

Designing of Anti-theft Power Detection System Using Microcontroller

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Abstract: *The power theft detection which aims to detect any theft related to electricity. Electrical energy is very important for everyday life. The objectives of this project is to design a system to avoid the theft. This model reduces the manual manipulation work and theft control. We must first properly understand the working of different parts that is to be combined together. The technology which we are going to use in our project and the implementation of this system will save a large amount of electricity.*

Keywords: theft detection

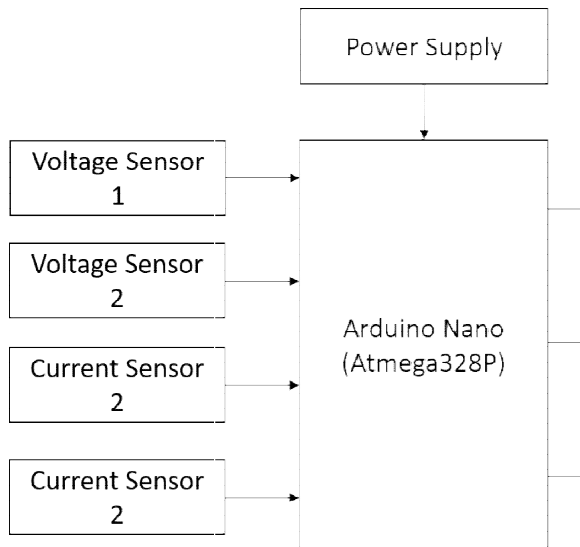
I. INTRODUCTION

The Smart Electric Bill is a complicated platform to the manner we acquire power nowadays. In earlier times the demand for electricity was substantial compared thereto presently. Since the demand for electricity has tremendously increased, a redesign of the present grid system is far needed. With the technology available in these times, the smart grid might be designed in such a fashion, that it uses digital technology to detect and react to local changes in usage. The system will feature a two-way dialog where electricity and knowledge are often exchanged between the buyer and utility. This can increase or decrease the quantity of energy a consumer needs by analyzing the feedback of the two-way dialog. In this system a practical energymeter is installed in every consumer unit and a server is maintained on the service provider side. Both the meter and the server are prepared with which enables communication among the 2 ends using Server. The Arduino receives the tariff records from the energy meter and sends the received information to the server. The server in the transmission system is connected with the cloud, through this we are able to monitor and control the EB lines of every consumer through the Internet. This system also serves to shut off the EB Line to the consumers who aren't paying their monthly bills properly. The process can be easy and maintenance then even more secure this system also helps the 4 consumers to monitor their daily usage current through the Internet. The transfer of electricity and knowledge between consumer and utility would increase efficiency, reliability and security. The Smart grid also enables renewable electricity technology to be integrated into the device for a greener, greater environmentally.

1.1 Objectives

- In Order to avoid such accidents, the breaker can be so designed such that only authorized person can operate it with a password.
- This ensures security of worker because no one can turn on the line without his permission

II. BLOCK DIAGRAM

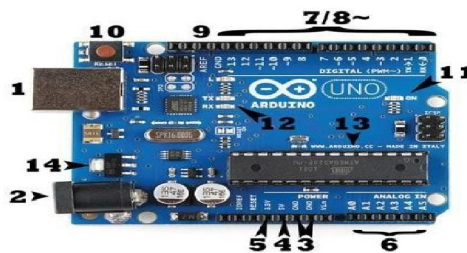


III. COMPONENTS

- Arduino Nano (Atmega328P)
- ACS712 Current Sensor
- Bulb
- LCD Display
- LED
- Switches

Arduino Nano (Atmega328P)

Arduino is an open-supply platform used for constructing electronics tasks. Arduino includes each a physical programmable circuit board (often called a microcontroller) and a piece of software program, or IDE (integrated improvement environment) that runs to your laptop, used to put in writing and add computer code to the physical board.



ACS712 Current Sensor

The Allegro ACS712 offers comparatively cheap and particular solutions for AC or DC modern-day sensing in commercial, commercial, and communications structures. The device bundle lets in for clean implementation by using the purchaser. typical programs encompass motor control, load detection and control, switched mode electricity components, and over modern-day fault safety.



