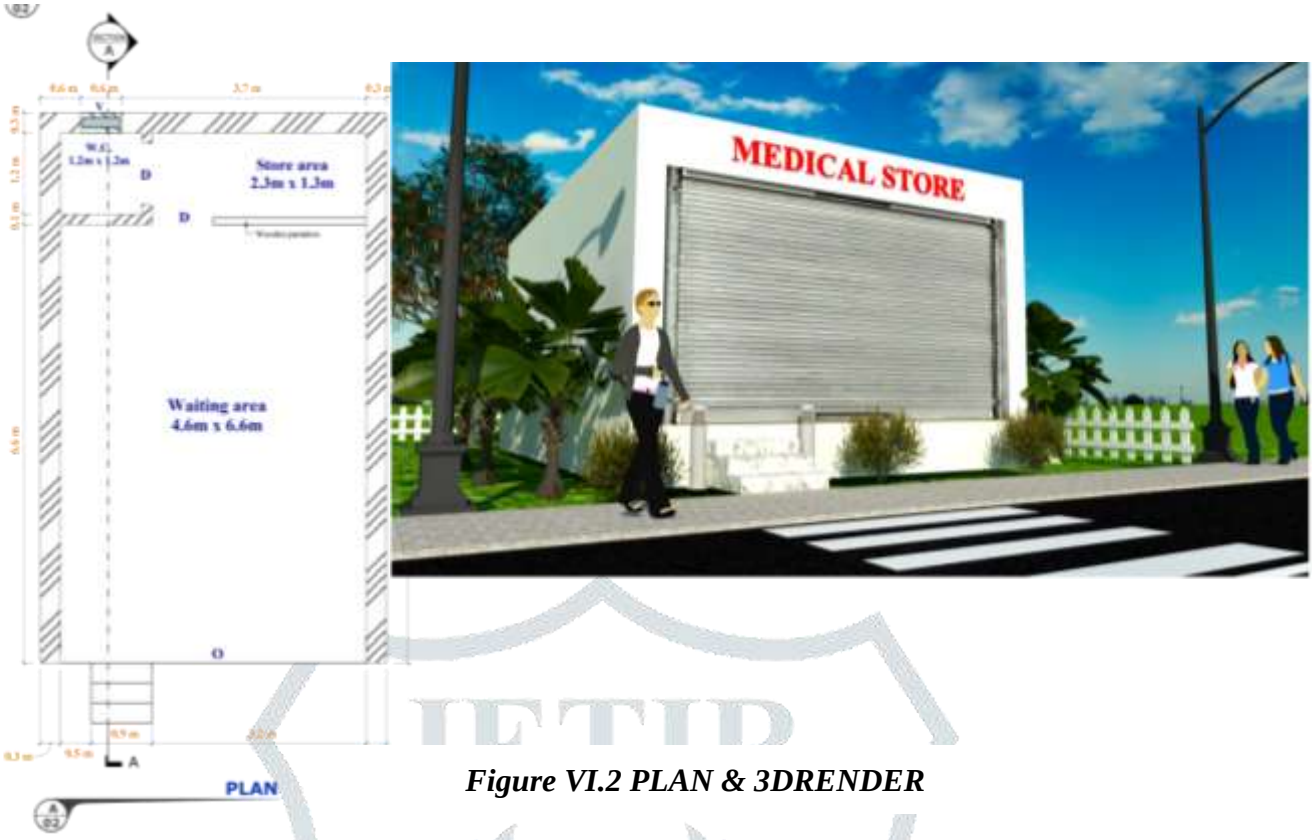


Figure VI.2 PLAN & 3DRENDER

3) HEALTHCARE CENTRE:

Village has no PHC or any private hospital in village. Villagers need to go in city area for any kind of medical treatment. This design of PHC will great beneficial to villagers in time of any medical emergencies and also, they will not need to go far for daily checkups. PHC will provide Continuity, Convenience, Health maintenance, Early detection, better communication

