

ANDROID BASED SMART ENERGY METER

A.A.Noman^{1*}, M.F.Rahaman¹, H.Ullah², R.K.Das³

^{1*,1} *Student, Department of Electrical & Electronics Engineering,
Southern University Bangladesh, Chittagong.
< noman@southern.edu.bd >*

² *Assistant Professor & Head, Department of Electrical & Electronics Engineering,
Southern University Bangladesh, Chittagong.*

³ *Lecturer, Department of Electrical & Communication Engineering,
Southern University Bangladesh, Chittagong.*

ABSTRACT

The main objective of this paper is to make intelligence of regular energy meter system. In existing energy meter only the quantity of used power can be perceived, but we can't monitor the Voltage, Current, Active Power, Reactive Power and Apparent power of the system. By the use of android based smart energy meter all parameters can be observed easily. The important points of this system are its mobility, low cost, easy to maintenance and monitoring the total system.

The process is started with the main 220V AC line that is delivered from power line. Line voltage and current are measured by a voltage and a current sensor. These sensors are connected with the microcontroller and they will measure current with respect to a Load. Then Active Power, Reactive Power, Apparent power and watt can be calculated using different mathematical equations of the system. The measured data will display in LCD and transmitted to the android device via Bluetooth module and it will be sent to the android device.

Combination of hardware and software for the system are verified and fully tested. Although there are a few limitations and difficulties encountered during development of the project, the system works as expected. By developing a smart energy meter system and by using upcoming techniques one can be benefitted in different cases.

