
Welcome to our presentation.

An automatic load control, fault detection, and energy billing system of the homely appliances.

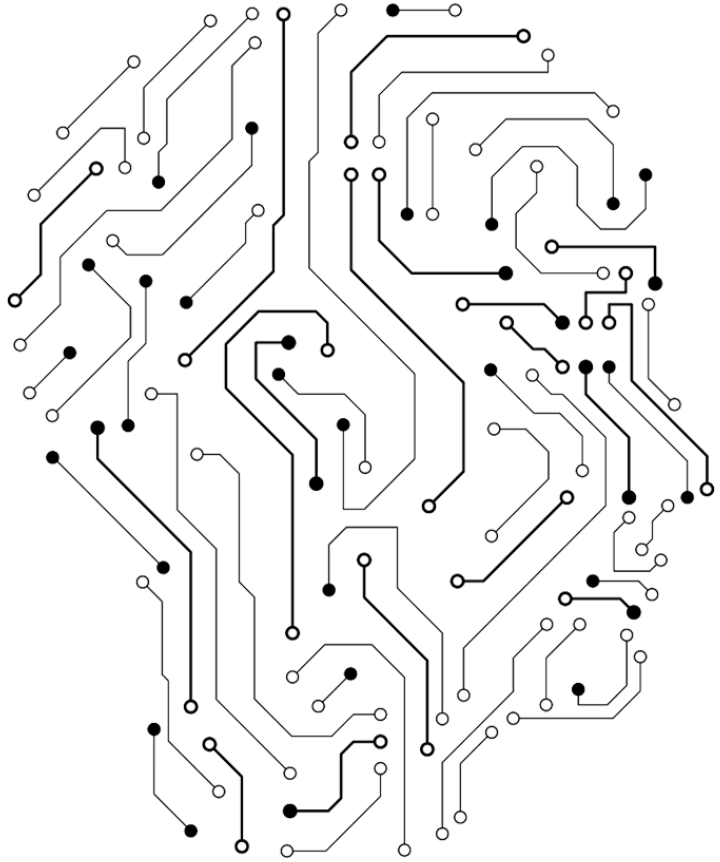
INTRODUCTION.

The circuit is the combination of the three different types of ideas,

1. Fault detection of underground cables.
2. Energy meter billing monitoring circuit.
3. Wireless load control device. The project is all about the minimum of human labor by which it will help the government on a wide scale, and also the public will not get scammed by the employ of the electric middlemen. The public can also easily detect the homely appliances that wear the fault has occurred. The person will also get a ablate to control the load of the home when the person will not at the home by which will reduce the amount of wastage of electric current when it is of no use. The conservation of energy and reducing useless man labors will let to increase in GDP of the government. The project will also lead to unemployment but here we are trying to use the manpower in a more affectional and better place which will help to decrement of wastage of manpower and corruption that occurred by the middle man.

Component for the Project

- Micro- processer :- ATMega328, PIC08F4550, PIC18F4550
- LCD Display
- Voltage Regulator 7805
- GPS { Global Positioning System }
- GSM { Global System for Mobile communication
- Relay Driver
- Energy Meter
- IC's :- ADC0804, MAX232
- DB9
- Transformer
- Rectifier

