IoT Based Home Automation

IV Semester Project

B. Tech

In

Computer Engineering

Submitted to:
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Session:2020-21

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Introduction

Nowadays, we have remote controls for our television sets and other electronic systems, which have made our lives real easy. Have you ever wondered about home automation which would give the facility of controlling tube lights, fans and other electrical appliances at home using a remote control? Off-course, Yes!
in this project we will be building a home automation project using Nodemcu , which can be controlled over internet. With the help of this system you can control your home appliances from your mobile phone. You can turn on/off your home appliances from anywhere in the world using internet.

Requirements

Hardware Requirements:

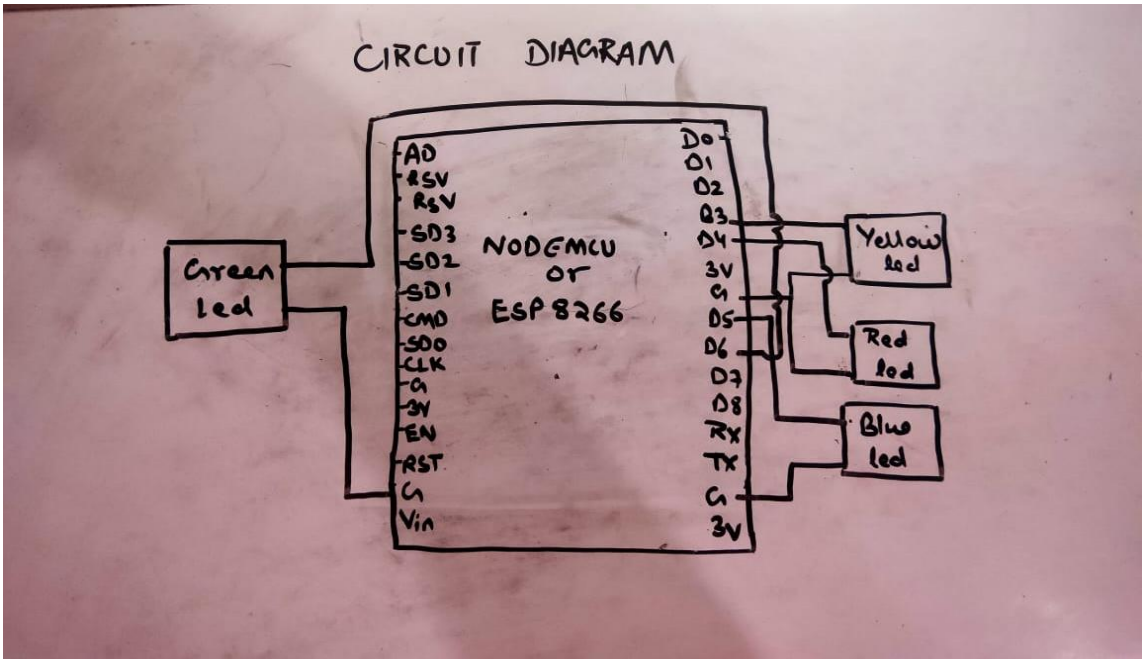
The list of components mentioned here are specifically for controlling 4 different leds.

