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IOT based Automatic Power Theft Detection

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Abstract:

In our daily life routine electricity having more precedence things and it gives chief role for the living people. Basically it is a need of people. We all can't likeness life on the outside the electricity, human beings will take's irrelevant use of electricity day by day nowadays if we are not taking forward step for saving electricity. It will be more complicated for future generation with the lack of lights, electricity. The main motive of project is to control the illegal the process of power theft and two bring down

Keyword – PIC Mictrocontroller-16F886, Relay, IOT Sensor, Current Sensor, Wi-Fi-Adapter

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1. Introduction

Electricity theft is a very common problem, especial in our country as our population is very high so the use of electricity is tremendously high. There as 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 are commuted with the information about total load and the total energy bill. Electricity theft is a social evil, so it has to be eliminated completely. power consumption and losses have to be closely monitored so that the generated power is utilized in a most efficient manner. The system prevents illegal

usage of electricity. A large amount of electricity will save by implementation of this system will, and there by electricity will be available for more consumers than earlier, in highly populated country as INDIA.

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Today's life is impossible to imagine without electricity. In India, every year there is very increasing number of electricity thefts across domestic electricity connection as well as industrial electricity supply, which results in loss of electrical energy and because of which we are facing the frequent problems of load shedding in urban as well as rural areas so as to overcome the need of electricity for whole state. Also the ways using which theft can be done are innumerable so we can never keep track of how a theft has occurred, and this issue is needed to be solved as early as possible. In this, we propose an electricity theft detection system to detect the theft which is made by the most common way of doing the theft and that is bypassing the meter using the piece of wire, people simply bypass electricity meter which is counting the current unit by placing the wire before and after the meter reading unit.

2.Block diagram

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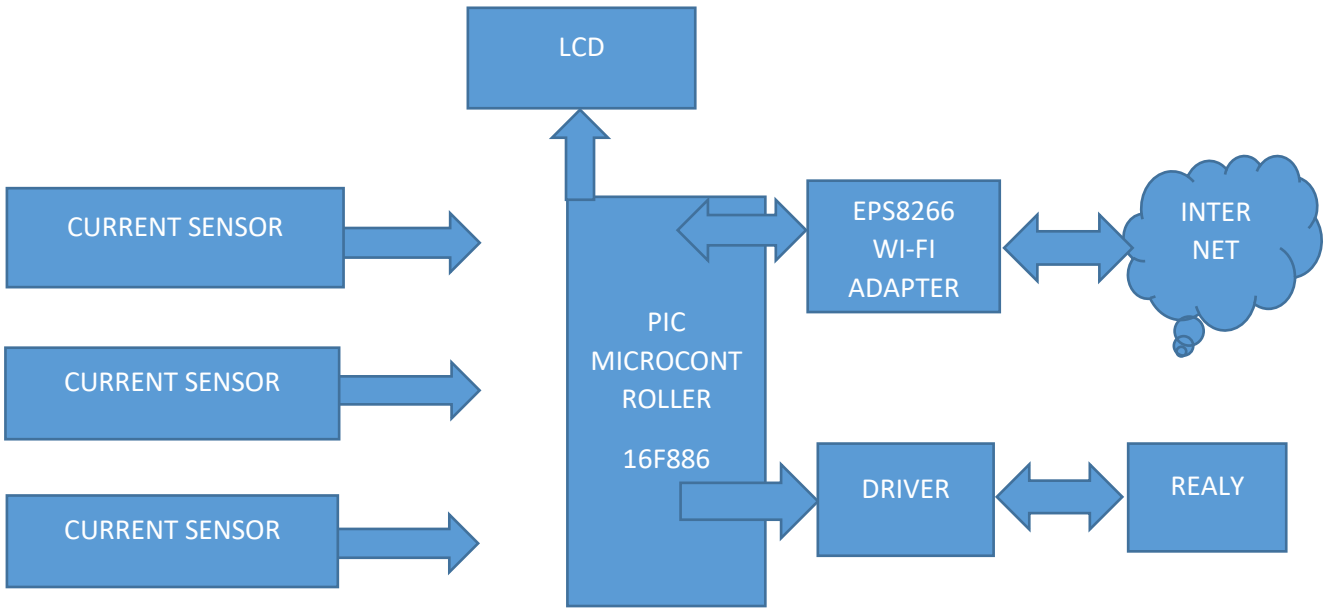