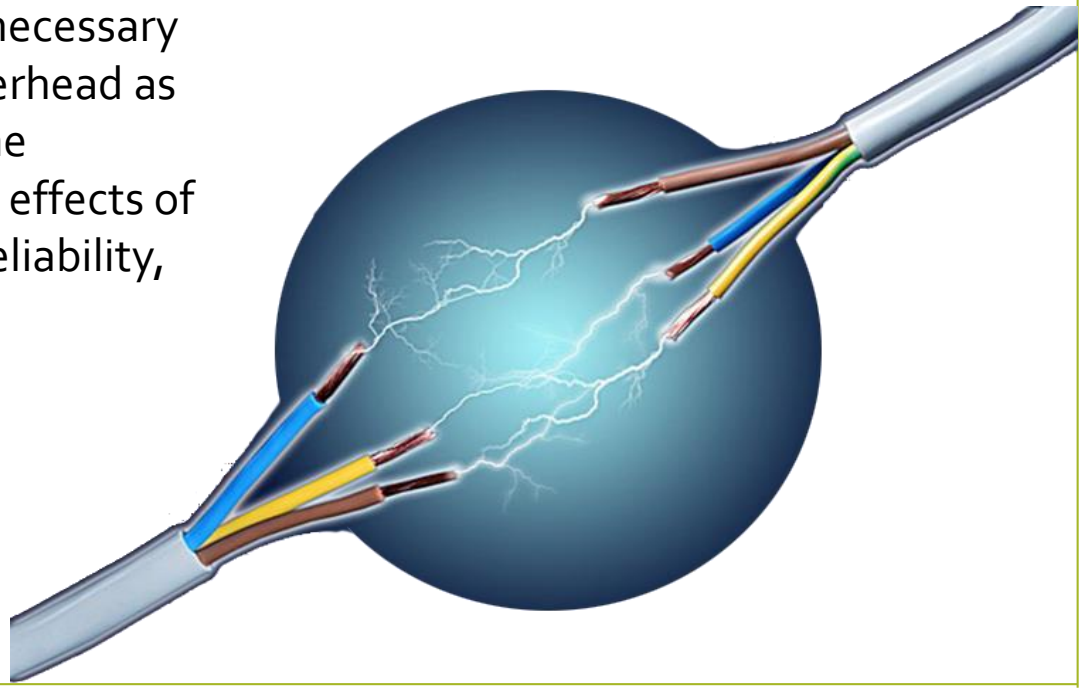


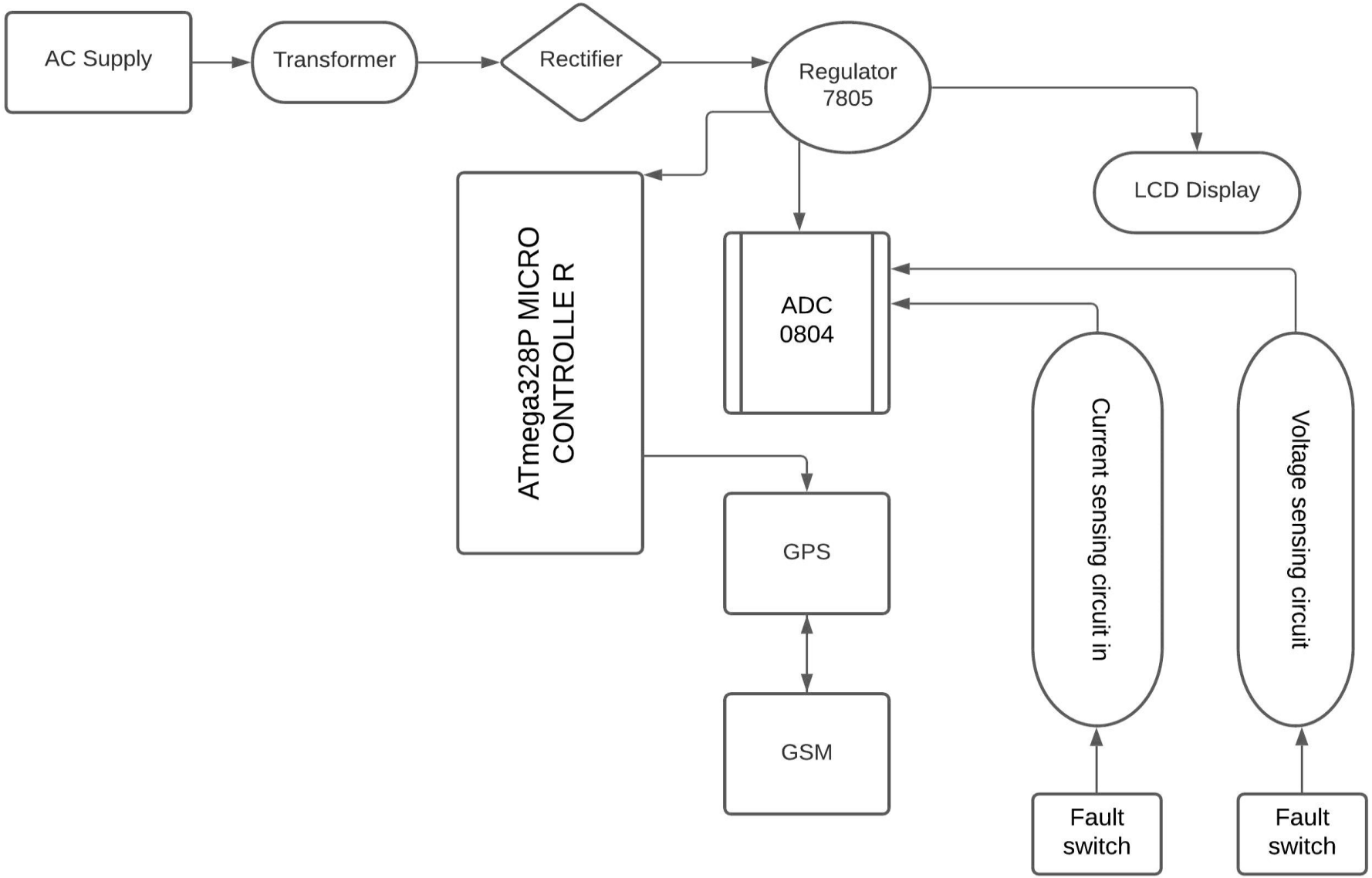
FAULT DETECTION OF A UNDERGROUND CABLES

The main objective of this project is, any distribution network is likely to get faults, on and off the supplier as well as user. Majorly a supply line can be affected by conditions of over voltage and over current, and also under voltage condition. During the event of any fault, the event goes unreported for long length of time. Manual reporting can lead to long interruption.

INTRODUCTION.

A bundle of electrical conductors used for carrying electricity is called as a cable. An underground cable generally has one or more conductors covered with suitable insulation and a protective cover. Commonly used materials for insulation are varnished cambric or impregnated paper. Fault in a cable can be any defect or non-homogeneity that diverts the path of current or affects the performance of the cable .So it is necessary to correct the fault. Power Transmission can be done in both overhead as well as in underground cables. But unlike underground cables the overhead cables have the drawback of being easily prone to the effects of rainfall, snow, thunder, lightning etc. This requires cables with reliability, increased safety, ruggedness and greater service.




AC Supply
Transformer
Rectifier
Regulator
7805
LCD Display
ATmega328P MICRO
CONTROLLE R
ADC
0804
GPS
GSM
Current sensing circuit in
Voltage sensing circuit
Fault
switch
Fault
switch

➢ ADVANTAGES

1. It has higher efficiency
2. Less fault occur in underground cable
3. This method is applicable to all types of cablerangiefrom1kvto500kv
4. It can detect other types of cable fault such as Short circuit fault, cable cuts, Resistive fault, Sheath faults, Water trees, Partial discharge.

➢ RESULT

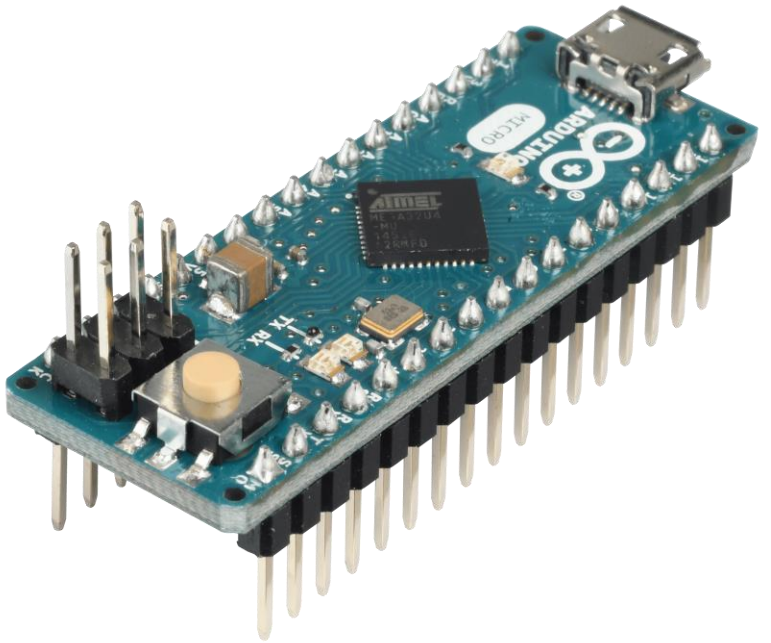
Thus the underground cable fault using AT Mega 16 Microcontroller was identified in the underground cable from feeder end in a km. To measure the particular distance and location an individual resister is connected between zones

