Mobile Control Based Home Automation

1. Define a Problem Statement

Traditional light control systems only support manual control (only when we are present at that particular place) while operators cannot operate them remotely in real time, which causes great inconvenience to management and maintenance.

2. Build an algorithm or a procedure to define what we can do?

Internet of Things based home automation project aims to automate the functioning of household appliances and objects over the Internet. All the household objects that are connected over the Internet of Things network can be controlled and operated through your smartphone. This is not only convenient but also gives more power to the user to control and manage household appliances from any location in the world. The Home Automation increases convenience, safety, saves precious power, time and money.

Here we will build a mobile application and Node MCU will control relay based on inputs from the mobile application.

ATOM SOFTWARE SOLUTIONS

3. Gather Software and Hardware requirements:

(i) Software :

- Mobile Application

(ii) Hardware :

- Node MCU
- Relay Module

4. Define Input, Processing and Output (IPO)

(i) Input: Mobile Application

- We will build a mobile application which has a button to control our appliance.
- Application sends signal as input to the micro controller

(ii) Processing: Node MCU

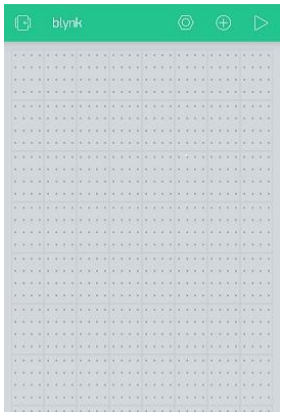
- Microcontroller
- Receive input from mobile and send output to relay module

(iii) Output: Relay Module

- Acts as a switch to control supply to the light
- Receive instructions from the microcontroller

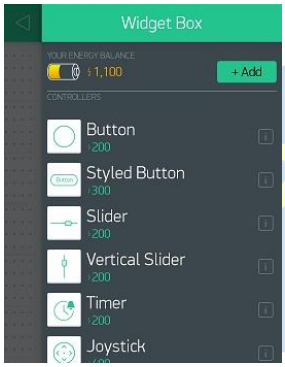
5. Build Mobile Application and Assemble your Hardware

(i) Setting up Mobile Application



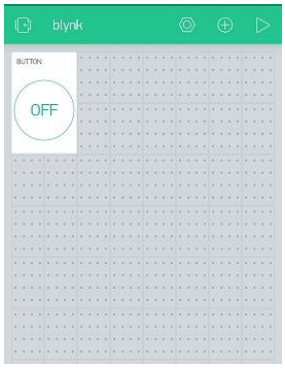
Step 1 :

Create New Project and click on Home Screen



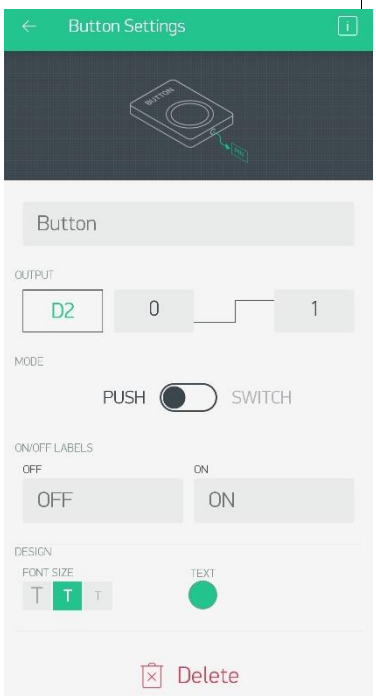
Step2 :

From Widget Box select Button



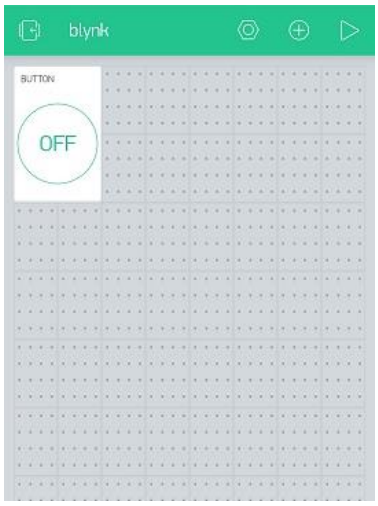
Step3 :

Now click on the button to change the settings



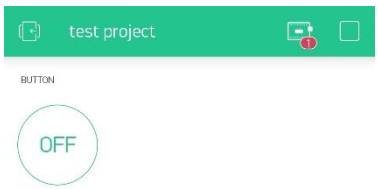
Step4 :

You can select the pin you need to control, your button name here. Once done click on the back button so that ist will go back to the home page.



Step 5 :

Click on execute button on the right top.