Keywords: Android system, Smart energy, Bluetooth, ARDUINO, Current sensor

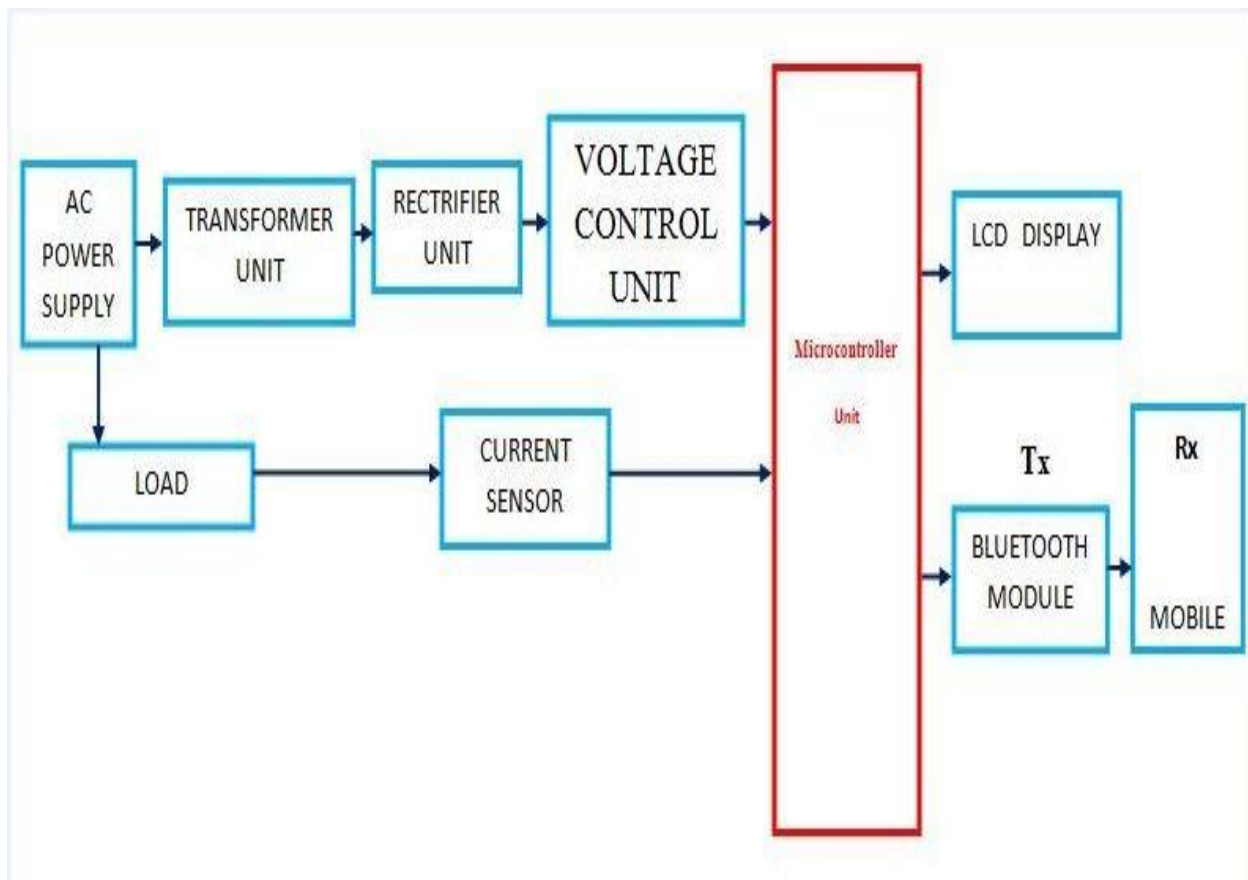
INTRODUCTION

A smart meter is a new kind of gas and electricity meter that can digitally send meter readings to your energy supplier. This can ensure more accurate energy bills. Smart meters also come with monitors, so you can better understand your energy usage.

OBJECTIVE

1. To display Current, Voltage, Active power, Reactive power & apparent power.
2. Design an efficiency & user friendly.
3. Reduce production cost.
4. Power loss reduction cause of power factor improvement.
5. Wireless Meter Reading transmission.
6. Display instantaneous reading in smart phone.

BLOCK DIAGRAM OF THIS PROJECT

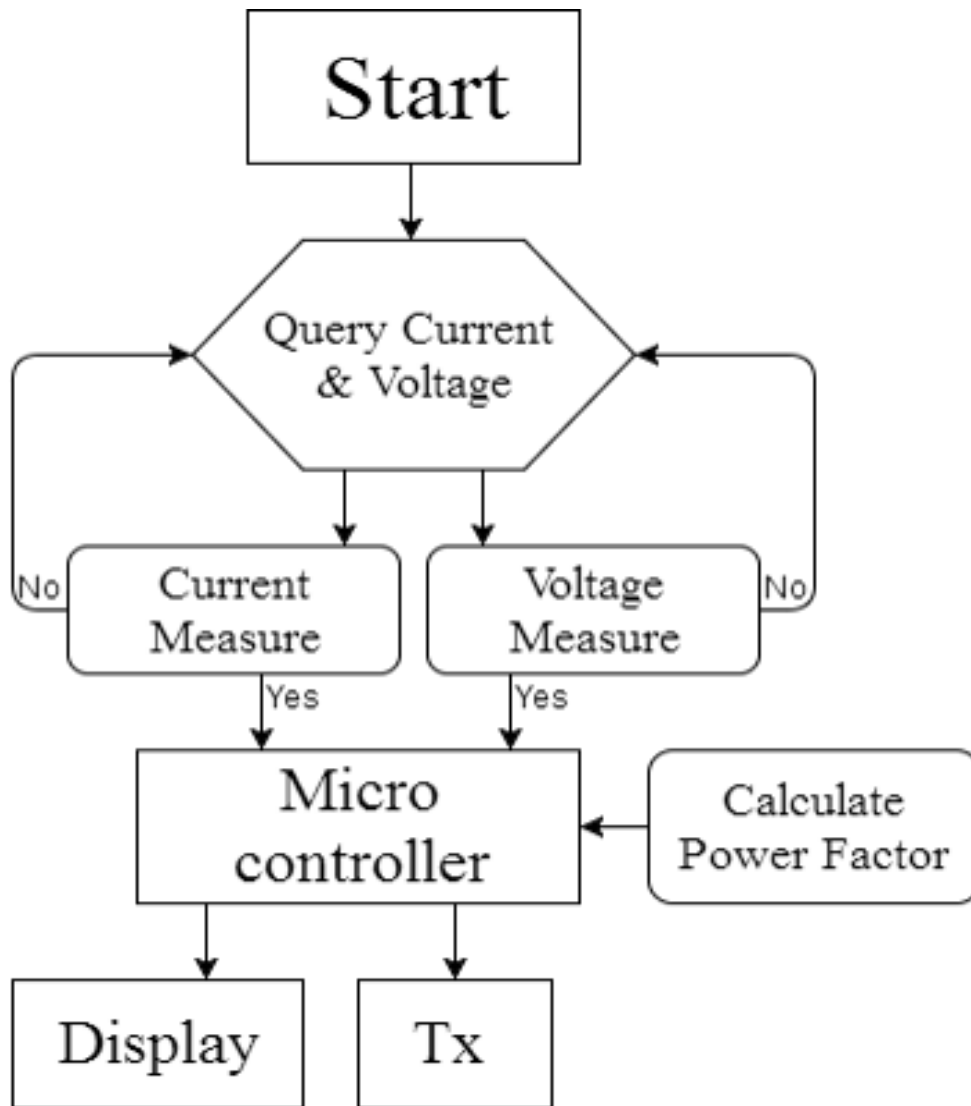


ADVANTAGES OF THIS PROJECT

- Can be control by Bluetooth technology.
- Can be control by any smart phone

- Have build in LCD display.
- Easily programmable using Embedded system
- Easy maintenance.