LCD Display

LCD 16x2 is a 16 pin devices that has 2 rows that can accommodate 16 characters each. LCD 16x2 can be used in 4-bit mode or 8-bit mode. It is also possible to create custom characters. It has 8 data lines and 3 control lines that can be used for control purposes



LED

A light-emitting diode (LED) is a semiconductor light source that emits light. When current flows through it. Electrons in the semiconductor recombine with electron holes, releasing energy in the form of photons. The colour of light (corresponding to the energy of photons) is determined by the energy required for electrons to cross the band gap of the semiconductor. White light is obtained by using multiple semiconductors or a layer of light-emitting phosphor on the semiconductor device.



IV. FUTURE SCOPE

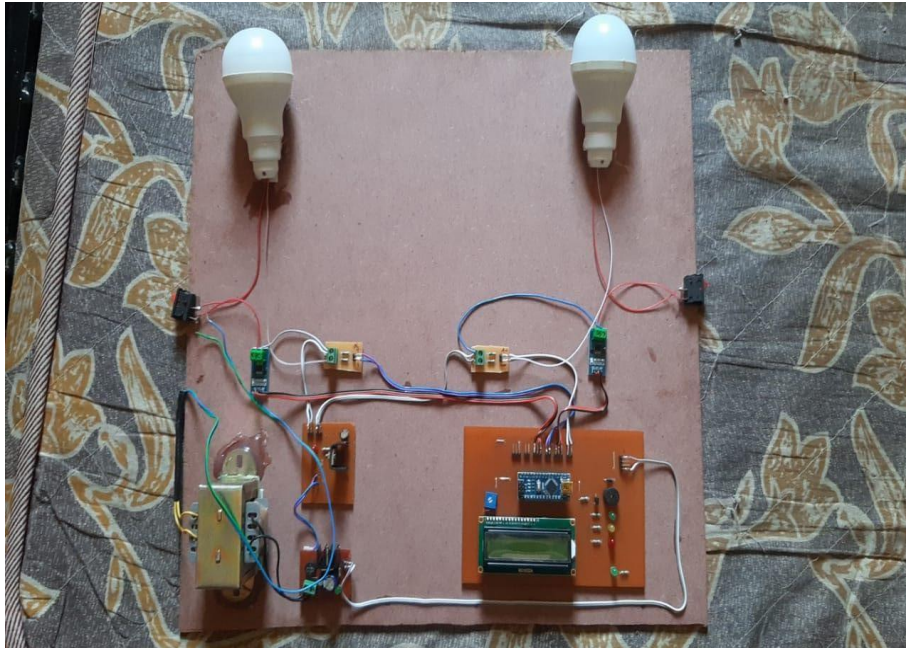
This basic system we can upgrade to a great level by introducing the GPS module in the system. If we introduced the GPS in the system, then it would become easy to identify the perfect energy theft area. Thing Speak Cloud also provides the Map in their charts to display the locations of systems. So to improve the performance of the system more efficiently we have to connect the GPS module to the Particle Photon board and the location we have to send on the cloud location chart.

V. ACKNOWLEDGMENT

Every orientation work has an impact on many people and it becomes our duty to express deep gratitude for the same. It is indeed a great pleasure and proud privilege for us to present the project report and working model on **Designing of anti-theft power detection system using microcontroller**. This project is the result of the dedication and encouragement of many individuals. Our sincere and heartfelt appreciation goes to all of them.

VI. CONCLUSION

In the era of smart city development, this assignment is concentrated on the connectivity and networking component of the IOT. On this device, a power consumption calculation primarily based on the counting of calibration pulses are designed and implemented using the ATMEGA328P Microcontroller unit in the embedded gadget domain. In the proposed work, IOT and MMC based totally meter studying system is designed to continuously reveal the meter reading and provider can disconnect the energy source on every occasion the customer does not pay the month-to-month bill and additionally it eliminates the human involvement, delivers powerful meter analyzing, prevent the billing mistake. The assignment has completed following goals: Ease of getting access to information for purchasers from energy meters via IOT. robbery detection at customers leads to actual time. a liquid crystal display displays power consumption gadgets and temperature. Disconnection of provider from far flung server.



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