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Wireless Meter Reading Technology

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ABSTRACT

Electricity is one of the basic requirements of human beings, which is widely used for domestic, industrial applications. This system regularly read meter reading and calculate total unit, amount of bill. User name, meter ID, total units with paying amount this message send to service provider, by using GSM. Wireless meter reading system is more efficient than convectional bill system because service provider quickly find out illegal and late bill paying costumer by accessing data base. Our aim is to reading of actual electricity use and forward same information to user and service sides.

Keywords: Energy meter, GSM module, VB.net software.

I.INTRODUCTION

In today's life there are lots of problems in bill distribution. In current system person visit every home and capture image of meter, due to this human errors are possible hence not provide efficient meter reading. In recent years, automated meter reading systems are being utilized in most developed countries. In our system using the microcontroller 89c51 to counting pluses. The use of wireless meter reading systems benefits both side. This system reduce reading mistake and it has the advantage of high speed and good real time. It helps consumer understand how electric power used and consumed in their homes, also wireless meter reading abets the saving of electricity. If we go thought exiting measurement arrangement for 36000 pulse we required minimum 48Hour.For that purpose we are considering 10 pulses for our experiment basis. Using such a experiment we are calculating the bill of user and our aim is to communicate this value of pulses and amount of bill to user side and server side such methodology has great impact on errors which are occurred giving measurement of electricity bills.

II.OBJECTIVES

I. Measurement of energy meter pluses.

II. Send reading to server by using GSM module.

III. MeterID, user name, units of reading, amount of bill this information to receive on server side.

IV. Update data base system software.

III.SYSTEM IMPLEMENTATION

1. MICROCONTROLLER 89C51 AND LCD INTERFACE:

The 89c51 is 40 pin IC.It has 128x8 bit internal RAM. There are 4 ports like port 0,1,2,3etc.INT0 and INT1 this two pins are interrupt pins, here we use INT0(P3.2)for give input to microcontroller.Port1 perform input output operation and Port2 is used for serial data communication. In our project LCD interfaced with the port0.i.e from Pin number (32to39) in other words the data bus D0-D7 is connected to port0 of 89c51.Pin RS is directly connected to Pin 21 of controller i.e.port2.0 and Enable pin is connected to pin 22 of controller i.e.port2.1.On the other hand pin R/W of LCD is connected to ground. We use LCD display here for displaying meter reading and also amount of bill. This LCD has two registers namely command and data. The command register stores command instructions. Command is given to LCD to do a predefined task. Data register stores data to be displayed on LCD.

Fig 1: Microcontroller and LCD interfacing.

2. GSM INTERFACING

GSM module is wireless modem that transmits data using radio waves. Connect PC as well as microcontroller to using interface of RS232 and GSM.AT commands are require for initialization of GSM. When microcontroller send this command then GSM modem activate to perform the operation. Here we use GSM SIM900A, which work at frequency 900 to 1800MHz.It has inbuilt SIM card holder. For long distance communication and information transfer we are using SIM900A. Here we are using one subscriber and its arrangement of SIM related to information.

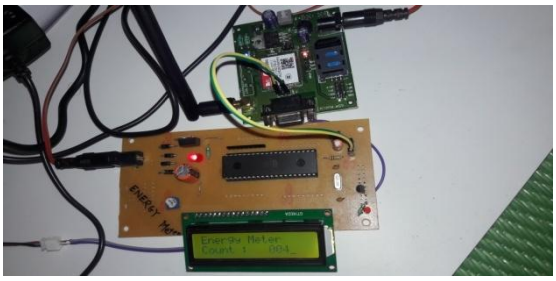


Fig 2: GSM interfacing.

3. SOFTWARE PLATFORM:

We are using visual basic.net as software plateform.It is a computer programming language. It store information, C++, COBOL all this languages accesses frame work as well as communicate each other. It has

strong programming features for e.g. Boolean condition, standard library. Here we used VB.2010.We require display of unit and amount of bill as well as meter ID and concern information display of monitor side. For that purpose we construct platform of visual basic.net as per requirement of our parameters.