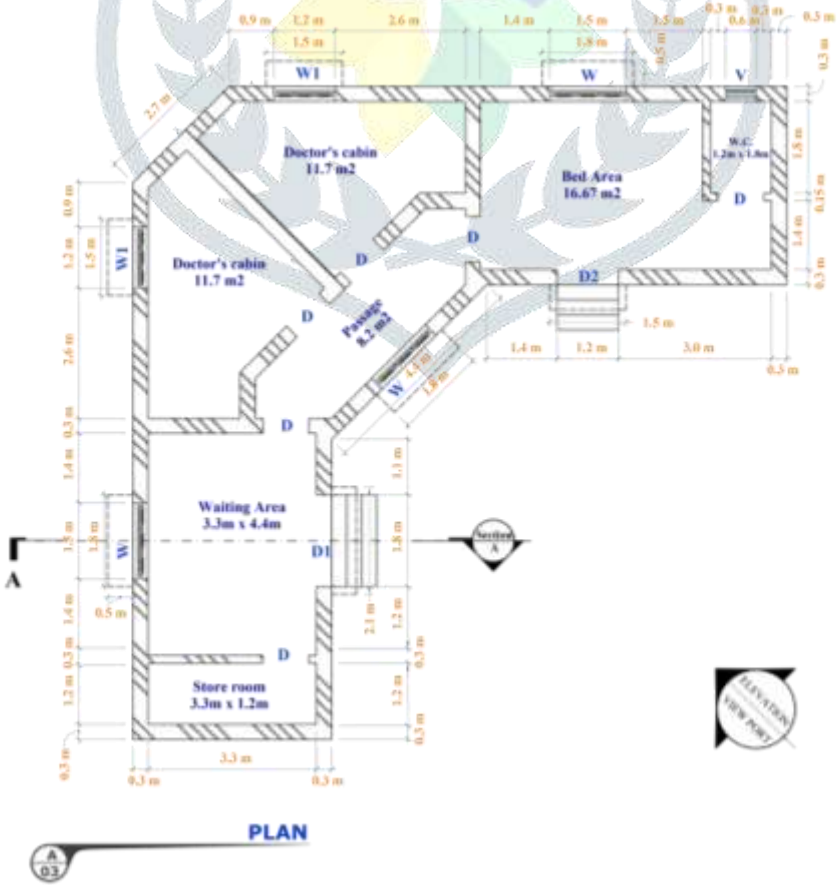


Figure VI.3 PLAN & 3DRENDER

4) POST OFFICE:

Post office will provide all post related facilities to villager in village itself. Villagers will not need to go far for using post facilities. Like post letters and parcels and post related money transactions. This will mainly beneficial to farmers of village which work whole day in farm and have no time to go in city area for post facilities.

Villagers will get benefits of amenities like:

•Post Office regular savings account.
•Post Office time deposit account
•Post Office recurring deposit account
•Post Office monthly income deposit account
•Public Provident Fund account
•Sukanya Samriddhi Yojana Account
•Kisan Vikas Patra account.
•National Savings Certificate

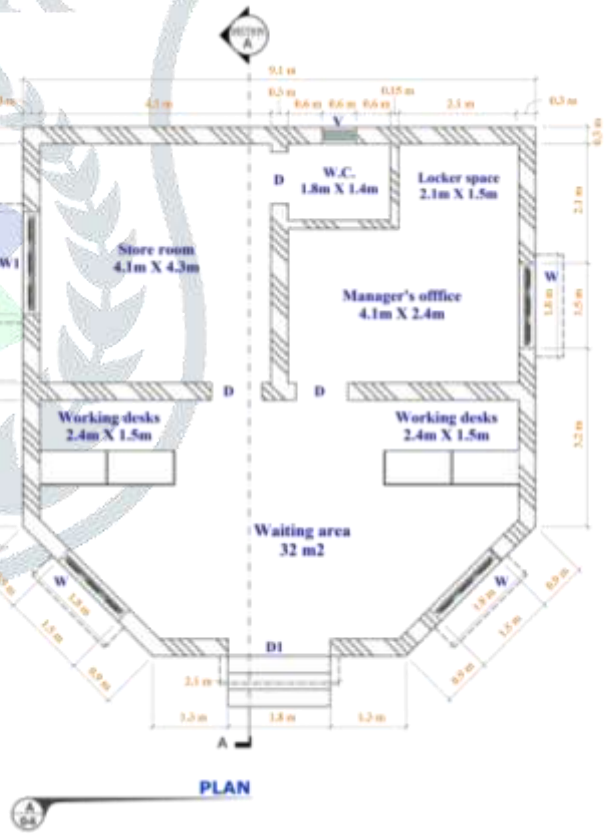


Figure VI.4 PLAN & 3DRENDER

5) CONTROL ROOM:

Smart pole and its control room will include cameras, Wi-Fi and announcement speaker on pillars in all over village. Cameras will mainly beneficial to villagers in terms of security and surveillance. Wi-Fi will provide all villagers fast internet which is most necessary in recent times of work from home and online studies. Speakers for announcement can used for all basic announcement for villagers at same time and also for emergencies and daily announcements. This design will lead this village in way of becoming smart village**.**