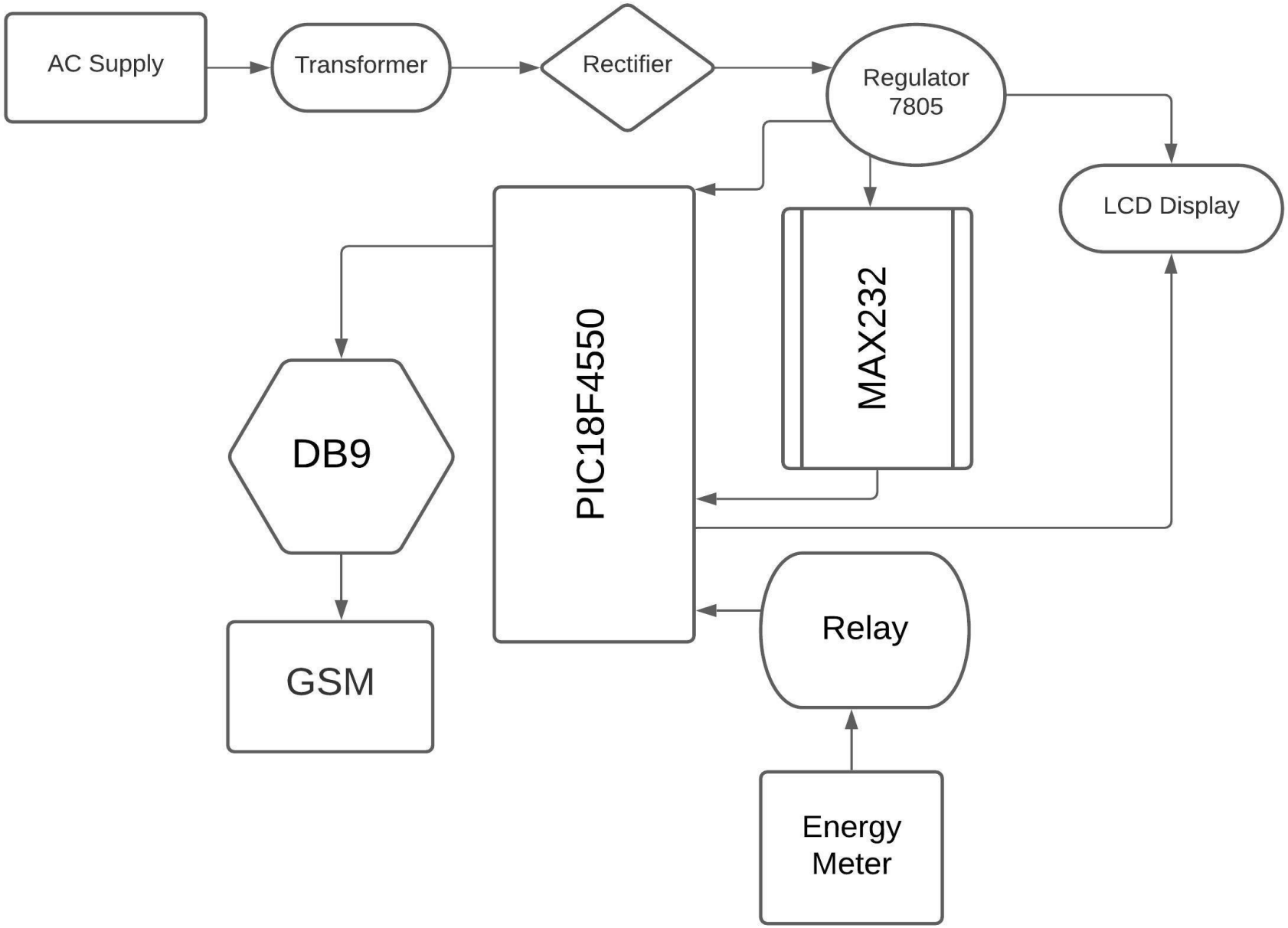
ENERGY METER BILLING MONITORING CIRCUIT.

The traditional way of reading energy meter is an expensive work where the reader of the meter has to go in person to each meter and take the meter reading manually. This manual reading goes into into the billing software to generate the bill to automate the payment process. This method of reading has short comings, such as reading error and involves more labors. To overcome this issue, an automatic power meter reading and billing system is proposed. Automation of energy meter reading and billing data entry process would reduce the laborious task and financial wastage. The proposed work measures the energy consumption in each house and generates the bill automatically with Arduino and Wi-Fi.

INTRODUCTION.

Before the awareness of electricity existed, people knew about the shock that was present inside electric fish. There is a rapid progress in the early 19th century in electrical science. Then again, the greatest advances in electrical engineering were made in the late 19th century. The presence of charge gives rise to an electrostatic force: charges exert a force on each other, an effect that was known but not understood, in antiquity. According to the science, motion is an electric charge, and it is measured in amperes. There is a concept called electron, which is nothing but two charge particles produce current. Electric current can flow through some things called as electrical conductors, but the opposite is called an insulator which will not flow. Electricity generators are the one's which supply electricity, but electricity can also be supplied from chemical sources such as electric batteries or by other means from a wide variety of sources of energy.




AC Supply
Transformer
Rectifier
Regulator
7805
LCD Display
PIC18F4550
MAX232
DB9
GSM
Relay
Energy
Meter

➢ ADVANTAGES

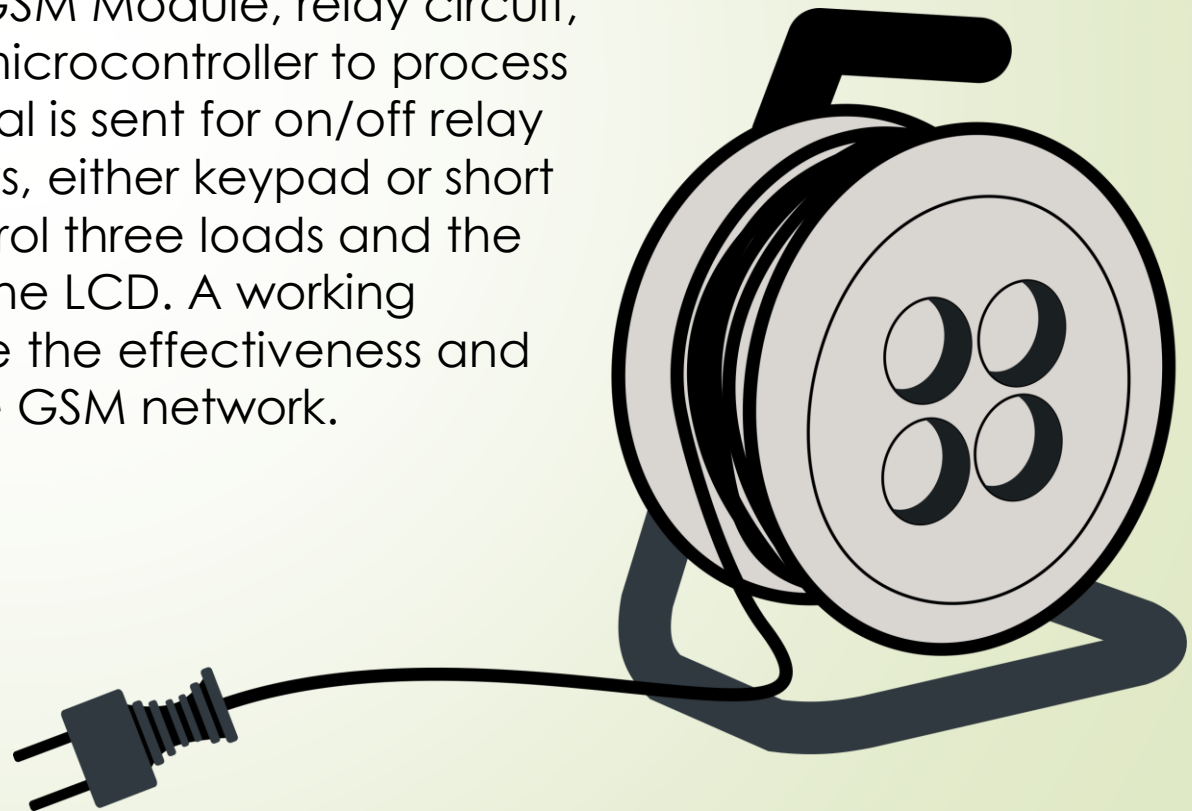
1. The system measures the energy consumed at each house automatically and the readings are being displayed to them at their EB box.
2. This helps the commons to be aware of their usage and reduce if they are over using the resource available to them
3. The readings and bill are transferred to the EB database via Wi-Fi module. Thus reducing human labour

➢ RESULT

The consumer readings are transmitted to the cloud with the help of the Wi-Fi module. The readings along with the cost will be displayed in the cloud platform. Every forty days the consumer can pay their bill at the local EB station and the data can be reset.

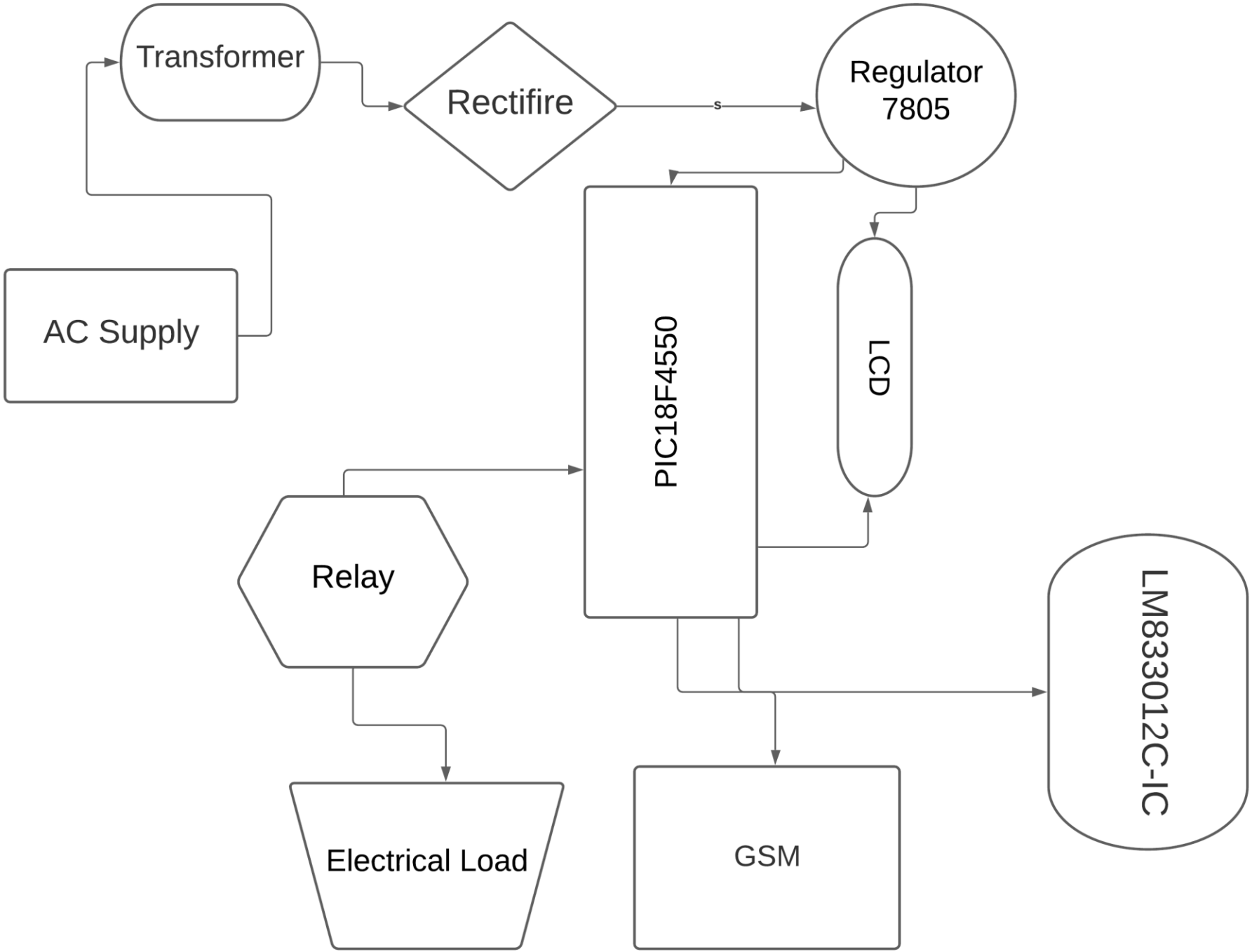
WIRELESS LOAD CONTROL DEVICE.