Step 6 :

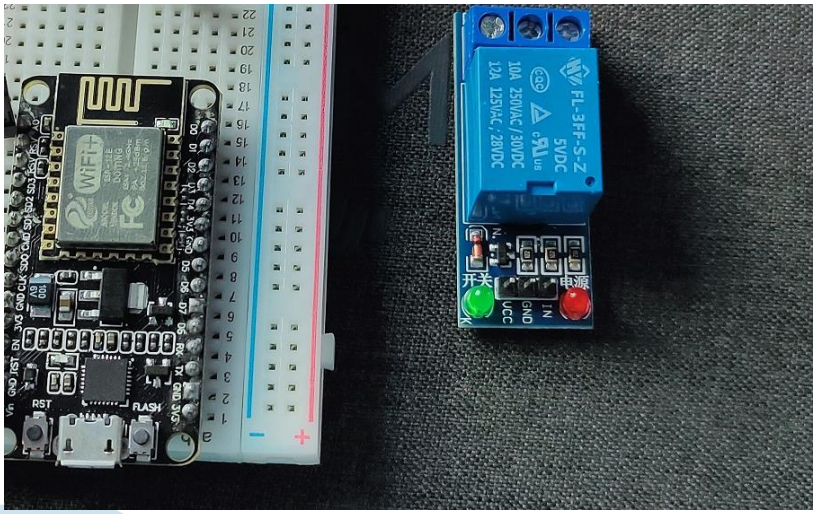
The Project is ready to operate. The error symbol will be cleared when you upload code to your node mcu and once it is connected to blynk application.

ATOM SOFTWARE SOLUTIONS

(ii) Interfacing Relay and Node MCU

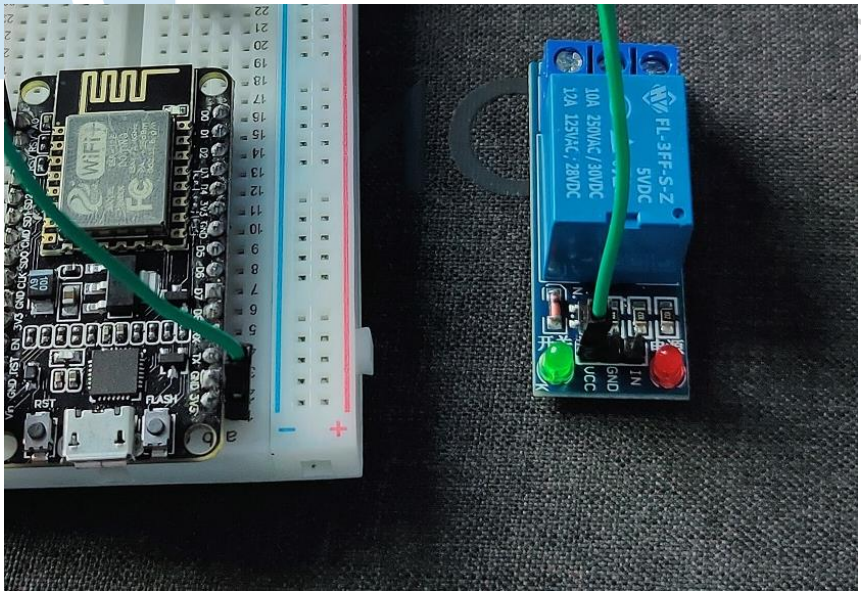
Step 1:

Relay has 3 pins Voltage (Vcc), Ground (gnd), Input pin (IN)



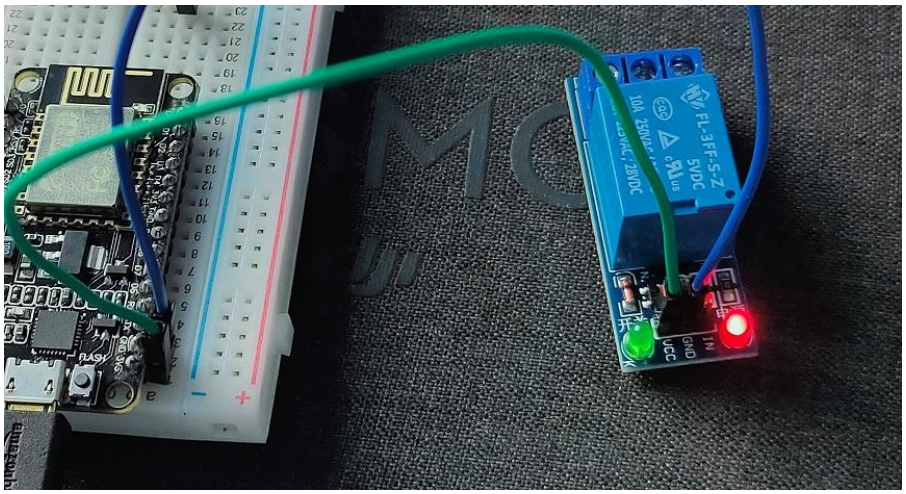
Step 2:

Connect Vcc of Relay Module to 3V3 of Node MCU



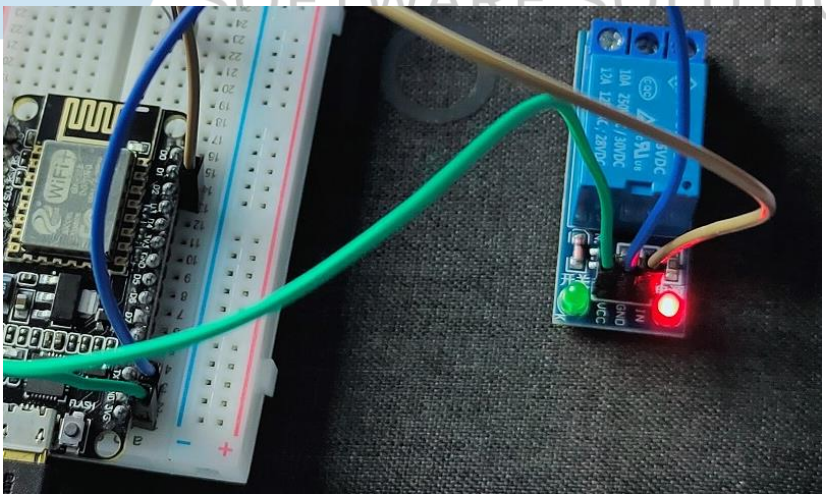
Step 3:

Connect Gnd of Relay Module to Gnd of Node MCU(Once Voltage and ground are connected then it will be powered up and red Led will glow)

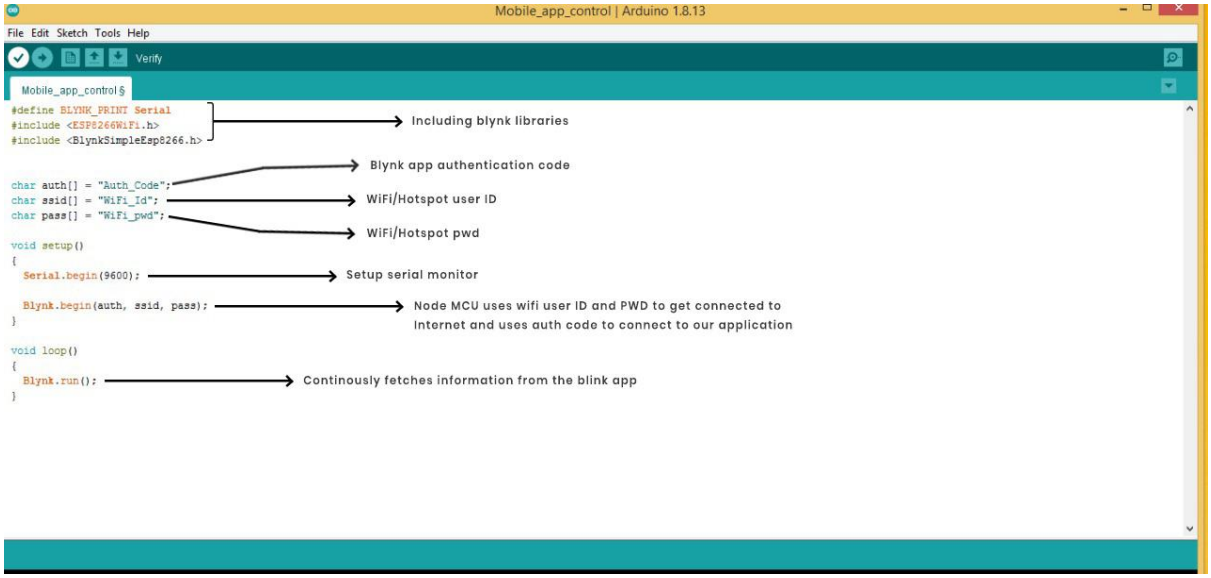


Step 4:

Connect IN of Relay Module to Digital pin of Node MCU(Through this pin relay module will receive signal from Node MCU)



6. Write and upload the code to microcontroller

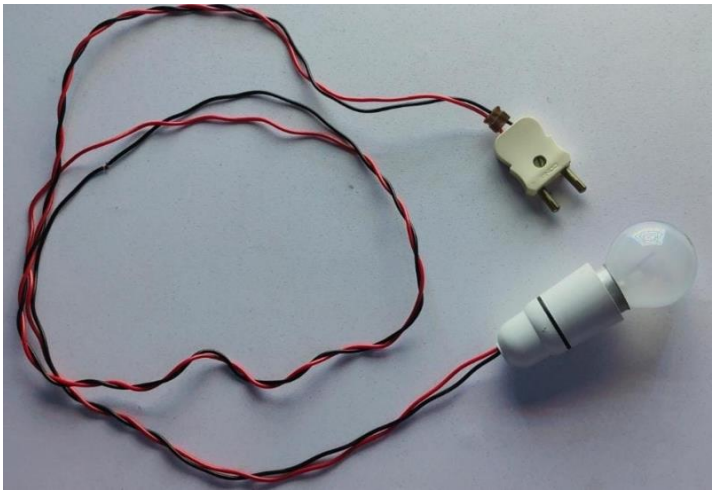


Connect NodeMcu to your laptop/PC through microusb cable and then compile and upload your code.