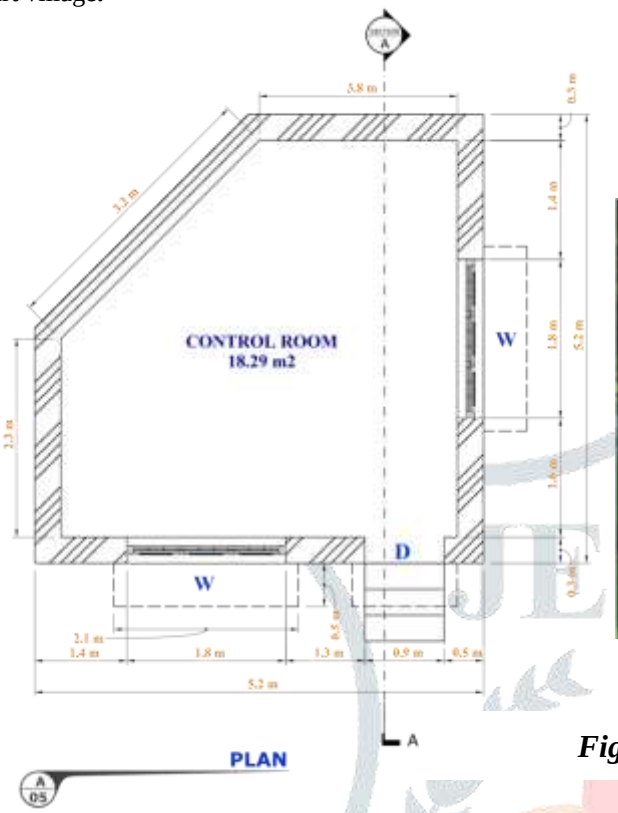


Figure VI.5 PLAN & 3DRENDER

6) BANK AND ATM:

Bank and ATM will provide all money related transaction within village. It will easy to villagers for getting all facilities of loans, insurance, and other banking facilities. Villagers can easily do transaction of money from bank they will not need to travel in emergency for money

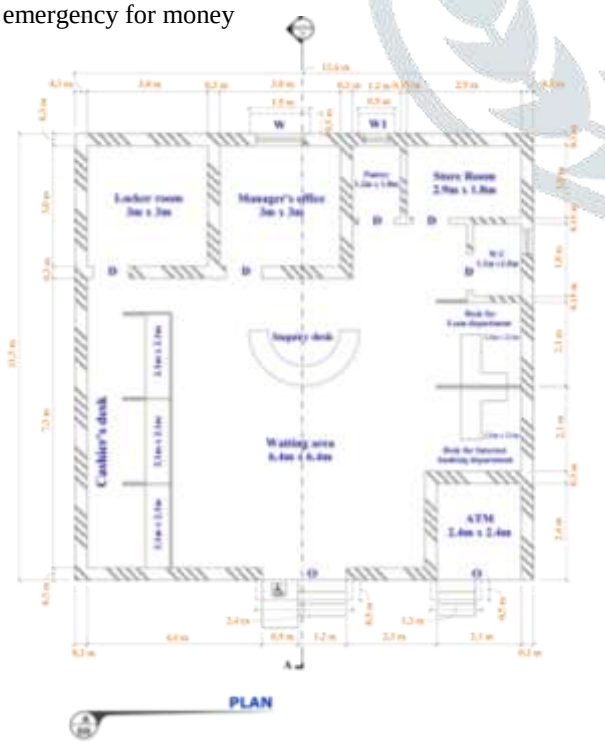


Figure VI.6 PLAN & 3DRENDER

7) WATER TANK:

Provision of water tank will fulfill requirement of water in village adequately. Overhead water tank delivers water pressure to all the processes, moderately at a constant level. Hence, it will serve water to entire village without any interruptions. If there is an energy situation where pump get fail, then the water pressure is still available there for fire oppression as well as other vital needs, up to the capacity of the overhead water tank.

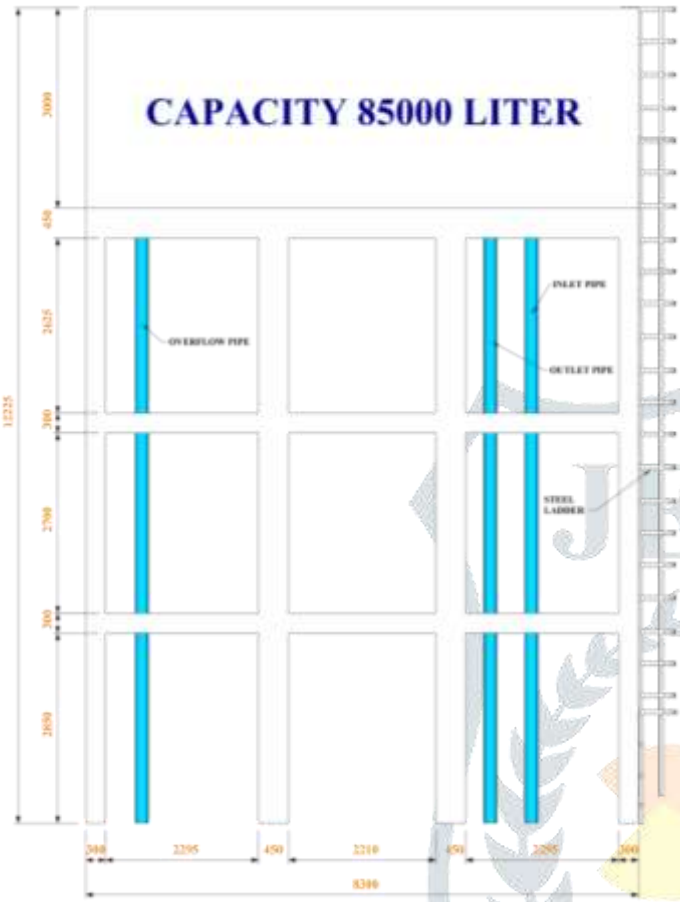


Figure VI.7 ELEVATION & 3DRENDER

8) FARMER HELP CENTRE:

Farmer help center will fulfill different helps to farmers of village like:

- All matters related to Gujarat Agriculture University.
- Manure and fertilizers including trading schemes.
- Support prices of agriculture products excluding food grains.
- Research and education related to Agriculture.
- All matters and schemes related to land improvement.
- All schemes related to water conservation using ponds/water conservator scheme.
- All scheme related and subsidy related activities of Wells for irrigation, Oil engine, Electric motor, Pump set, Submersible Pump Set etc.
- Activities related to Crop Insurance Scheme, Crop credit and marketing, Short-term loan, etc.

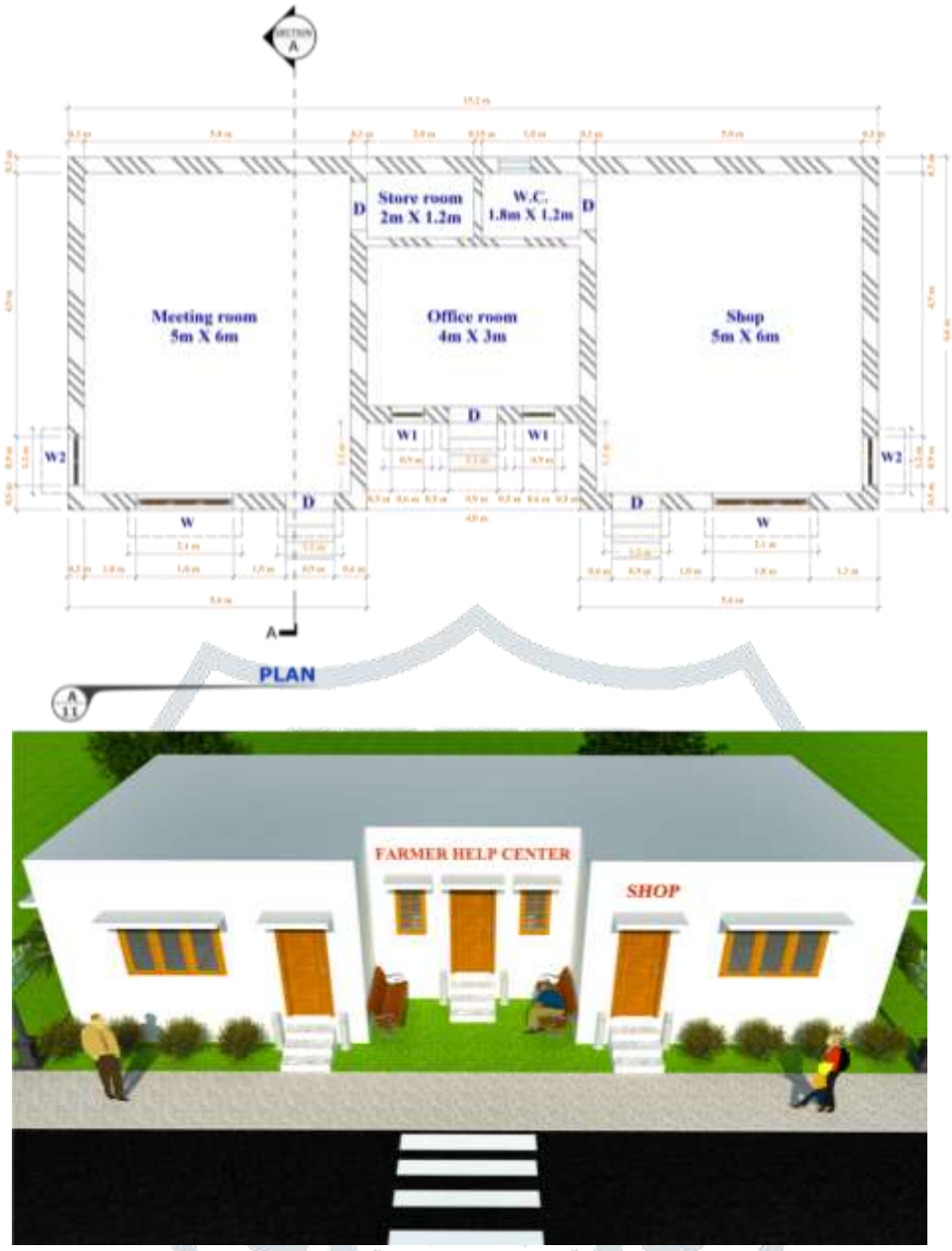


Figure VI.8 PLAN & 3DRENDER

9) LIBRARY:

Provision of library will provide all types of books for villagers. This will help mainly to the students and for those who are preparing for competitive exams.Library will provide discipline area to study and free internet. In design of library there are two different zones for reading from which one is allocated for study in silence with no noise and second one is allocated for group discussion or group study.