This paper presents Wireless Load Control Device (WLCD) using GSM module. The WLCD consists of PIC18F4550, GSM Module, relay circuit, keypad, and LCD. PIC18F4550 is used as a microcontroller to process the received data and then the output signal is sent for on/off relay switch. The users can on/off load in two ways, either keypad or short message service (SMS). The WLCD can control three loads and the current status of each load is displayed on the LCD. A working prototype of WLCD was built to demonstrate the effectiveness and efficiency of on/off load control through the GSM network.



INTRODUCTION.

Nowadays, the innovative technologies have become an integral part of human life. Various load control method and technology such as power line carrier (PLC), telephone modem, internet, WIFI, Bluetooth, and ZigBee were established and developed to facilitate comfortable for humans. There are many researches about load control method and technology until now. For example, in 2000, R. C. Luo et al. presented intelligent autonomous mobile robot control through the Internet. In 2010, X. Liu and W. Wang introduced a control system of indoor intelligent Lighting which is based on power line carrier communication. The power line is used to transmit the analogue or digital signals with high speed. Not only power line technology but also wireless remote control and GSM network are used to combine for remote the indoor intelligent lighting and controlling the sensing. Architecture for power monitoring system using the wireless sensor network technology is proposed in 2011

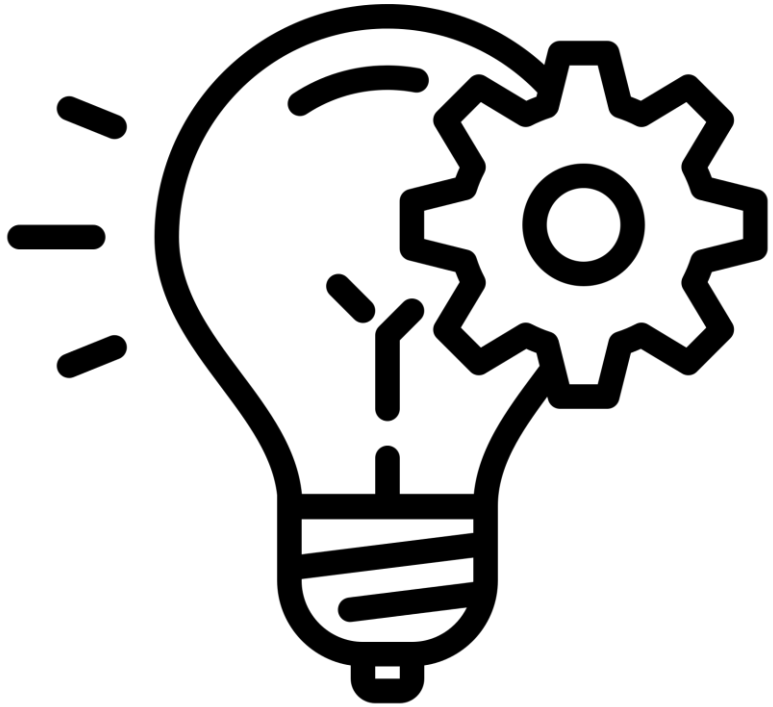

Transformer
Rectifire
s
Regulator
7805
AC Supply
PIC18F4550
LCD
Relay
LM833012C-IC
Electrical Load
GSM

