

Power theft detection in transmission line with location.

Mr.P.S.Linge, Sonkamble aditi, Wattatwad vaishnavi, Takale rutiksha, Yadav priyanka

Prof , Government Polytechnic , Nanded Maharashtra - 431602
Students, Government Polytechnic , Nanded Maharashtra - 431602

Abstract -

This paper focuses on a power theft detection with location. The electrical power theft detection system is used to detect unauthorized tapping on distribution lines. Implementation of a neighborhood of this system might be a distribution network of the electrical power supply system. The existing system isn't ready to identify the precise location of tapping. the goal of this paper is to design one of these gadget with a purpose to try and reduce the illegal use of power and also lessen the probabilities of theft.

Keywords: Gsm,LCD , Arduino, Relay,Buzzer, CT,

1.INTRODUCTION

In this research we have focused on the most common practice of stealing power which is tapping. The system has been designed to detect the theft and also inform to the nearest substation and to the consumer. This model try to achieve theft control is the most important work. Done by the project.

Electricity is the modern man's most convenient and Useful form of energy without which the present social Infrastructure would not be feasible. When significance of Electricity is at the growing

Aspect, then the stealing of this Energy or illegal intake of electricity from the transmission Traces

could be prevented. Electricity theft has come to be a Incredible task to the energy board.

Crores of rupees every year lose in India due to electricity utilities power theft. Electricity theft is a crime According to Section 135 of the Electricity Act 2003.

Electricity theft is a very common problem, especially in our country. As our population is high so the use of electricity is tremendously high. There are many operational losses involve in the generation, transmission, and distribution of electrical energy. Whereas the losses implicated in generation can be technically defined, but transmission and distribution losses cannot be precisely quantified with the sending end information. In T&D the technical losses are computed with the information about total load and the total energy bill.

2.Objectives :-

- 1) To develop a web based mobile app for the authorized officials of electricity board
- 2) To keep track of all the thefts, area of thefts and the direction to reach the area under theft.

- 3) To detect the power theft automatically without engaging any man powers by developing a cost effective and efficient system.
- 4) To reduce power consumption and losses and closely monitored so that the generated electricity get properly used.

3.Literature survey :-

In the system proposed by Rhea Prakash, E. Annie Elisabeth Jebaseeli, Y.S.U.Sindhu the theft detection is done by using PIC microcontroller, sensor, GSM module and LCD display.

As we know electricity theft is most done by meter bypassing. The heart of the system is Arduino controller as it consists of two microcontrollers.

The project basically consist of two CTs one is fitted on one end of the pole and another is connected to another end of the pole and voltage pattern

Theft load is connected to the system which is detected by Arduino controller then it gives message to the utility by using GSM module fitted with Arduino kit.

4.components :-

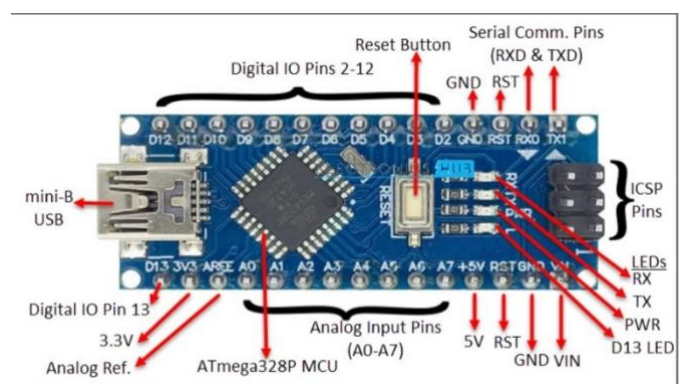
List of the components

1. Aurdino nano
2. Lcd
3. Gps model
4. Gsm

1) Aurdino nano:-

Resistors, Transformer, Relay and Liquid Crystal display There are a couple of ways in which you can

power the Nano board. The first and easy way is using the mini-B type USB Connector. The next way is to provide a regulated 5V supply through the 5V pin (Pin number 27). Finally, the Nano has an on board regulator at the bottom (along with the USB – to – Serial Converter). To use, you can provide an unregulated supply in the range of 6V to 20V to VIN pin of the Nano (Pin number 30).



2) Lcd :-

LCD (Liquid Crystal Display) the display on lcd is showing msg , these display gives information about sms sent that dentotes power theft detected and the numbers showing about the location of power theft.



A 16x2 LCD display is very basic module and is very commonly used in various devices and circuits. These modules are preferred over seven segments

and other multi segment LEDs. Reasons being: LCDs are economical; easily programmable.

3) Gps model:-

(For Digitally theft detection)

There are at least 4 GPS satellites in the line of sight of a receiver on the earth. The transmitter GPS sends information about the position and time to the receiver GPS at fixed intervals. The signals that are sent to the receiver devices are radio waves. By finding the difference in time between the signal sent from the GPS satellite to the time the GPS receives, the distance between



4.gsm

GSM, together with other technologies, is part of the evolution of wireless mobile telecommunications that includes High-Speed Circuit-Switched Data (HSCSD), General Packet Radio Service (GPRS), Enhanced Data

5.working :-

Analysis of the situation and the exact problem faced through discussions with the project guide.

We will use different technologies in the system.

We can implement the project with the help of our



guide and the specification of the program were decided by the guide

While this system prevents the theft which means if the defaulter attempts to theft the energy by way of bypassing , he will now not be capable of use the electricity. Consumer can only get right of entry to the power via proper energy

The heart of the system is Arduino controller as it consists of two microcontrollers. The project basically consist of two CTs one is fitted on one end of the pole and another is connected to another end of the pole and voltage pattern of the area is studied by given the output of the two CTs to the Arduino controller when the voltage drop limit exceed the permissible calculated value given by utilities so it means that theft load is connected to the system which is detected by Arduino controller then it gives message to the utility by using GSM module fitted with Arduino kit.