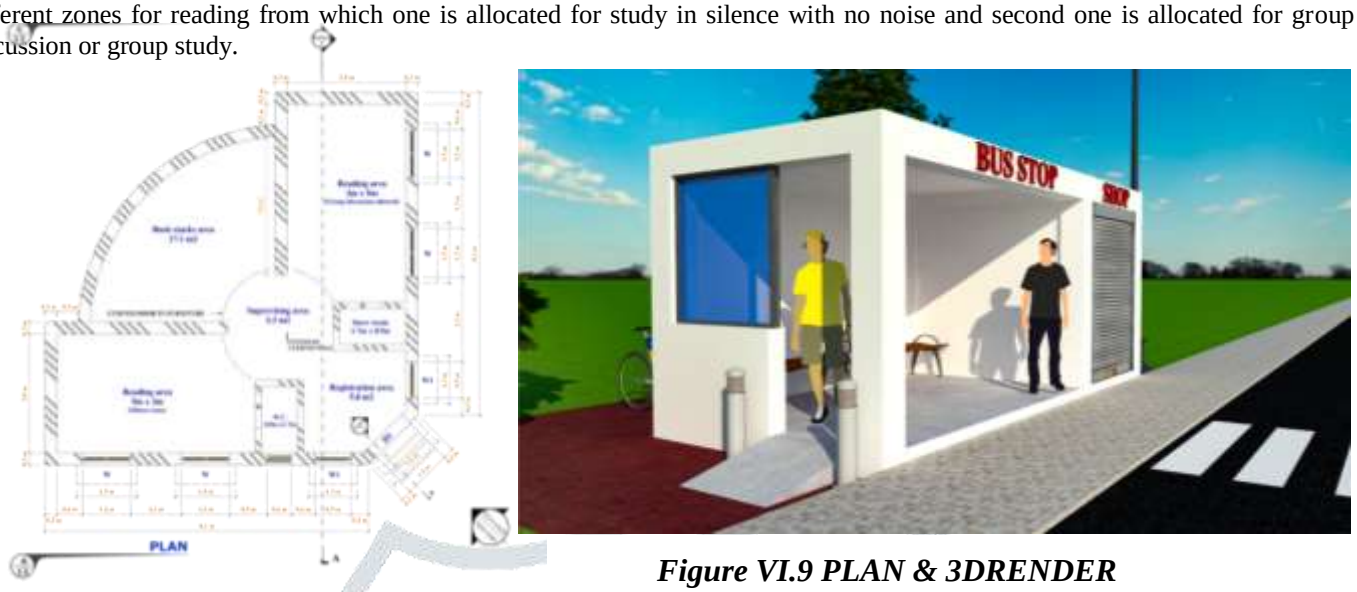


Figure VI.9 PLAN & 3DRENDER

10) BUS STAND:

Bus stop will serve the villagers to bus service which in not available in village in current conditions. It will enhance the transport service of village and it will make easy of transportation for villagers.