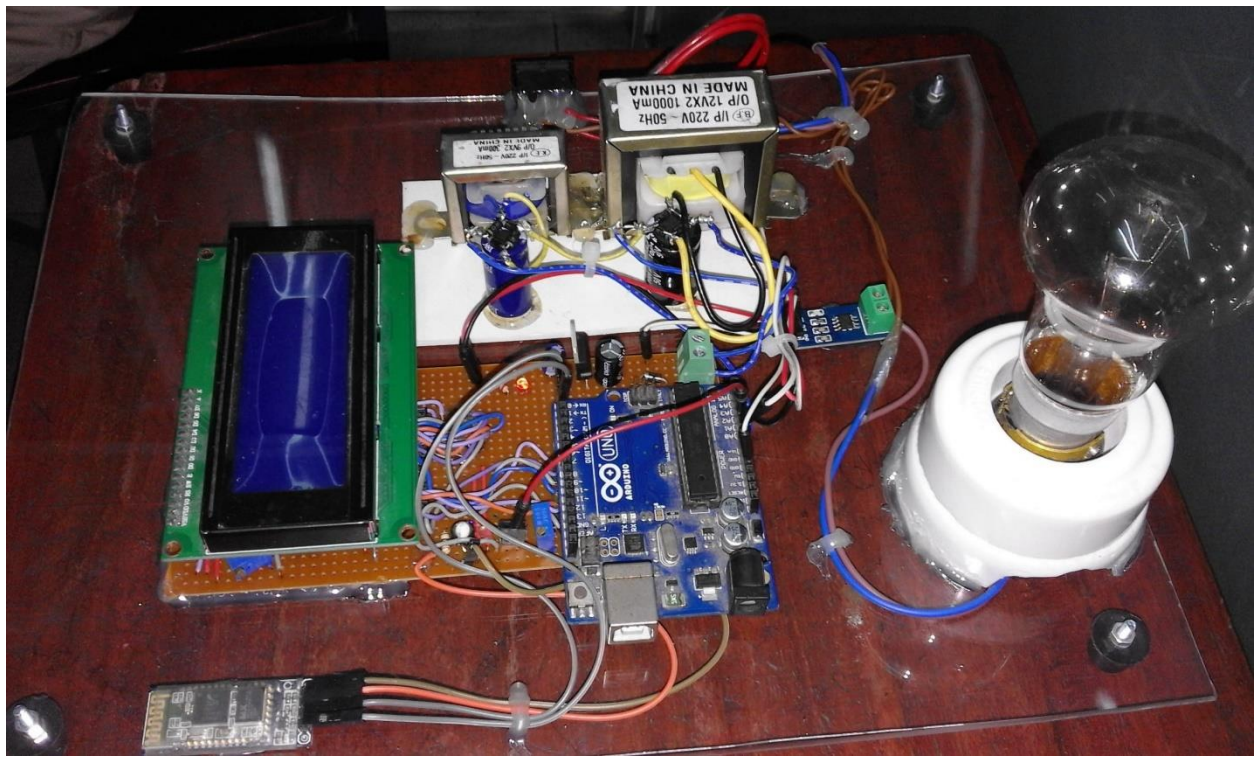
ALGORITHM FOR THE SYSTEM



OUTPUT

SI.NO	Energy	Value
1	Current	0.82 A
2	Input Voltage	234.96 V
3	Active Power	153.34 Watt
4	Reactive Power	115.00
5	Apparent power	190.29 VA

PROTOTYPE



CONCLUSION

Finally after completing this project we get the clear idea about the Wireless Smart Energy Meter. We discussed about the components and used to implement this project. We study the details information about the components used to complete this project such as Microcontroller, LCD, Voltage regulator, Crystal Oscillator, Zener diode etc. We come to know how to make a circuit connection and then check the output. It will help us in our future work.