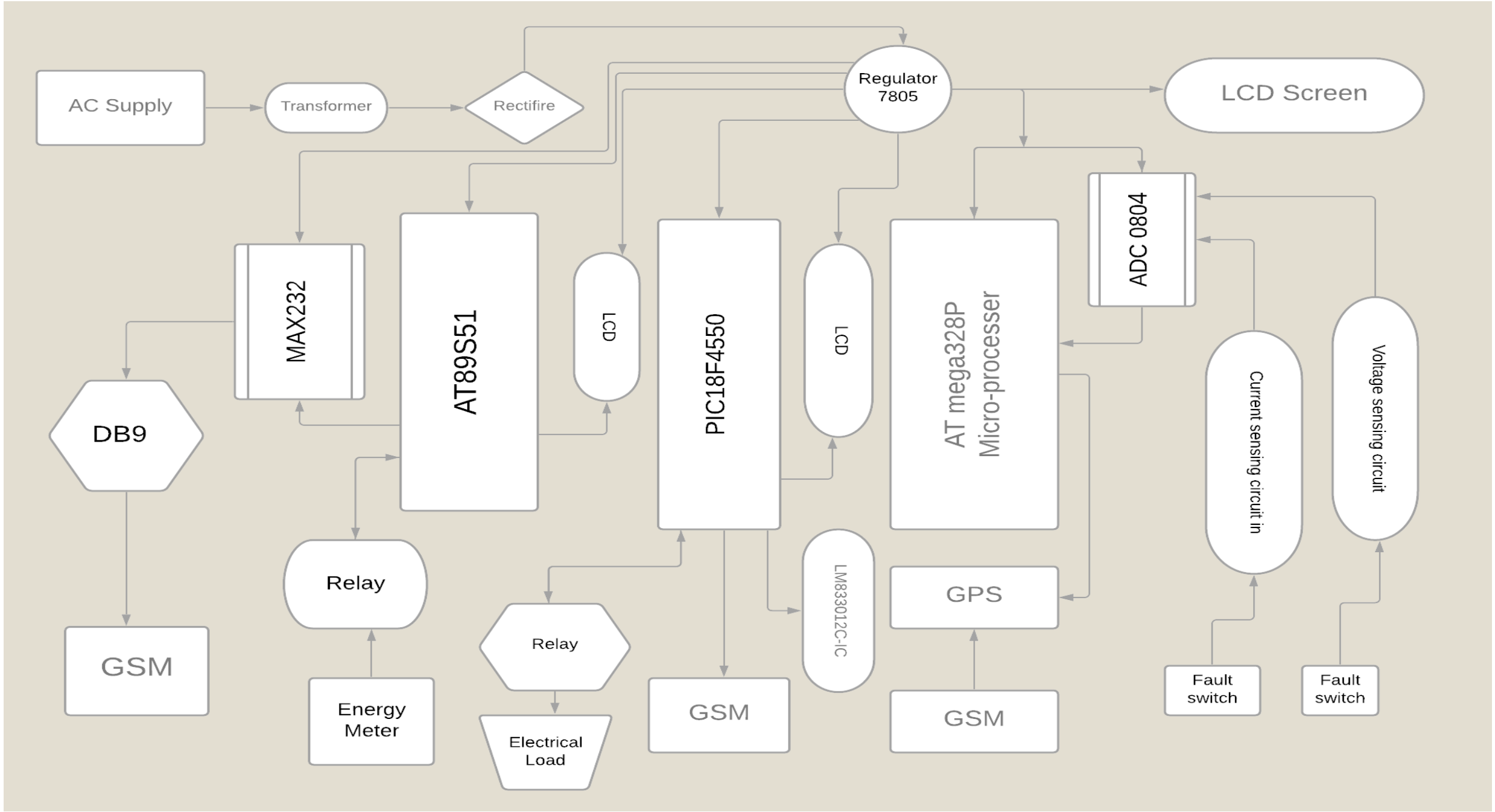
➢ ADVANTAGES

1. Wireless control from remote places,
2. Ease of operation by using any mobile possible to on/off electrical load,
3. The users will get a convenient, and
4. Time saving.

➢ RESULT

Electrical loads such as fans, bulbs, and computer etc. are tested and controlled wirelessly by the WLCD. When starting up the program, the LCD. Then, three electrical loads can be controlled at a time in the present system. For example, when the user enters "*000#" to the WLCD using keypad, all of electrical loads will turn off and the LCD will show the current status as shown in Next, the user sends the SMS command ("*111#") to the WLCD, the LCD will show the phone number of a user . Then, all loads are switched on and the LCD will show the current status of electrical load . After that, the microcontroller will send the current status to the user via SMS.