7. Launch your application

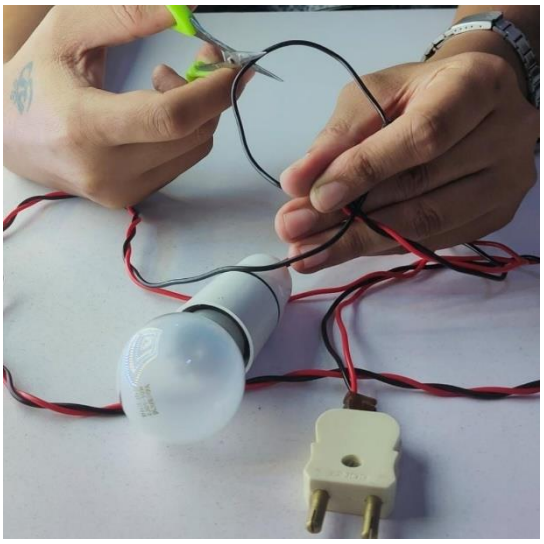
When we are trying to apply this in Real Time we need to disconnect one of the electrical wire in the circuit in-between and will connect it to the high voltage end of Relay module as follows **Step 1:**

Connect 2-pin plug and holder on either sides of the electrical wire



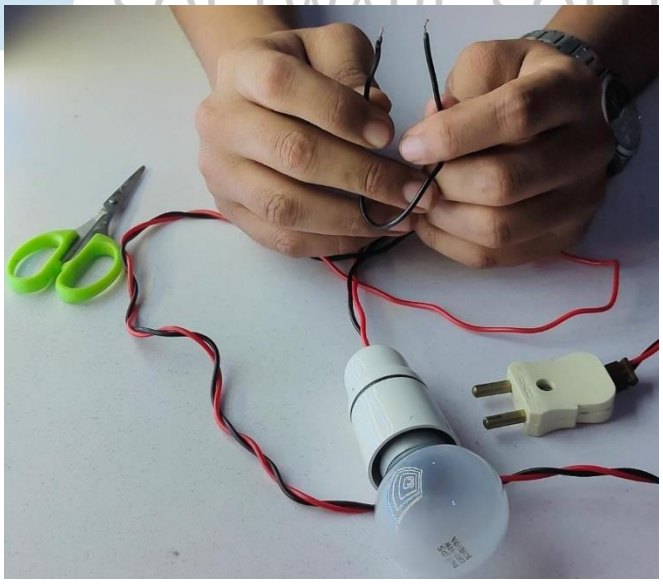
Step 2:

Disconnect one of the electrical wire in the circuit in-between



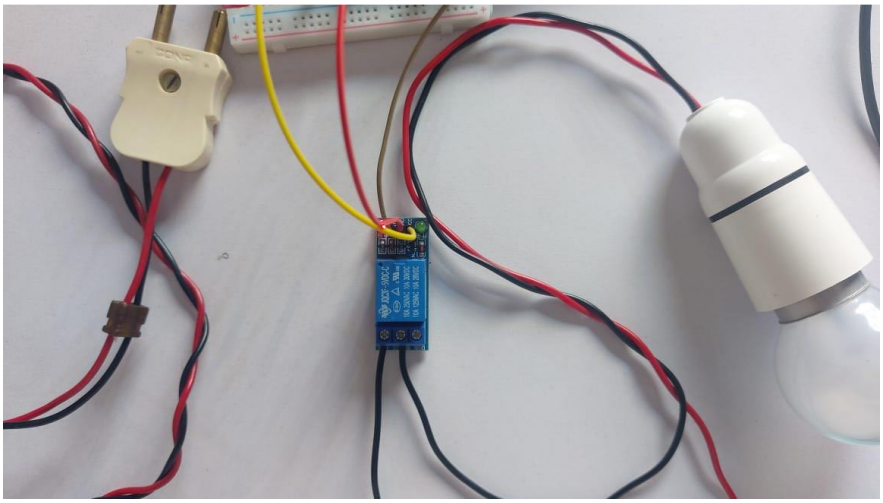
Step3:

These two ends of the high voltage end of relay.



Step 4:

Connect one in the middle and other on either left/right



8. Test it in different scenarios

Test this device with different light intensities.