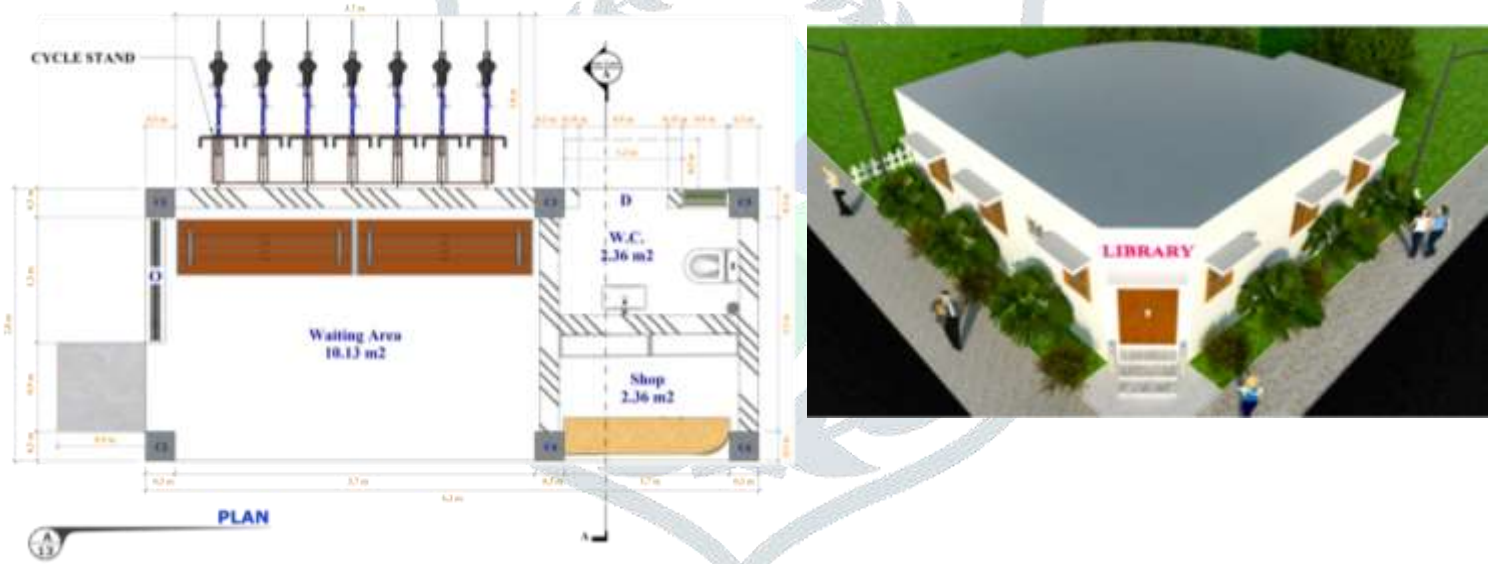
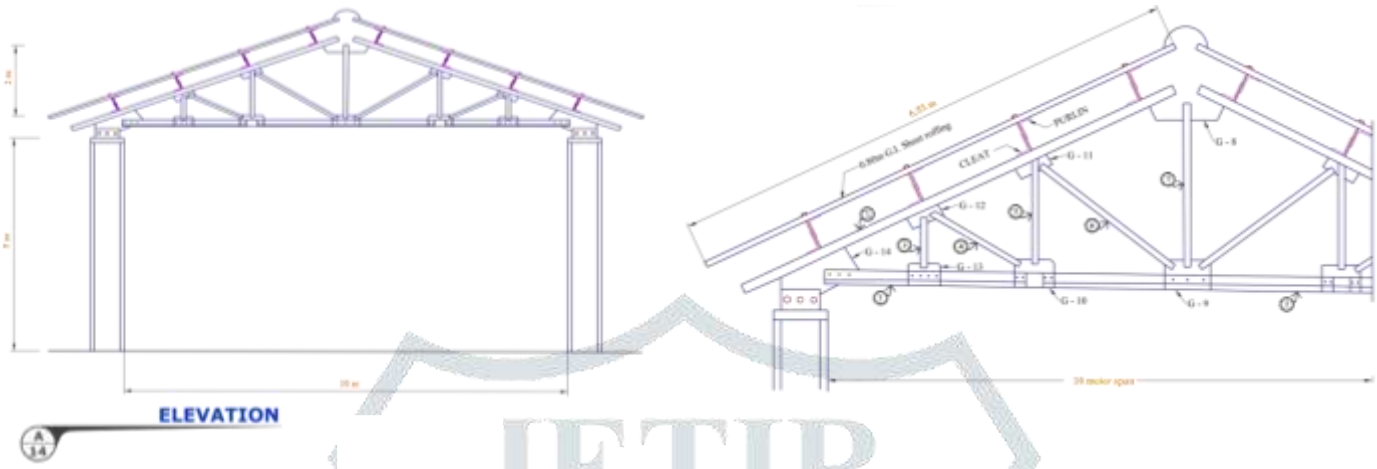


Figure VI.10 PLAN & 3DRENDER

11) STORAGE YARD:

There is rain line passing through village. Providing storage yard by joining it with extra rail line will serve the industrial area near the village in Ahmedabad.It will most beneficial for industrial area and will directly effect in increase of business in village and faster development of village. In Ahmedabad Unloading of industrial goods form train are done at only one yard which is at center of Ahmedabad. For transporting goods and raw material from that storage yard industries have to wait till night for low traffic situations.Proving storage yard will directly serve to all industries in north side of Ahmedabad. Industries will not have to wait till night they can transport goods directly from S.P. ring road to industries. It will most helpful to nearest industries in Naroda GIDC. As per requirement multiple storages can provide as shown in design.



