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IOT BASED DISTRIBUTION METERING SYSTEM FOR MONITOR & CONTROL

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Abstract: In the meantime, with the development of Internet, automation becomes a very interesting topic in controversy. This paper discusses the development of automated machinery. A power outage system using a network embedded controller. These days everyone is talking about the problem the government is facing with regard to electricity. Based on this situation, it becomes an additional incentive to build a automatic system of residential electrical device. The program consists of an embedded power supply control device convert and update data into a data center. Cutting Warning the message is sent to users via GSM and short message functions. The system helps the electricity provider to reduce efficiency costs as the system automatically disconnected the electricity there usage limits exceeded In some areas consumers are not paid consumers who do not pay intentionally and that MSEB officials visit a specific location to terminate the add other clients try to bypass the file connection meter and some buyers try to fix the issue by offering bribery ultimately in relation to the theft of power. Therefore, this project assists the government in making a profit by to adopt the bill in time.

Keywords: Internet Of things (IOT), Wi-Fi & GSM Module, Superficial

I. INTRODUCTION

Utilities in the electrical system damage the value of annual income due to energy theft. Causes lack of power supply in residential areas as well commercial properties. The purpose of the project is to design and control the program that will automatically cut the electrical connection directly to the electric pole of those consumers who fail to pay their electricity bill on time. When M.S.E.B officials arrived at the scene to close the offer, some buyers argued with the officials again try to resolve the issue by giving bribes. Even in the background disconnects the offer, other buyers can bypass the file system and connect home appliances from the service virgins. So overcoming all these problems is an example suggested including NODE-MCUESP8266, transmission with it. it will automatically cut off the electricity supply as instructed by microcontroller from commits itself to that particular consumer who does not pay electricity bill for a given period of time. And power theft will be maintained by the proposed Smart energy control system. Theft of power has many such effects like connecting directly to a line, by passing a power meter,to inject something foreign into the energy meter, physically blocking, ESD attacks on electrical radiation [2]. For now sensor currently felt in the middle of the transmission line as well as the power meter and provides advanced monitoring in this system. So this program is as helpful as possible see / view and overcome all power theft issues.The cost of this system saves externally compromising system performance and accuracy.This paper suggests an automatic charge of the energy meter. Icon as a paid mobile connection in the background. In the proposed project,the front end is usable and one can work on this software with little computer knowledge and can read the meter by sitting in the office. This is used for the purpose of payment in the management of the electrical board. GSM the modem is connected to a power meter. Each modem will do have its own SIM (standard SIM of mobile).

II. LITERATURE SURVEY

Parakeratoses, developed a sensor monitoring system that uses digital transmission for security, fire and medical alarm systems and resource meter reading capabilities. This technology was the integration of an automatic call line detection system, now known as Caller ID In 2003, Klay et al, had successfully designed and implemented Automatic Meter Reading systems using a Bluetooth device, or Bluetooth-Enabled Energy Meter. had developed the GSM automatic power meter reading system (GAPMR). The GAPMR system contains GSM Digital Power Meters installed on all consumer components and the Electricity Billing system on the power provider side. GSM Digital Power Meter (GPM) single-phase digital power meter kWh with embedded GSM modem using GSM network to send its power consumption readings System Reports (SMS) returned to the wireless power provider. on the provider side, the e Billing system is used to manage all SMS meter readings received, to calculate payment costs, database updates, and publish billing. Premiant et al. propose a hybrid Automated Metering Reading (AMR) system that is a combination of

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ZigBee and GSM technology. In that system the ZigBee module is attached to the meter using an interface board and the data collector is connected to a central computer using GSM. The plan is relevant to the Malaysian situation already using GSM based GSM in LPC. Through this program TNB can save costs by making a reading meter and providing better services to their customers. Meanwhile Noro Zina, A. said Tenaga Nasional Berthed is a pioneer in the use of ICT as a key figure in supporting business and service delivery. TNB uses ICT to support its end-to-end business cycle which includes planning, development, implementation and customer service processes. ICT is also widely used to support the management and management processes within TNB in the areas of financial, procurement and human resource management.

III. PROPOSED DESIGN

In this paper we have proposed a plan to improve TNB efficiency of services using automatic cutting a system where consumer power consumption reaches the limit. The system contains devices embedded in the network integrated with advanced management system in data center. The management plan includes billing module, awareness module and application module. This program contains two subsystems; The middle provider side as well Customer side as shown in Figure.1.

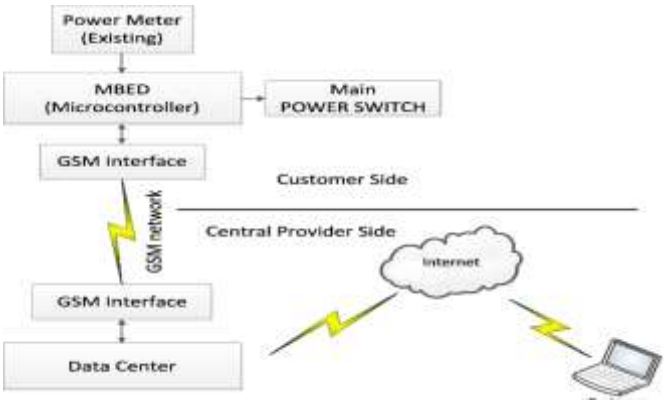

Fig.1

Currently on the customer side, the underlying system, namely meter reading, performed by microcontroller. Microcontrollers have a arm-based series theme microcontroller development boards designed for speed, flexible and low-risk active prototyping. Ng summary of energy meter readings calculators power theft. To overcome all obstacles of the standard system we design "smart power control system". Smart system design the power control system consists of wemos esp8266, c and He transfers. Power consumption is calculated by MSEB person monthly. And if any buyer does not pay bill when the online system will turn off the grid and SMS will send to buyer.

IV. CIRCUIT DESIGN

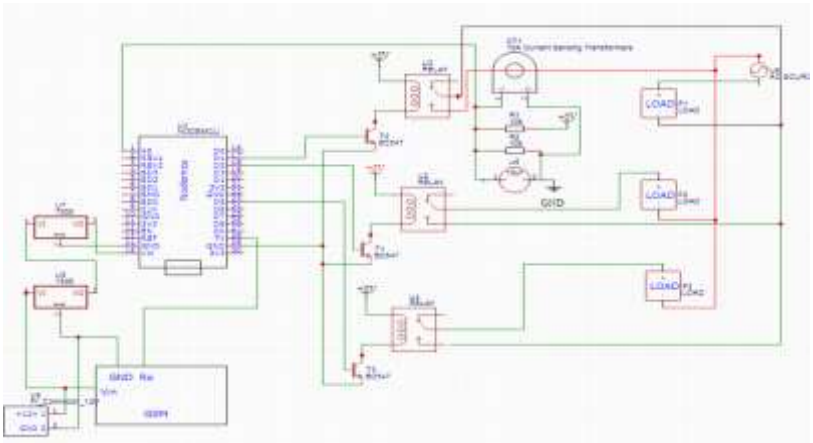

Fig.4.1

Continuous supply of 5V DC is supplied to the NODE-MCU. It will automatically disconnect and reconnect the offer by transmission according to the instructions of the Micro-controller. The smaller controller will follow Turn-On and Turn-Off commands. NODE-MCU connected to NODE-MCU giving instructions set to NODE-MCU. Relays are connected to D7 and D8 pin of NODE-MCU. with Relay it will be disconnected and connected to it circuit

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V. EQUIPMENTS:

1. Transfer (SPDT Transfer): Transfer is electronic active switch. Currently flowing with a coil of The relay creates a magnetic field that attracts the and changes switching contacts. The current coil can turn on or off so the transmission has two switch positions again most have two modified contacts. SPDT transmissions are used in this program. One Stick

2. Double SPDT transmission is definitely useful applications due to internal configuration. It has one standard terminal and 2 out of 2 different contacts configuration: one can be closed normally and the file another is unlocked or can be normally Open none was closed. So basically you can see the file SPDT transfer as a switch between 2 circuits: when no voltage is applied to a single circuit coil "Receiving" at the moment, one does not even find that the coil receives different power possible.

3. NODE MCU ESP32:

Node MCU is an open source Lua-based firmware for ESP32 and ESP8266 Wi-Fi SOC from Espresso if and utilities a flash-based SPIFFS-based file system. Node MCU is applied to C and reinforced in Espresso ESP IDF. The firmware was initially upgraded as its partner project to Node MCU popular ESP8266 development modules, but the project is now publicly supported, and the firmware can now be used on any ESP module .Support new ESP32 Wi-Fi / Bluetooth SOC from espresso continues.