6.Advantages :-

- Easy to maintain and handling. Time-saving process. The process is started and stop as per requirement

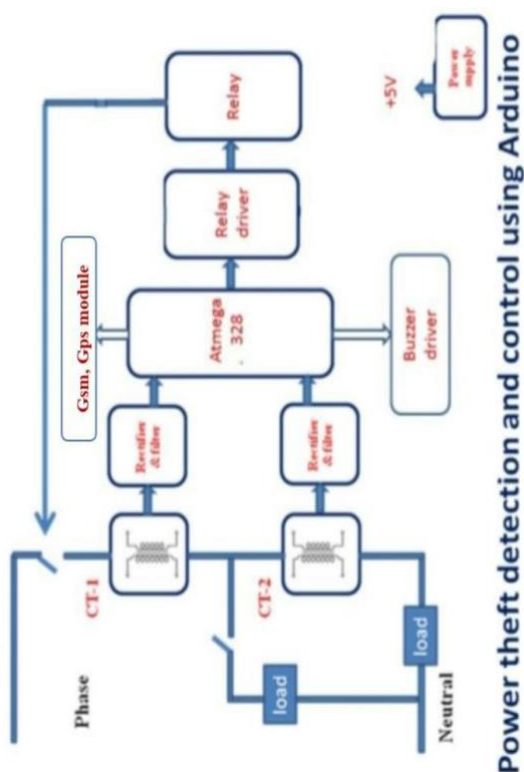
- Electricity demand is increasing day by day and at such time we can't afford the power theft.
- If mentioned provisions will be implemented then we can overcome this global threat of power theft. Able to meet the increasing demand of electricity It will reduce the economic losses in power sector and contribute to overall economic growth of country.

current that is set as maximum current. The relay is tested by putting a bleeder lamp in the line.

In our project we prevent stealing of power in distribution lines. This Method will reduce the energy wastages and save a lot of energy for future use. We can detect the location from where the power is being stolen which was not possible before.

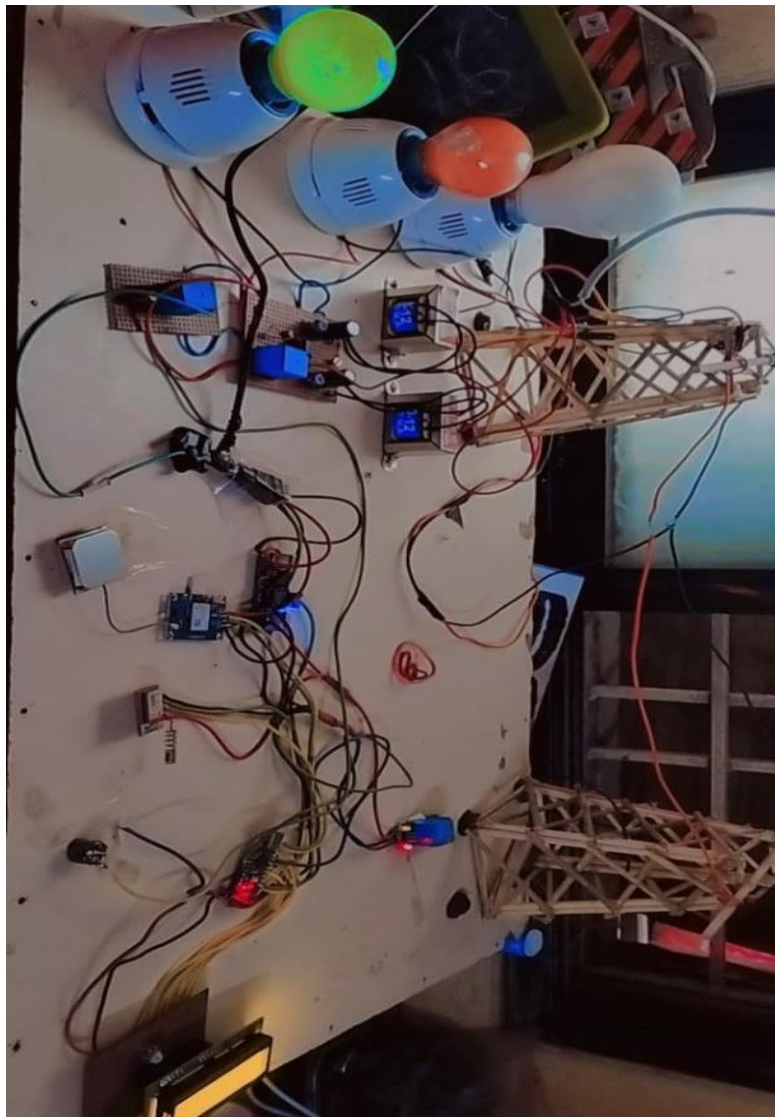
8. Actual Photo of power theft detection:-

7. Block diagram



9.Result :-

This project is working perfectly in the laboratory condition and it can handle a current up to 30A. Adjusting the reference voltage can control the



10. Conclusion

At the end of the system we conclude that the system is used to solve major problems faced by existing electric supply systems like wastage of energy, power theft etc. Electricity Theft Detection

This project is working perfectly in the laboratory condition and it can handle a current up to 30A. Adjusting the reference voltage can control the current that is set as maximum current. The relay is tested by putting a bleeder lamp in the line.

Without the manual work it detects the power theft and disconnects the load in a smart way. This system can be further improved in the area of implementation. Machine learning methods are used for analysis of data from the sensors.

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