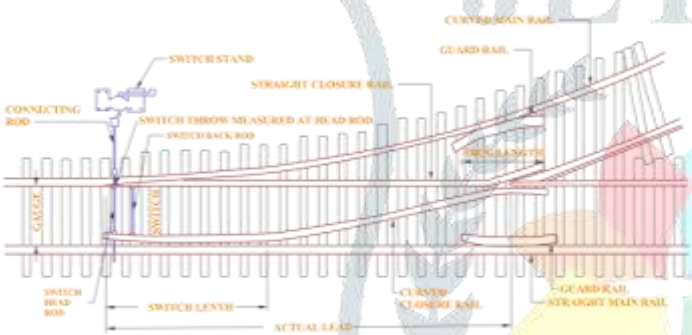
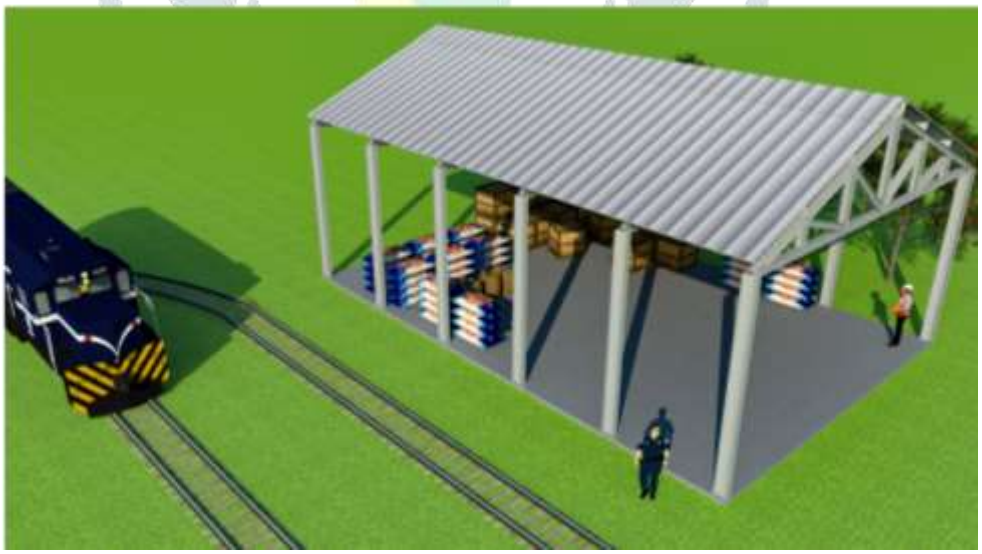


Figure VI.11 DESIGN DETAILS & 3DRENDER



12) PUBLIC GARDEN:

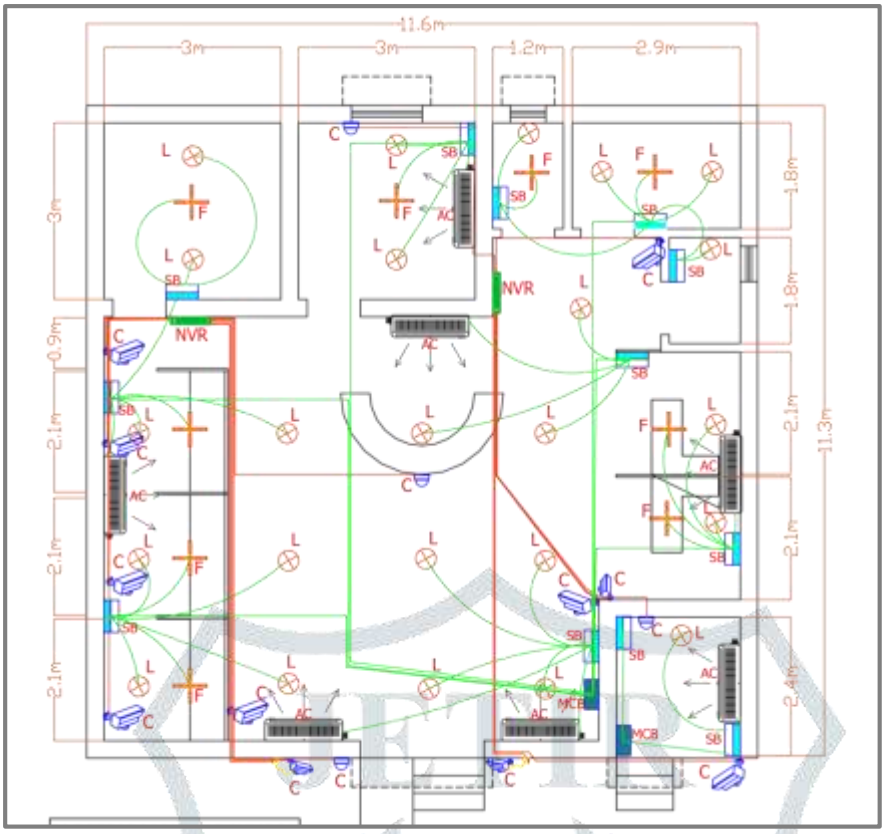
There are no recreation facilities or play ground in village. This proposed garden will provide different facilities to village.Garden will provide refreshment to villagers. Children can enjoy different slides and swings at play area. Jogging can be done on circular path of garden at early morning. Exercise equipment can be used by villagers for better fitness.Open air theater provided in garden can use for different awareness programs, act Drama or play. Match or movies can be shown on projector in open air theater. Village meeting can be also done.One shop will provide water and different juice and snacks for visitors of garden. And other shop will provide playing equipment like ball, badminton, etc.This will also attract visitors from nearby villages and area to village. This can improve business in village. And it will help in development of village.

Figure VI.12 3D RENDER

Figure VI.13 Plan

13) ELECTRICAL DESIGN FOR BANK WITH ATM;

- No risk of fire
- No risk of electrical shock
- It is a waterproof wiring system
- It is a long-lasting and reliable
- Maintenance is easy.
- As we have used separate MCB for every room the safety will be more for the equipment.
- we have taken separate sub circuit for every room so it will be very easy for maintenance and identification of fault.
- concealed conduit wiring systems has a long life and is the safest wiring system.



