IOT BASED SMART ENERGY METER READING AND MONITORING SYSTEM

Abstract

In the most of the developing countries, the effort of collecting electricity utility meter reading is a very difficult and time consuming task which requires a lot of human resources. Energy meter reading and monitoring system using Internet of Things (IoT) present an efficient and cost-effective way to transfer the information of energy consumed by the consumer wirelessly .Aim of this study is to measure electricity consumption in the household and generate its bill automatically using IoT and telemetric communication techniques, The Arduino microcontroller is employed to coordinate the activities with digital energy meter system and to connect the system to a Wi-Fi network through an ESP8266 and subsequently to the Internet and Server. With the help of the server the authorities can control the main power supply and the user can control the room power supply.

In this project an Optocoupler mound to the energy meter decodes the power conception from an energy meter and the signal will process by the atmega328p will calculate the usage the calculated usage value will be updated to a real time database and this data can be accessed with a mobile application, the user can view the net electricity usage and able to cut the main power supply if the customer didn’t pay the bill in time. Also user can access the room power supply with user application, and he can view the energy consumed in a real-time basis.

BLOCK DIAGRAM

Atmega328p

Energy meter

Optocoupler

ESP8266

Wi-Fi

Module

LCD Display

Power supply

Firebase Real-time database

WIFI router

Android application

Relay module/main cutoff

Relay module/room cutoff