Fig2.1 block diagram of automatic power theft detection

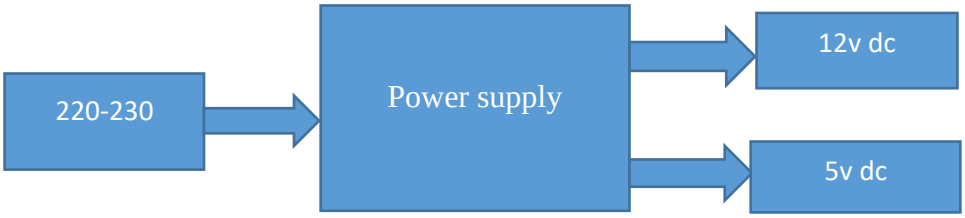

Fig2.2 block diagram of power supply

Components :

1. PIC Microcontroller (16F886)

- In this controller easy to programming and coding.
- It is 28 pins microcontroller and 8 bit. It's used simple programming and interfacing embedded system.
- It is the simple operation. We can write or erase programming and coding many time.
- It is convenient to use.

2.Current Sensor (ACS712):

- It is used in AC & DC.
- It is used to measure and calculate the amount of current applied to the conductor.
- Fully integrated Hall-effect base.
- Hall-effect based allow non-contact detection of DC-AC.
- Measure AC & DC current & provide electrical isolation between circuit.

3.LCD Display(16*2):

- Used here 16*2 LCD display.
- There are total 16 characters per a line and Total 2 lines in 16*2 LCD display.
- In the project of automatic power theft control detection LCD used for display of result.
- It shows when power is theft.

4. Wi-Fi Adapter ESP8266:

- The ESP8266 WI-FI module used for high speed network and processing the power.
- This is low cost with TCP/IP networking software in-built.
- This EPS8266 WI-FI used to provide network to the IOT module with the good speed
- This 32 bit microcontroller, it is compatible of 2.4 GHZ, general purpose input and output, pulse width modulation.

3.SIMULATION AND RESULT

Simulation:

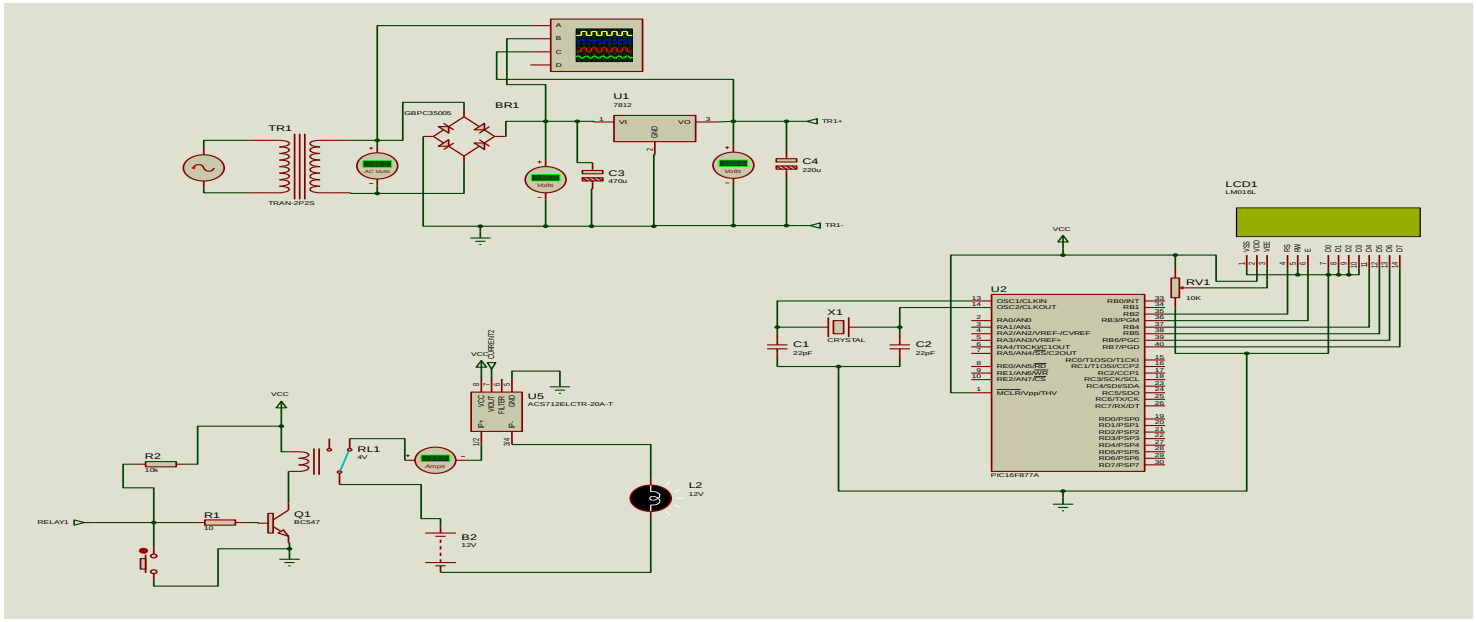

Fig 3.1 Simulation of IOT Based Automatic Power Theft Detection

Result:

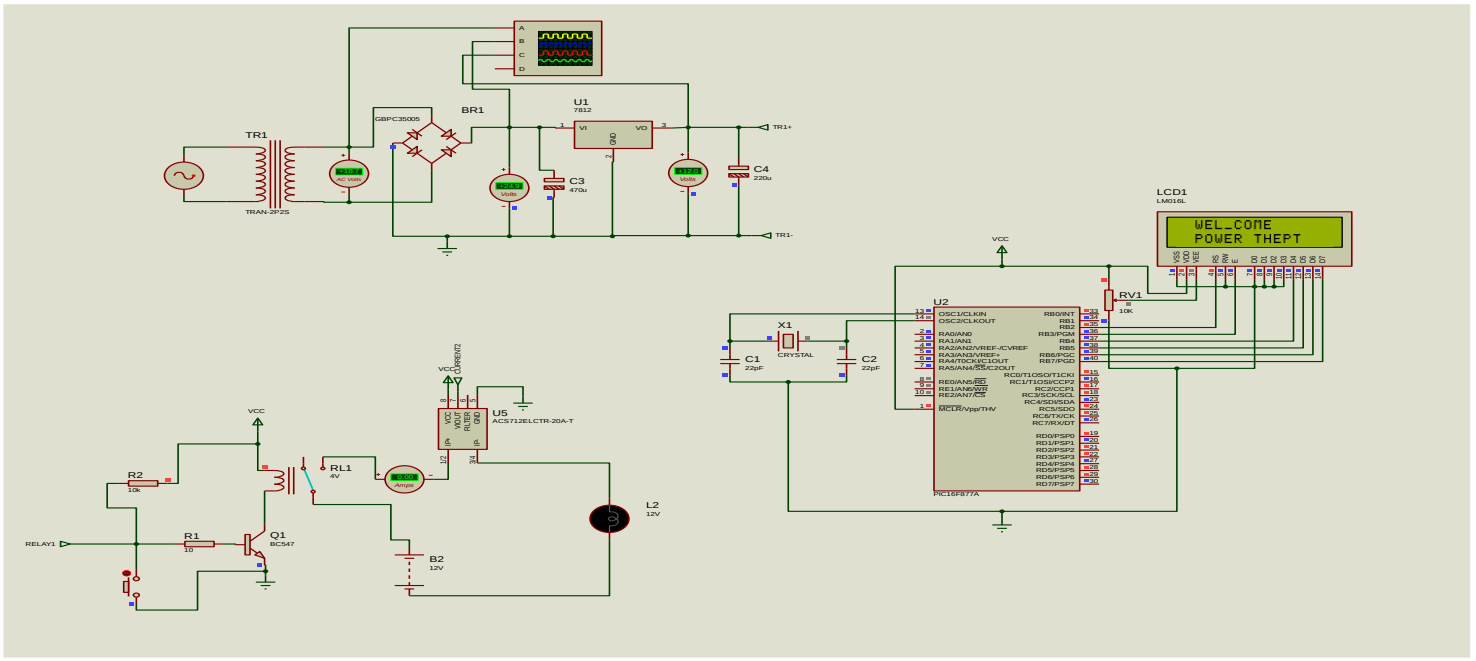

Fig 3.2 Simulation Result when power theft detected

Project output and results:

Fig 3.3 Power theft detection

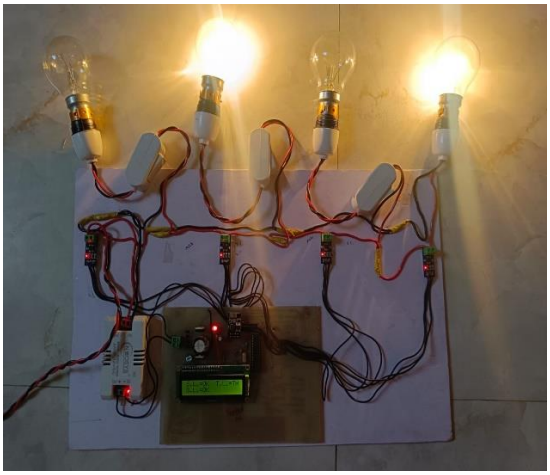

Fig 3.4 When power theft is detected

4.Conclusion

IOT based Automatic power theft can very useful for our daily life routine. Area mostly included at villages side by using this device we can detect the power theft if it is occurs power theft can inform from transmission line, distribution line, home meter if we connected this device to the above lines, so theft massage is transfer within the 25 to 3 seconds to the MSEB operator and also displays in screen. The main motive is saving the power who is theft saving the billing amount from users and stop this crime when affected on middle range people.

7.References

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