14) ELECTRICAL DESIGN FOR ONGRID SOLAR ROOFTOP:

- By Solar on grid system the village panchayat can get some income through it by supplying electricity back to grid.
- The electricity bill will be negligible or can be recovered in short period of time.
- By installing solar grid system, the village is producing green energy for the government.
- It's No-fuel-cost, It's Eco-friendly system.Low maintenance cost.

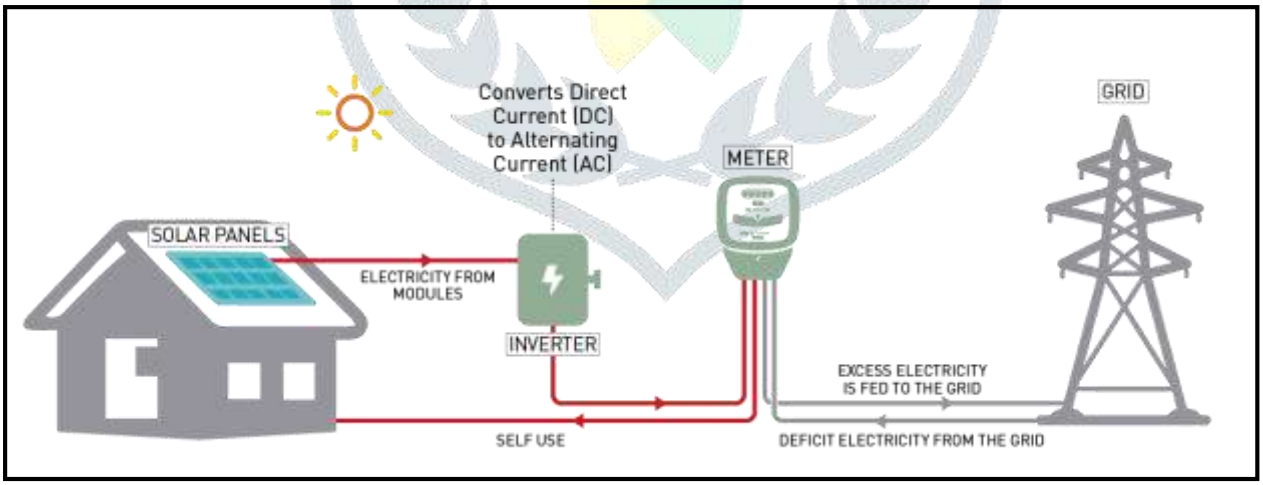


Figure VI.15 On Grid Solar rooftop

VII. Conclusion of the Entire Village Activities of the Project

First of all we visited the Ideal and Smart village to analyze the basic and smart facilities provided to their villagers and from that the allocated village can also get this type of the facilities.

After that from the study of different literature about urban and rural areas, we describe the difference between urban and rural areas. From this study we can better understand the reason of the migration from rural to urban area and reduce that in the quite effective manner.

Finally, we visited the allocated Ranasan village.

From the survey and visual inspection of a village, we found the lack of the amenities and basic needs provided to the villagers. Also the Basic Infrastructural facilities were observed and their structural and infrastructural conditions checked from the visual inspection of the village.

Further designs for better development of villages are proposed by us. Proposed designs are:

- Internet cafe
- Medical store
- Healthcare center
- Post office
- Control room for Smart pole
- Bank with ATM
- Water tank
- Farmer help center
- Library
- Bus stand
- Storage yard
- Public garden
- Smart pole in entire village
- Solar water pump
- On grid Solar rooftop

From the above stated designs it can be observed that after providing the design of bus stand, Public garden, Farmer help centers etc. with the minimum cost and the structural design. All the structural drawings and estimation are provided with the optimum cost and proper structural layout and it's 3D drawings.

After that some of the activities in village like swatchhtaabhiyan, awareness of covid-19 and Vaccination awareness were performed. In Swatchhtaabhiyan major public buildings and main road of village at entry of village cleaned to aware the villagers to keep their village clean and neat for better environment. In awareness of covid-19 villagers get aware by us about symptoms and precautions of covid-19 through poster & interaction. Distribution of mask and sanitized also done by us to all coming people in village whole day. In vaccination awareness villagers got aware by importance of vaccination, and low symptomatic Covid-19 after taking vaccine. Whole process of vaccination from registration to the measures after vaccination explained to villagers. After such activities villagers gave positive responses about taking care of cleanness in village, prevent them self from Covid-19 and to take vaccine for prevention from Covid-19.

VIII. References

- IS 456: 2000 (Reinforced Concrete structure)
- IS 875: 1987 (Load calculation)
- Deign of RCC water tanks : IS 3390:2009 by Dr. Mahesh N Verma. (Ebook)
- IS 3370 (Part-I)-1967 Code of practice for Concrete Structures for the Storage of Liquids
- RCC Designs by Dr. B C Punmia, Ashok Kumar Jain and Arun Kumar Jain, tenth edition , Laxm
- Publication.
- SP-16 "Design Aids for reinforced concrete design" for IS 456