



POORNIMA

INSTITUTE OF ENGINEERING & TECHNOLOGY

Report on Electrification of Government School by Electrical Engineering Students

Introduction:

Electricity is the most versatile and easily controlled form of energy. At the point of *use* it is practically loss-free and essentially non-polluting. At the point of *generation* it can be produced clean with entirely renewable methods, such as wind, water and sunlight.

Electricity is weightless, easier to transport and distribute, and it represents the most efficient way of consuming energy.

Current extent of electrification:

While electrification of cities and homes has existed since the late 19th century even today about 1.3 billion people lack electricity, mostly in Africa and the Indian subcontinent. One estimate (2010) suggests that as many as half of India's households lack electricity.

Most recent progress in electrification took place between the 1950s and 1980s. Vast gains were seen in the 1970s and 1980s - from 49% of the world's population in 1970 to 76% in 1990. Recent gains have been more modest - by the early 2010s 81 to 83% of the world's population had access to electricity.

With this motivation our students find a way to work with a government school to electrify it with the help of solar.

Project venue: राजकीय प्राथमिक विद्यालय, महावीर कॉलोनी सांगानेर जयपुर

Details of School:

- This school is up to 5th standard
- School having strength of 80+ students.
- There are 04 teachers working in this school.
- School consisting of two rooms.
- There is **NO ELECTRICITY** in this school.
- Teachers and children's of this school are suffering from the problem due to not having electricity especially in summer.

Title of the Project: IOT based electricity distribution

Project Summary:- As many countries using the technologies like Internet of Things (IOT) in their home automation system. So we also want to implement these type of technologies in rural areas of India so that people will aware of existence of these technologies, that one can operate different components from one place. As we know that the electricity is biggest need of today's

world so by using the smart components of electricity like smart meter ,green cables we can reduced the cost of electricity bill also.

Technical details of the Projects:

1. IOT(internet of things)
2. Advance metering system
3. LIST OF COMPONENTS
 - smart electric meter
 - fuses
 - distribution box
 - main switch (MCCB)
 - trip switch (RCCB)
 - wall switches
 - plug socket
 - LED
 - electric wire (green cables)
 - Two way switch

Origin of the Proposal: Now days without electricity we cannot imagine our daily life because electricity has become a biggest necessity for all of us. So by using smart technologies like Internet of things (IOT) we develop an automation system in government school and reduce the electricity by use of smart components.

Problem Statement:

- The high cost of electricity bills and the people of rural areas is still does not aware of technologies like IOT.
- So to improve the living standard, the world is move towards the automation system.

Objectives:-

1. To aware the people of rural areas, existence of technologies like IOT.
2. To reduce electricity bill.
3. To implement smart components like smart meter, green cables etc.

Work Plan:

Stage 1: First select the workplace where electrification required.

Stage 2: To design the circuit for each module of the project using AUTOCAD & MATLAB.

Stage 3: To check the circuit of every module & correction of the errors.

Stage 4: Purchas necessary component.

Stage 5: Making to hardware module.

Stage 6: Report Writing.

Methodology:

- Making the block diagram, flow chart of the project.
- Find out the possible changes for reducing the cost & to make the system efficient.
- To study the every component used in the project.
- To designing the circuit for each module, circuit testing (by using MATLAB).
- Implantation of project.
- After completion of practical module of project then connecting it with IOT.
- Testing of IOT system.
- Verify the system output.
- Report & PPT making.

Organization of work element:

- Study of technology and learning the usage of IOT.
- Development of hardware and software components of the project.
- Integration and testing of the system.

Proposed outcome/ findings:

- To Save Energy.
- To Reduce Electricity Bill.
- To aware people about new technology like IOT.
- Details of facilities to be provided by the Institution:
Institute is providing school in rural area, give time to work that place and give transport facility.

Utilization of the outcome of project:

- The project will be deployed in a real time environment.
- The outcome of the project will be presented in various technology competitions and conferences.
- The report of the project will be prepared and present to DST, Rajasthan.
- Reduce the electricity consumption.
- All load of particular place can be controlled by one operator.

Project Team Members:

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Photographs of Project:





