SOLAR POWER REMOTE MONITORING USING IOT
[INTERNET OF THINGS]

INTRODUCTION

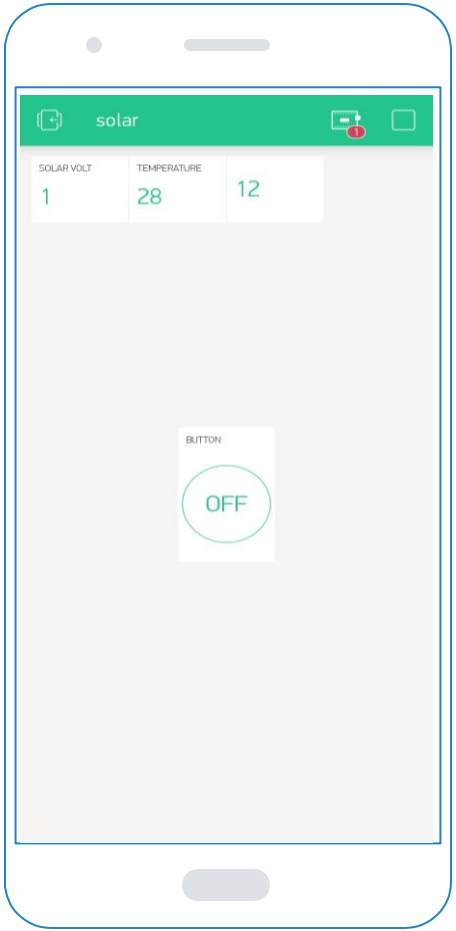
Internet of things (IOT) is playing a major and crucial role in the daily life of humans by enabling the connectivity of many and most of the physical devices through internet to exchange the data for monitoring and controlling the devices from a remote location, where the devices are becomes intelligent.

We use ATmega controller based system to monitor solar panel parameters. Our system constantly monitors the solar panel and transmits the power output to IOT system over the internet. Here we use IOT Thing speak to transmit solar power parameters over the internet to IOT Thing speak server. It now displays these parameters to the user using an effective GUI and also alerts user when the output falls below specific limits. This makes remotely monitoring of solar plants very easy and ensures best power output.

Mobile App (BLYNK)

This application is works upon Wireless Fidelity (Wi-Fi) and hotspot.

- We can remote and monitor these solar panel and temperature sensor by using this application.
- It shows the output voltage and ambient temperature on the display.
- This application control the load (6v DC motor).
- Displays the storage level of the 12v battery.