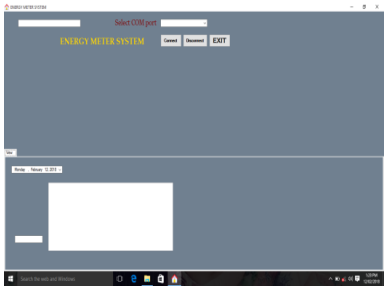
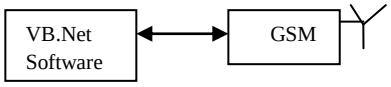


Fig 3: V.B.Net software platform.

IV.WORKING

Connection of this system shown in fig. The microcontroller is directly connected to LCD using port0, reset circuit is connected to pin9. Interrupt pin P3.2 is used for take input from energy meter and give to microcontroller then this reading display on LCD.PinTx and Rx connected to max232. This IC connected to DB9 connector for connection GSM module.Tx pin of microcontroller is connected to Rx pin of GSM module. When this system is start LED goes on and blinking that means microcontroller counting the pulses. Here we consider ten pulses is the one unit using this we calculate total unit, reading and amount of bill. This unit display on LCD at user side.GSM send the message to service provider as well as coustomer.Here VB used as service provider side to store information related to user.

SERVICE PROVIDER SIDE:



USER PROVIDER SIDE:

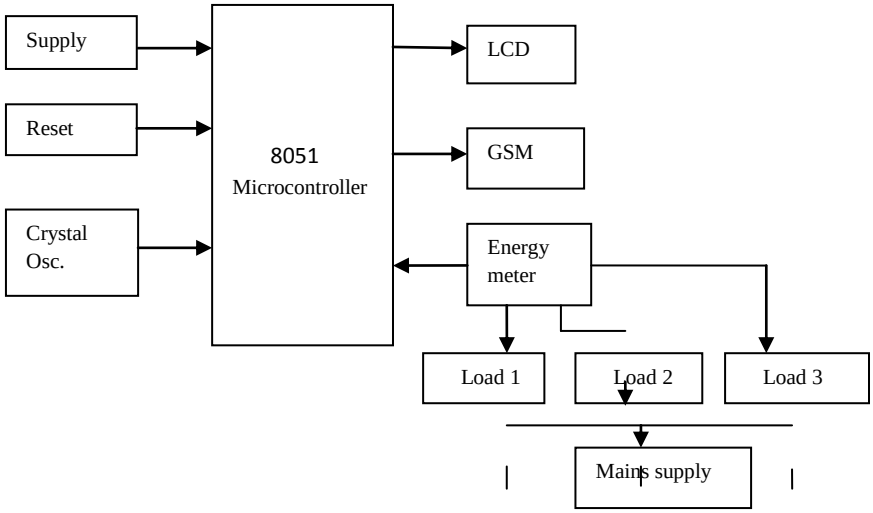


Fig 4: Block diagram

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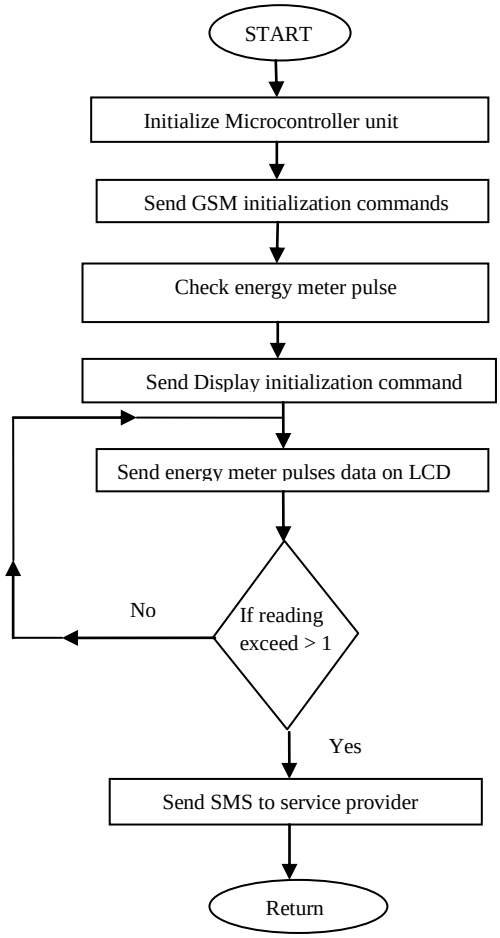
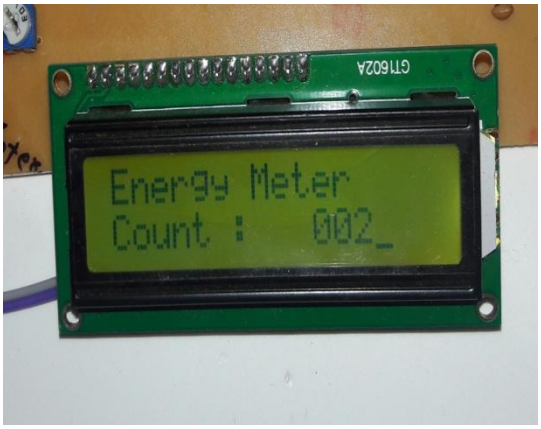
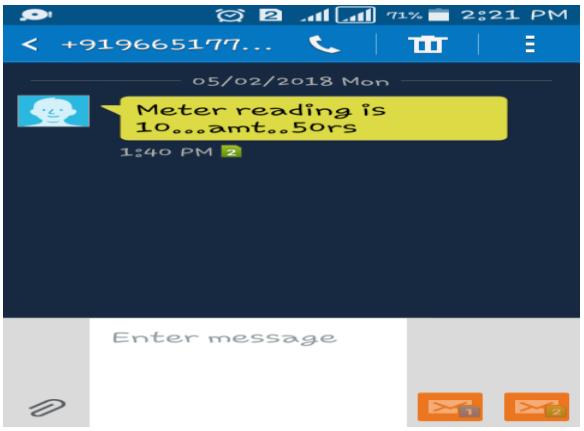
V.FLOW DIAGRAM



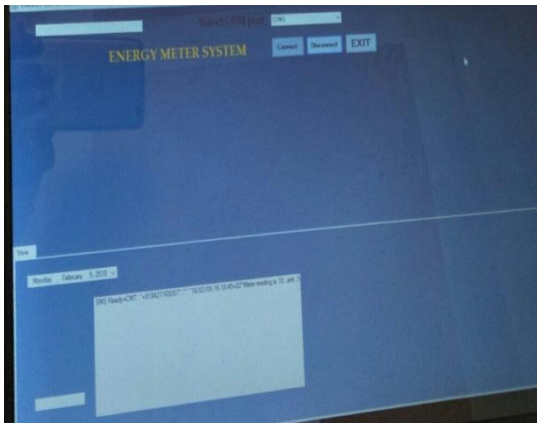
VI.RESULTS OF OBJECTIVES ACHIEVED

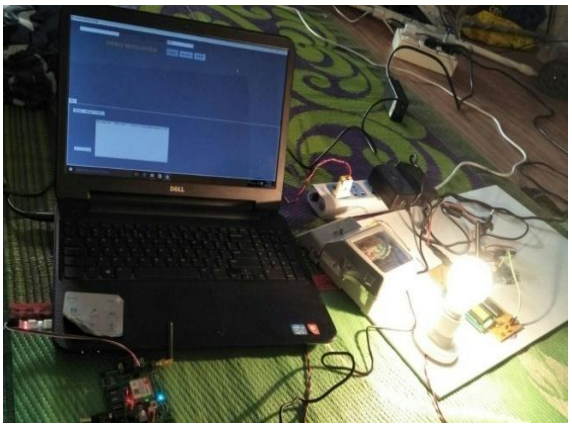


(I)



(II)





(II) (IV)

VII.CONCLUSION

In this paper we have to study today's collection of meter reading. There are so many mistakes this problem overcome by using wireless meter reading system. Using this system every costumer how many power used in their homes and costumer alter about saving power. In wireless meter reading system calculate amount of bill display both side hence it is vary essential for costumer. This system is wireless system hence no one can interface between systems. It is easy and simple to understand, working. This project reduces manual work and fault in capturing reading. It is more beneficial for customer side as well as service provider side. This project suits sends to information to long distance according to time. This system could be smarter by allowing to could be smarter by allowing to check for the power consumption.

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