7.1.2 - Alternate Sources of Energy and Energy Conservation Measures

INDEX


GPS Map Camera
Pudukkottai, Tamil Nadu, India
Block 2, Manamadurai - Tanjavur Rd, Tamil Nadu 613301, India
Lat 10.648022°
Long 79.048283°
23/10/21 03:21 PM
Google
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36


GPS Map Camera
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Block 2, Manamadurai - Tanjavur Rd, Tamil Nadu 613301, India
Lat 10.64799°
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SOLAR PANEL

S.No.	Particulars	Rating
1.	Rated Power	260W
2.	Open circuit voltage	38.12V
3.	Short circuit current	8.9A
4.	Voltage at maximum power	30.40V
5.	Current at maximum power	8.57A
6.	Maximum system voltage	1000V
7.	Module weight	18.3Kg


GPS Map Camera
Pudukkottai, Tamil Nadu, India
Kings College of Engineering Bus Stop, National Highway 226, Tamil Nadu 613301, India
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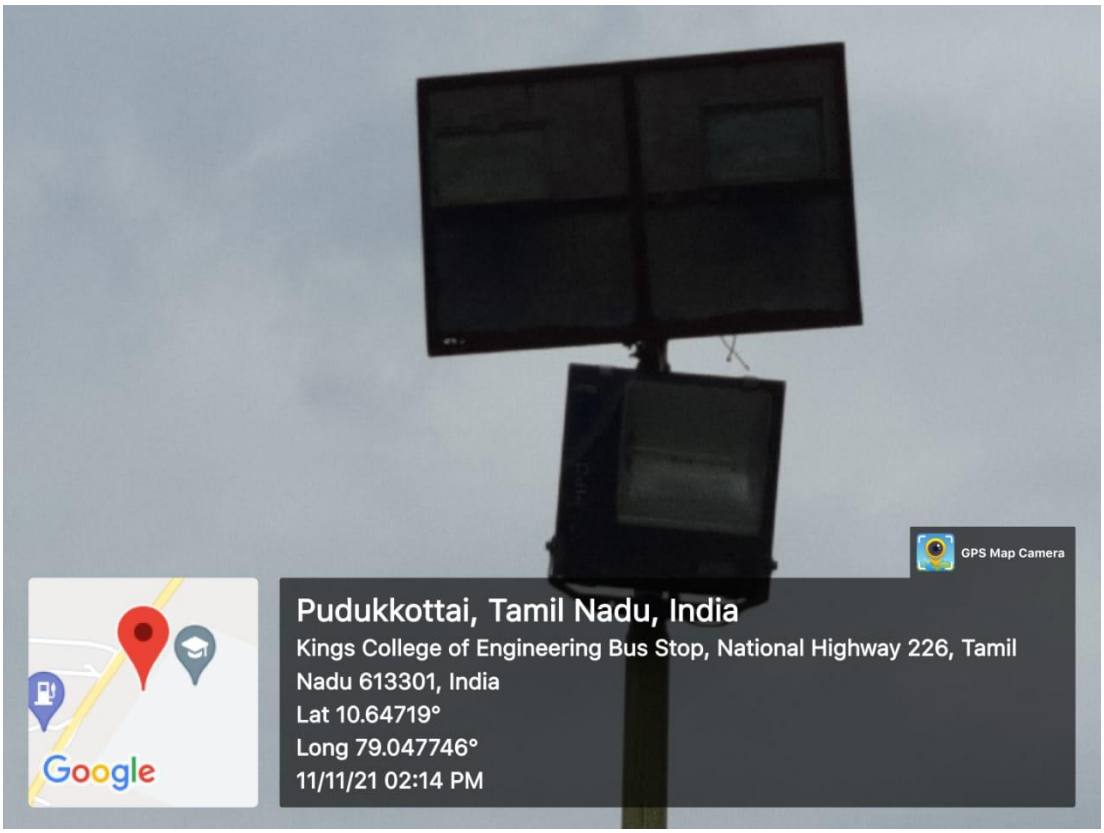
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LED LIGHT

Locations of LED lights

Room / lab Detail	Specification	Maximum powerrating	No. of LED lights
Block I			
Principal room	LED light	40W	04
Secretary room	LED light	40W	06
Optical lab	LED tube light	40W	06
Block I building opposite	LED Street light	55W	10
Block II building opposite	LED Street light	250W	06
Block III			
Ground Floor (Girls)	LED tube light	40W	20
Ground floor (boys)	LED bulb	40W	02
Ground floor (boys)	LED tube light	40W	14
Kitchen	LED light	40W	14
Block IV			
Bath room 1st floor	LED light	40W	04
Varanda 2nd floor	LED light	40W	01
Bath room 2nd floor	LED light	40W	02
Library Block			
Ground floor	LED light	25W	01
Street lights (LED)	Canteen	20W	02
	First year block	20W	01
	Physics lab	20W	01
	Ground side	20W	03
	Girls hostel	20W	03
	Library back	55W	05
	Gate compound	20W	03
	Outside	20W	02

IoT BASED ROOM AUTOMATION SYSTEM

Date: 12.11.21

The Internet of Things (or commonly referred to as IoT) based Room Automation system (RAS), as the name suggests aims to control all the devices of smart room through internet protocols or cloud based computing.