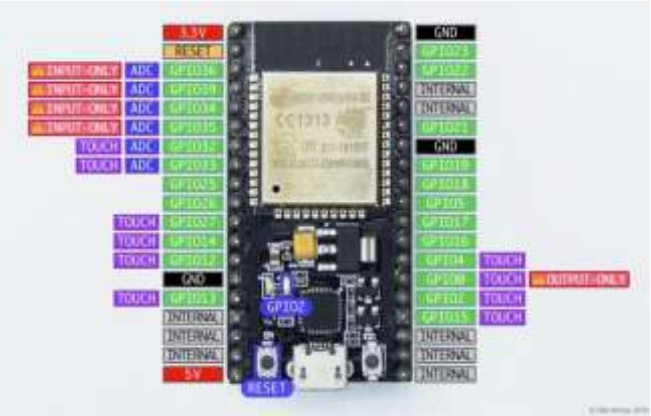

Fig.3.1 GSM SIM 800L:

1) Mini GSM / GPRS relaxation board based on SIM800L module, supports quad-band GSM / GPRS network, available for GPRS and SMS messaging data remote transfer. The board includes the combined size and low current consumption. By saving energy process, current consumption is less than 1mA in sleep mode. It communicates with the microcontroller via UART port, supports command incorporating 3GPP TS 27.007, 27.005 and SIMCOM upgraded AT Instructions

VI. OVER-VIEW OF THE PROJECT:

The aim of the project is to design and manage the system which will automatically disconnect the electrical connection directly to the power pole to those consumers who say failed to pay the electricity bill on time. When the officials of the M..E.B. get to that point to cut off the supply, some buyers argue with officials and try to resolve it I gave bribes. Even after disconnecting supply, other buyers can pass through the system as well connect home appliances from service mains. To overcoming all these problems is suggested somehow includes the NODE-MCU ESP8266, with which it is transmitted will automatically terminate the power supply as provided taught by a microcontroller from the very pole of that a certain consumer who does not pay the electricity bill internally some time given. And energy theft will be taken care of through this proposed power management system. Power theft has a variety of forms such as direct connection to the line, by passing a power meter, injecting an external object energy meter, physical inhibition, ESD attacks electric meter. Current sensor heard right now between the transmission line and the power meter as well provides advanced crime monitoring in the system. Therefore this program is very useful as it can find / recognize as well overcoming all obstacles to the theft of power. The cost of this the system saves without compromise system performance and accuracy. Cost of the system saves without compromise system performance and accuracy.

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VII. WORKING:

The standard system includes electric meters installed on consumer premises and details of electricity consumption are collected by meter students on their two-week or monthly visit properties. The existing Electricity Power system was required power meters connect to each section of the line. In summary of power meter readings calculated power theft. To overcome all obstacles a standard program we design "Smart Power control system ". Smart system design the power control system contains the NODE-MCU ESP8266, c and Relays. [6] The use of force was is calculated by an individual MSEB monthly. And if there is a buyer pay off the debt and the online system will shut down grid and SMS will send to the consumer by using a step transformer. NODE-MCU is Wi-Fi
ongoing online monitoring. Monitor online system and also travels through the region by transmission after receiving the signal order via WeMo's. SPDT transmission will stop also connects transactions according to the microcontroller's education .When a consumer fails to pay his electricity bill after the given time the NODE-MCU will be automatic terminate the offer of that customer through it also transfers when the consumer pays the electricity bill it will reconnect the supply to that consumer. Basically the district will be installed eg from there we will get the data and after getting it we will do it upload / update data to cloud service for the owner of intelligent grid (MSEB) and the customer can access that data. The program contains the Esp8266 module which is microcontroller also controls the entire system. The system connected between Mains Line and Incoming home supply on power meter. In the region, we provide 230V supply as AC input meter. Part of the installation once The output of each meter is one phase and one neutral send this output phase phone connected to the load (lamp) to pass transferred. Automatic transfer is in close proximity. The circuit starts working when the transfer close proximity Prototype System is on.

Prototype system

System is On

Message to the Customer

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Control Panel for ON/OFF

VIII.CONCLUSION:

The project model minimizes manual manipulation The use of Esp8266 in our system offers a lot benefits of wireless network applications. In this paper we has proposed a system to provide early warning to users of electricity supply provided by government. In the program the current situation all consumers use the manual communication. Reducing human and human efforts errors, we need to have some sort of default program monitor all parameters and performance of communication between customers and the electrical board And through this program we can control consumption electricity on the consumer's side to avoid wasting energy. As there is a need to use energy more efficiently and effectively a beneficial approach to the energy sector.

IX. ACKNOWLEDGEMENT:

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