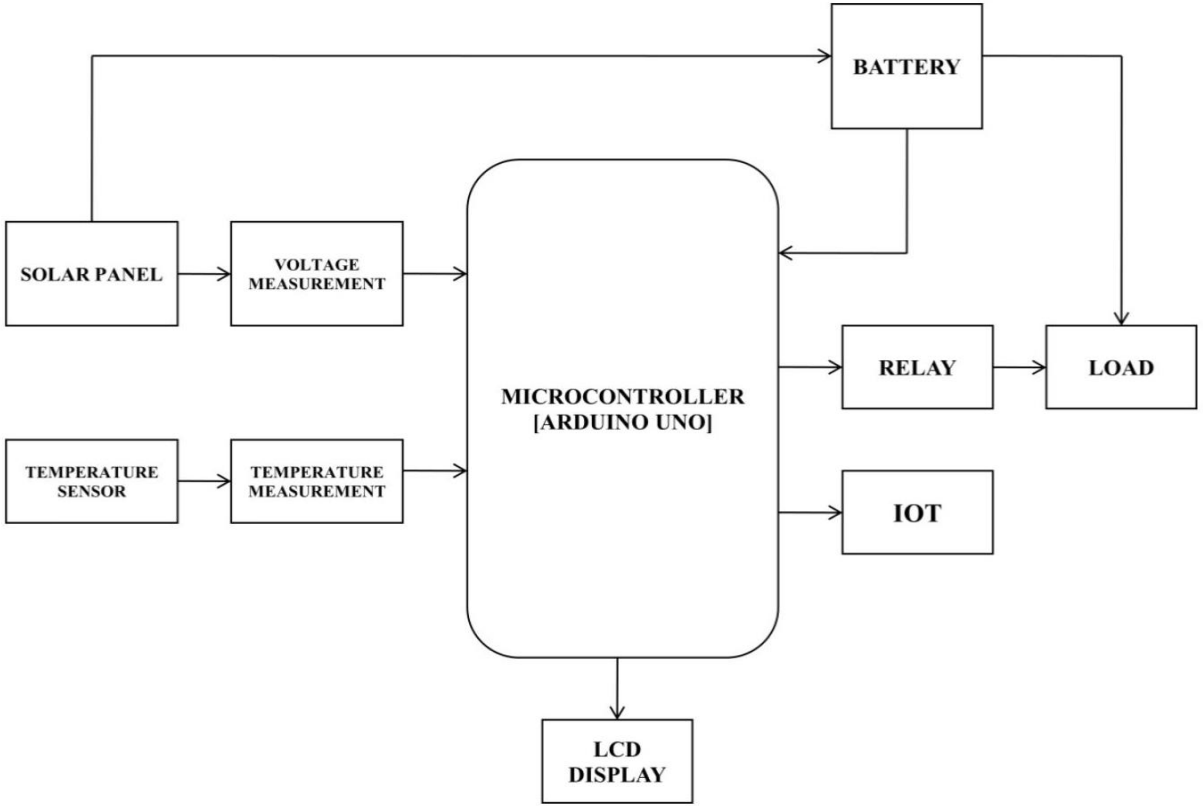


ABSTRACT

Solar power plants need to be monitored for optimum power output. This helps retrieve efficient power output from power plants while monitoring for faulty solar panels, connections, and dust accumulated on panels lowering output and other such issues affecting solar performance. So here we propose an automated IOT based solar power monitoring system that allows for automated solar power monitoring from anywhere over the internet.

We use Arduino based system to monitor a 10Watt solar panel parameters. Our system constantly monitors the solar panel and transmits the power output to IOT system over the internet. Here we use IOT Gecko to transmit solar power parameters over the internet to IOT Gecko server. Smart Monitoring displays daily usage of renewable energy. This helps the user to analysis of energy usage. Analysis impacts on the renewable energy usage and electricity issues.

BLOCK DIAGRAM



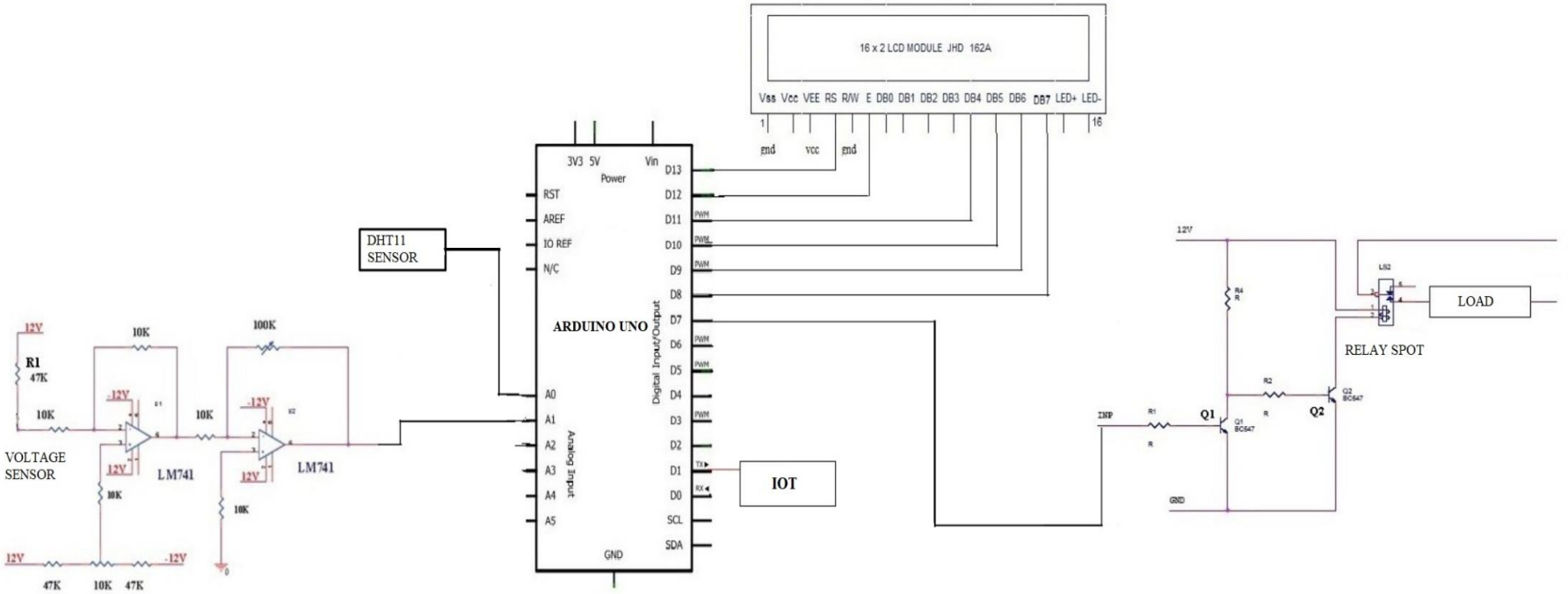
HARDWARE REQUIREMENTS

- ARDUINO UNIO
- VOLTAGE SENSOR
- TEMPERATURE SENSOR
- IOT DEVICE [ESP8266 WI-FI]
- RELAY
- LCD DISPLAY 16x2
- SOLAR PANEL 9v
- BATTERY 12v