This project presents the overall design of Room Automation System with low cost and wireless system. It specifically focuses on the development of an IoT based home automation system that is able to control various components via internet or be automatically programmed to operate from ambient conditions. In this project, we have designed the development of a firmware for smart control which can successfully be automated minimizing human interaction to preserve the integrity within whole electrical devices in the room. We used NodeMCU, a popular open source IoT platform, to execute the process of automation. Different components of the system will use different transmission mode that will be implemented to communicate the control of the devices by the user through NodeMCU to the actual appliance. The main control system implements wireless technology to provide remote access from smart phone. We are using a cloud server-based communication that would add to the practically of the project by enabling unrestricted access of the appliances to the user irrespective of the distance factor. We provided a data transmission network to create a stronger automation. The system intended to control electrical appliances and devices in room with relatively low cost design, user-friendly interface and ease of installation. The status of the appliance would be available, along with the control on an android platform.

The system is based on NodeMCU board as an Internet of Things system. The NodeMCU is connected to the internet from the hotspot of the smart phone via WIFI connection as the NodeMCU has ESP8266 circuit to connect with the internet. NodeMCU to be connected to the hotspot of the smart phone, needs to be identified to the name of hotspot, the password and token code letting the server of Blynk connects them together. The computer, once transfer the code from Arduino IDE to the NodeMCU kit to prepare the software part of the project. Figure 1 shows that the server of Blynk application will process the smartphone-NodeMCU connection.

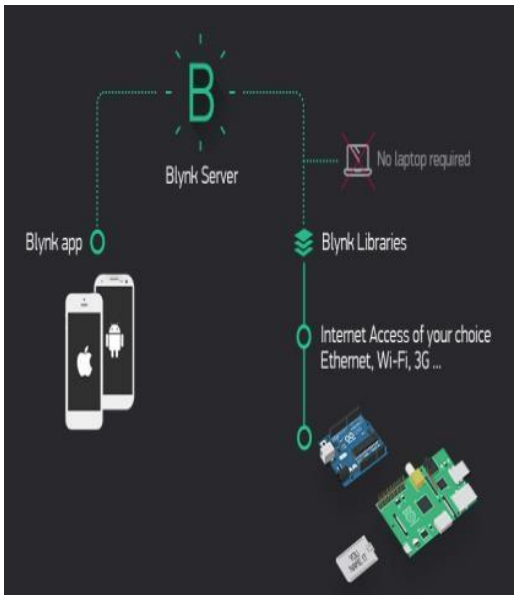


Figure 1. Blynk System Principle

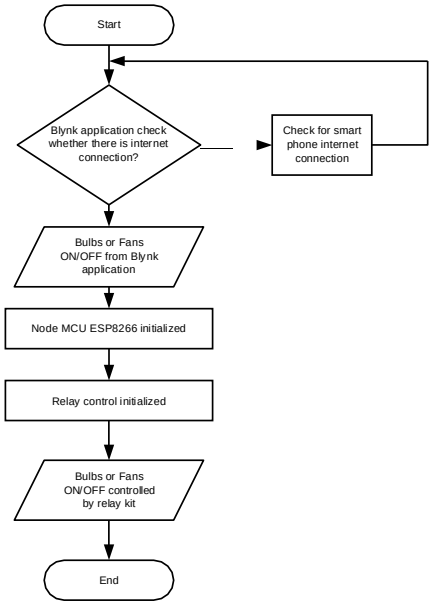
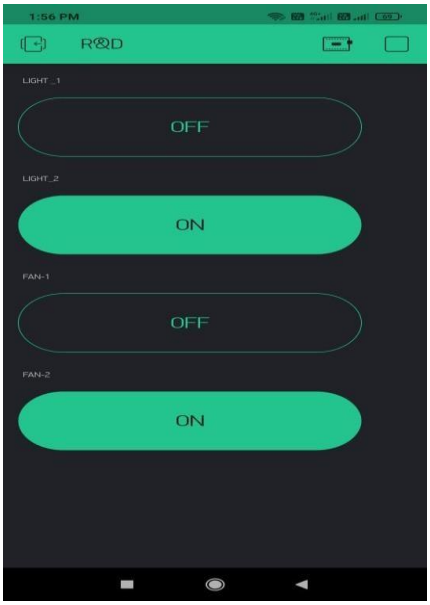
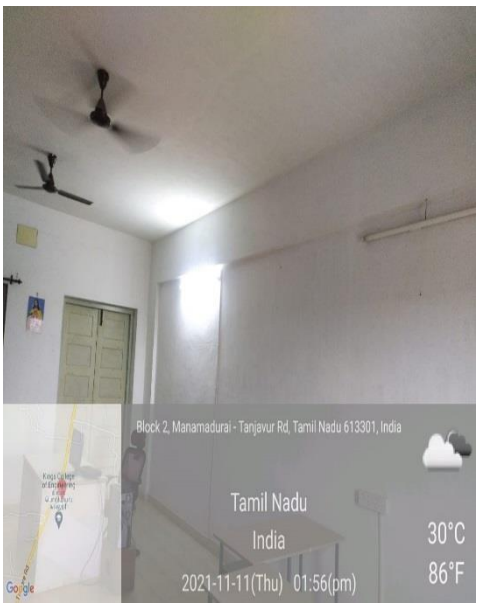


Figure 2. Flowchart of Load ON/OFF

Blynk server will check for internet connection, NodeMCU with android hotspot, the NodeMCU code includes the token code, the name of hotspot and it's password. The information included to the code must be match with the hotspot information to allow ESP8266 connect with the WIFI to be as a channel to exchange commands between smart phone and NodeMCU. Remaining processes are just commands sent from Blynk application to NodeMCU to control loads those are connected to the relay kit as shown in Figure 2.

We implemented the system in our institute Innovation Club laboratory to control two fans and two lights.





Implementation of RAS in Innovation Club Laboratory

Staff Incharge

Principal

BIO GAS PLANT