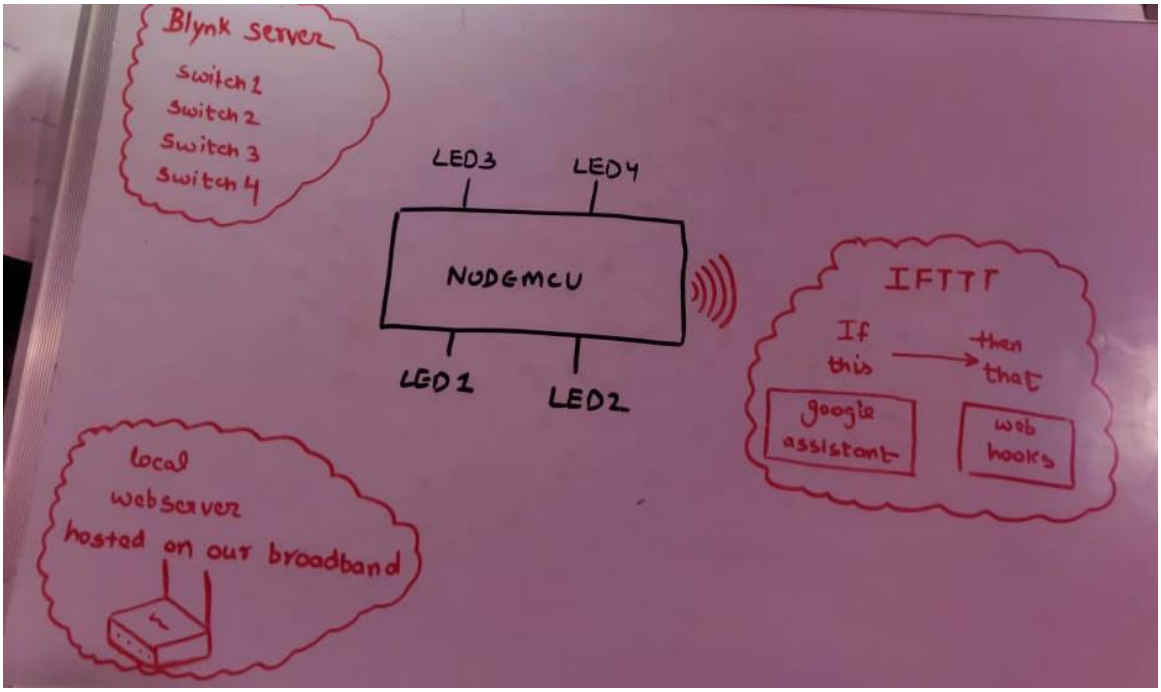
- Nodemcu Board
- 4 led(Red, blue, green, yellow)
- Usb Cable
- Power Supply
- Card board box

Software or Websites Used:

- Arduino Ide
- Blynk Application
- VS Code
- Ifttt.com

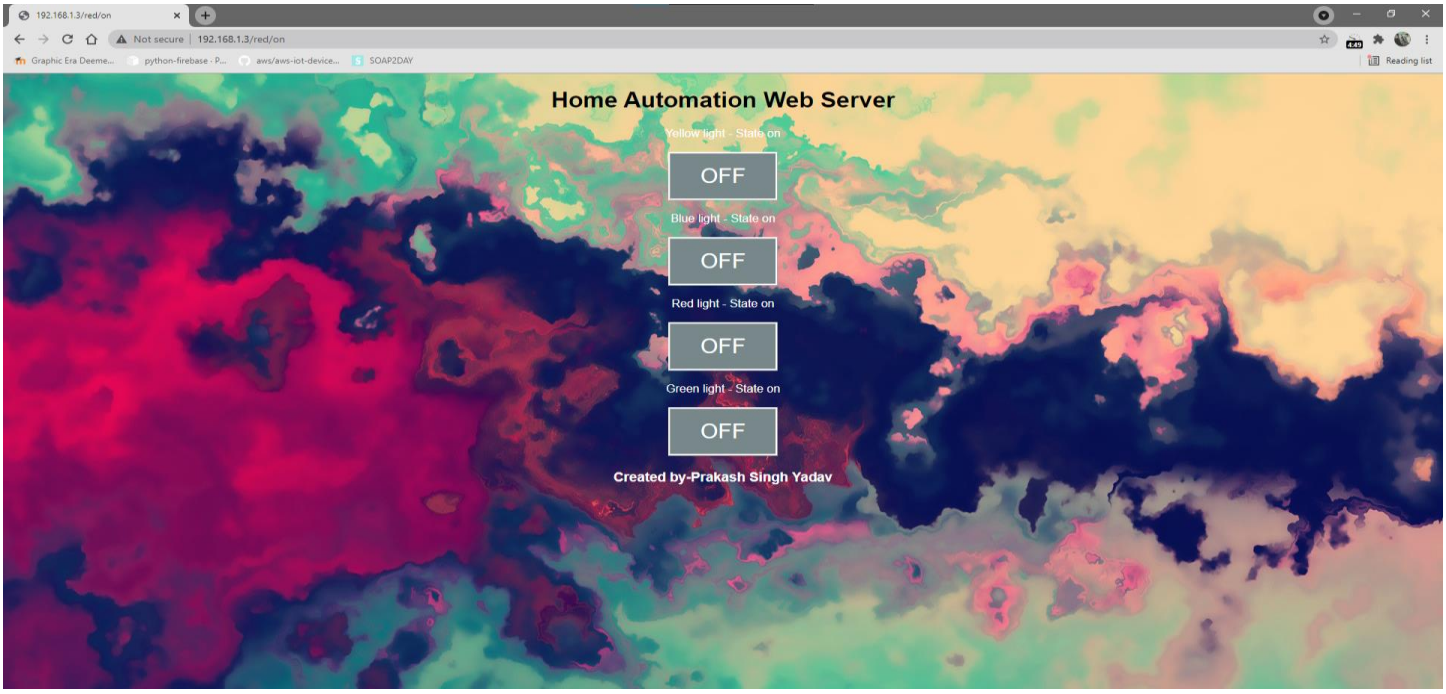
Circuit Diagram:



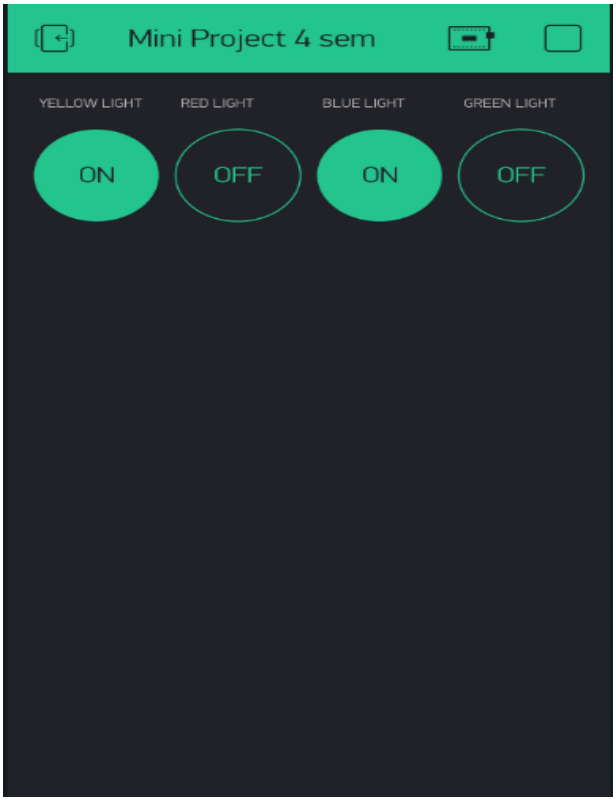


Software Interface

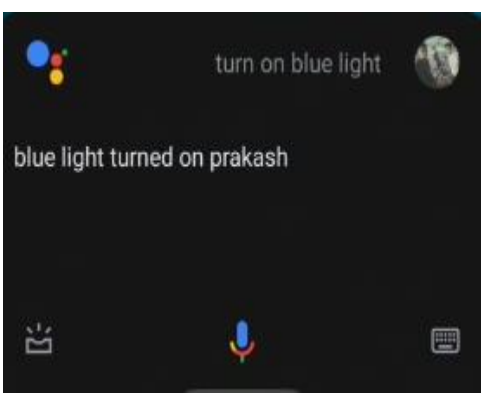
Local Webserver:

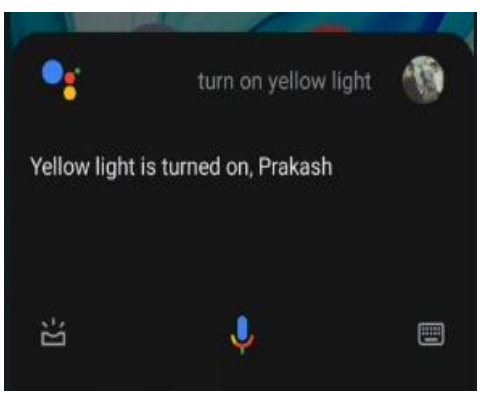


Blynk App:



Google Assistant:



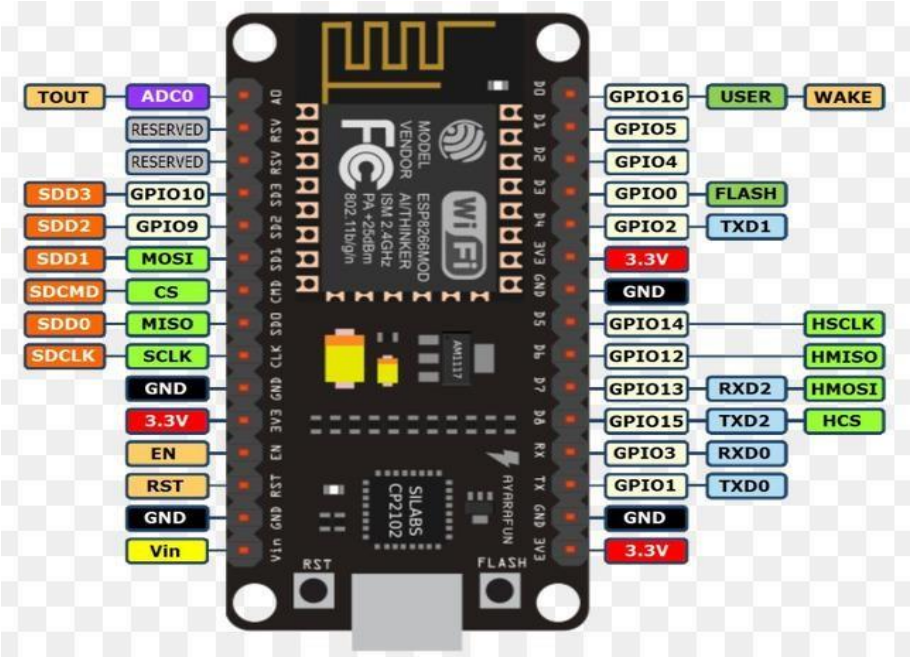


INTRODUCTION

NodeMCU – ESP8266

The NodeMCU development board comes with the ESP-12E module containing ESP8266 chip having Tensilica Xtensa 32-bit LX106 RISC microprocessor. This microprocessor supports RTOS and operates at 80MHz to 160 MHz adjustable clock frequency. NodeMCU has 128 KB RAM and 4MB of Flash memory to store data and programs. Its high processing power with in-built Wi-Fi / Bluetooth and Deep Sleep Operating features make it ideal for IoT projects.

NodeMCU can be powered using Micro USB jack and VIN pin (External Supply Pin). It supports UART, SPI, and I2C interface.



What is ifttt?

If This Then That is a service that allows a user to program a response to events in the world of various kinds. There is a long list of kinds of events to which IFTTT can respond, all detectable via the Internet. An example event is that Weather Underground reports rain is forecast for tomorrow. Another is that someone tagged the user in a photo on Facebook.

In this project I have used it for connecting my google assistant to my nodemcu and use it to control the led using the web hooks.

What is blynk?

Blynk is designed for the Internet of Things. It can control hardware remotely, it can display sensor data, it can store data, vizualize it and do many other cool things.

There are three major components in the platform:

- **Blynk App** - allows to you create amazing interfaces for your projects using various widgets we provide.
- **Blynk Server** - responsible for all the communications between the smartphone and hardware. You can use our Blynk Cloud or run your private Blynk server locally. It's open-source, could easily handle thousands of devices and can even be launched on a Raspberry Pi.
- **Blynk Libraries** - for all the popular hardware platforms - enable communication with the server and process all the incoming and outcoming commands.

Features:

- Similar API & UI for all supported hardware & devices
- Set of easy-to-use Widgets
- Direct pin manipulation with no code writing
- Easy to integrate and add new functionality using virtual pins

What is webserver?

A **web server** is computer software and underlying hardware that accepts requests via HTTP, the network protocol created to distribute web pages,[1] or its secure variant HTTPS.

In this project I have created a local webserver that is hosted on my internet broadband, whoever is connected to my wifi will be able to control the led.

Appendix:

You can find the code of the project in the following link:

https://github.com/psy147/Home-Automation-Nodemcu-blynk-webserver-ifttt-/blob/main/code

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