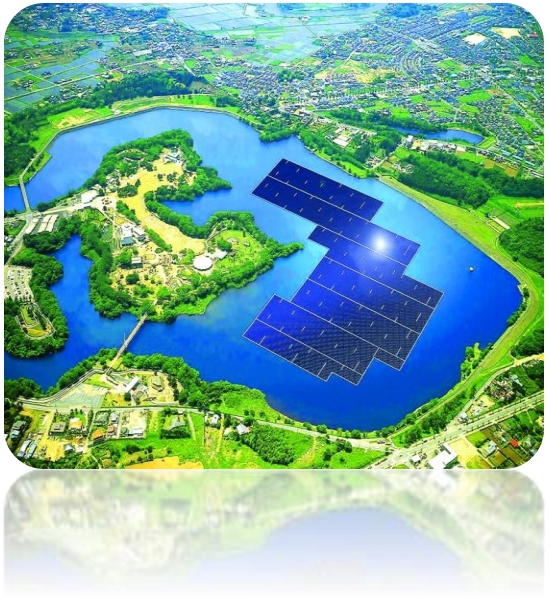
SOFTWARE REQUIREMENTS

- EMBEDDED C
- MP LAB

CIRCUIT DIAGRAM



APPLICATION



SOLAR POWER PLANT

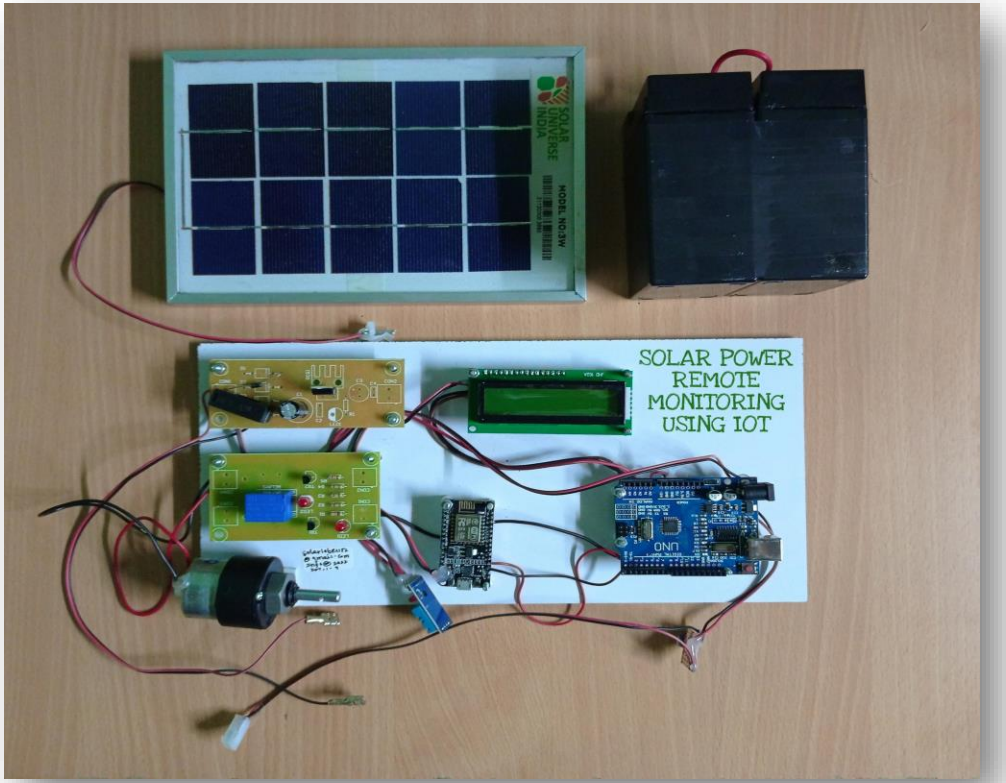
- Majorly applied in solar power plants
- Used “ON” water solar power plants
- If we needed, it can be provided at domestic areas like small scale industries etc…
- Also used in off roads which places where cars not accessible
- As the software is to be implemented in a high standard Industrials sectors.

CONCLUSION

As this system keeps continues track of solar power plant ,the daily weekly and monthly analysis becomes easy and efficient also with the help of this analysis it is possible to detect any fault occurred within power plant as the generated power may show some inconsistency in data of Solar power plant.

Renewable energy sources are the non conventional type of energy which can be continuously relished by natural process. The solar panel voltage generation is one among the better solution for clean energy production by monitoring and controlling the voltage generated by our proposed system we could overcome the drawbacks of earlier proposed system.

APPENDIX



THANK YOU