AC Supply
Transformer
Rectifire
Regulator 7805
LCD Screen
MAX232
AT89S51
LCD
PIC18F4550
LCD
AT mega328P Micro-processer
ADC 0804
DB9
Current sensing circuit in
Voltage sensing circuit
Relay
Relay
LM833012C-IC
GPS
GSM
Energy Meter
Electrical Load
GSM
GSM
Fault switch
Fault switch

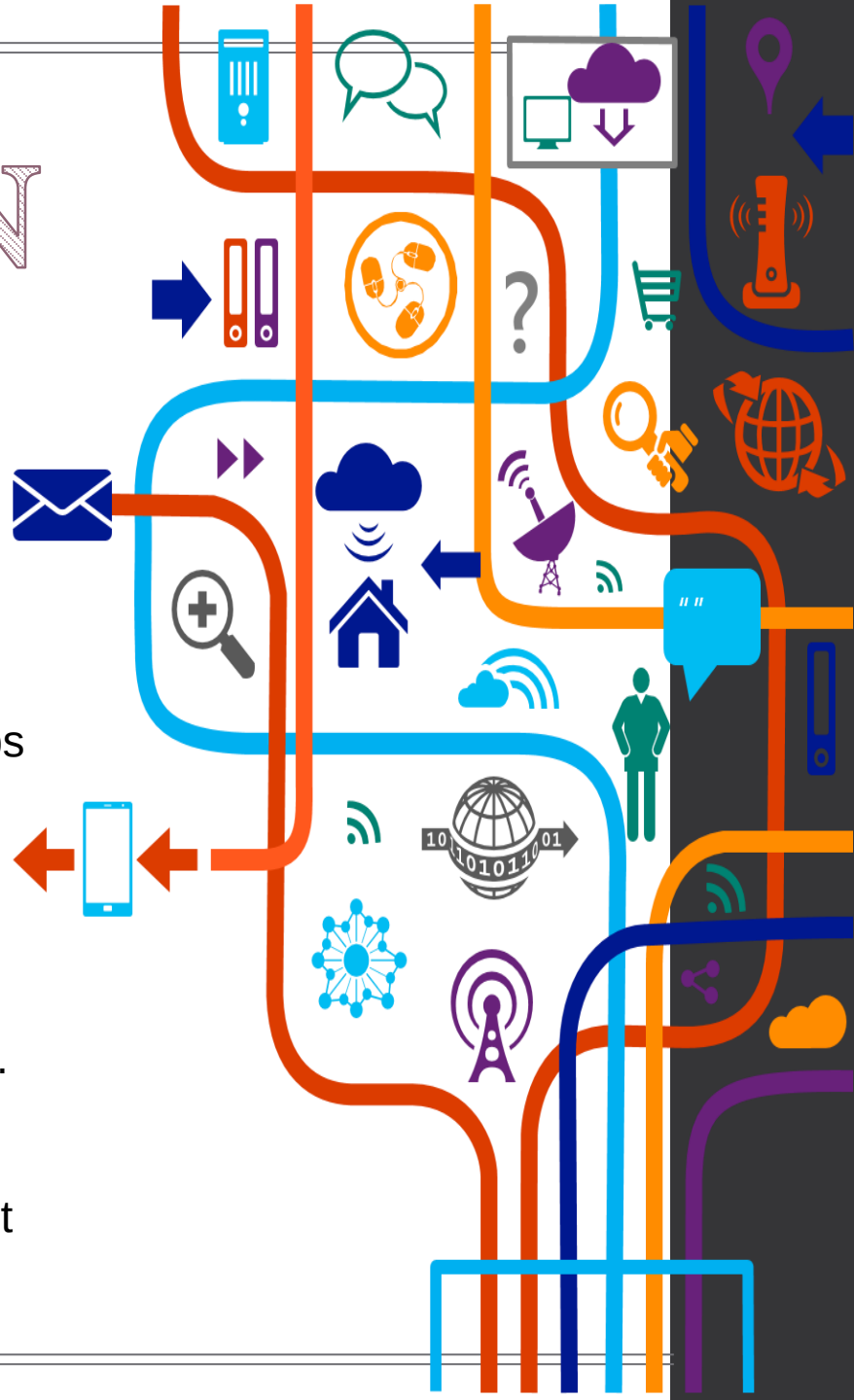
CONCLUSION

Thus the project conclude that

On Underground cable fault detection using AT Mega 16 Micro controller was done. We have proposed a low cost solution to enhance the fault detection of underground cable. It is secure, robust and power consuming. It can be used to all types of cables so as to avoid fault occurring in the underground cables.

The automatic electric billing system overshadows the traditional system of taking the readings by many factors. The proposed system work is to automatically detect the number of readings that has been consumed. This helps the commons to be aware of the power and can reduce the energy if they feel that they are over using it. Since everything is automatic, human labor is reduced. Thus there are error free values. Hence accuracy is been preserved. The future. The future work is to modify the propose system for the detection of illegal use of electricity.

By wireless communication using GSM module, the WLCD was constructed. The WLCD is designed to provide three loads (rated of each load at 220Vac 10A). The electrical loads can be turned on/off by keypad on WLCD or SMS via GSM network as the command shown in Table 1. The user can know the current load status by LCD on WLCD or the SMS from WLCD.



THANKYOU

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