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## IOT HOME AUTOMATION SYSTEM NODEMCU AND ESP8266

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### ABSTRACT

Simple objective behind the task is to broaden a domestic automation device using Node MCU board that may be managed using internet from Android cellphone. As generation advances, houses are becoming smarter. Current homes are increasingly more transferring from traditional switches to centralized control structures with far flung manage switches presently conventional wall switches placed in a couple of locations at some stage in the house make it hard for customers to get near the transfer and function it. It's even hard for older people or human beings with physical disabilities. A home automation gadget that can be managed remotely is the latest solution the usage of a telephone.

**Keywords:** Nodemcu, IOT.

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### I. INTRODUCTION

As the name suggests, home automation systems based on the Internet of Things (or commonly known as IoT) are designed to control all smart home devices via Internet protocol or cloud computing. Home automation systems based on the Internet of Things provide more convenience than traditional electrical systems, have many advantages such as ease of use, ease of installation, no connection required, and no risk of fire. Electrical connections are easy to find and install, and best of all, they are still there. Easy to carry. Home automation systems based on the Internet of Things include various types of sensors and servers. These servers are located in remote locations on the Internet and help you manage and process your data without the need for a personal computer. It can be managed from a web-based server to manage and monitor multiple sensors installed in any desired location.

### II. METHODOLOGY

#### Working

In this project, all control is done using the Blynk application. Blynk is used for controlling Arduino, Raspberry Pi and different types of devices over the Internet. A digital dashboard that lets you create a graphical interface for your project by simply dragging and dropping widgets. First, open the app and create a new account using your email address. Then click on New Project. Choose the automation tool you need and connect your mobile application to your nodemcu board. When it will connect you can use it accordingly.

**The general features of NodeMCU board are as follows:**

1. Easy to use.
2. Programmability with Arduino IDE or IUA languages.
3. Available as an access point or station.
4. Practicable in Event-driven API applications.
5. Having an internal antenna.
6. 13 GPIO pins.
7. 10 PWM channels.
8. I2C, SPI, ADC, UART, and 1-Wire.

### III. MODELING AND ANALYSIS

If the wi-fi is available then nodemcu will get connected automatically. Then we can control the relays from anywhere in the world through the internet and monitor the real-time feedback and sensor reading in the Blynk IOT APP.

**Hardware for Project-** Nodemcu board (ESP8266), 4-channel 5V SPDT Relay Module, DHT11 sensor TSOP1838 IR Receiver (with metallic case) IR Remote Pushbuttons Power Supply (230v,5v) LED Lights for Output,Connecting Wires.

Software for Project-Arduino Software,IoT App.

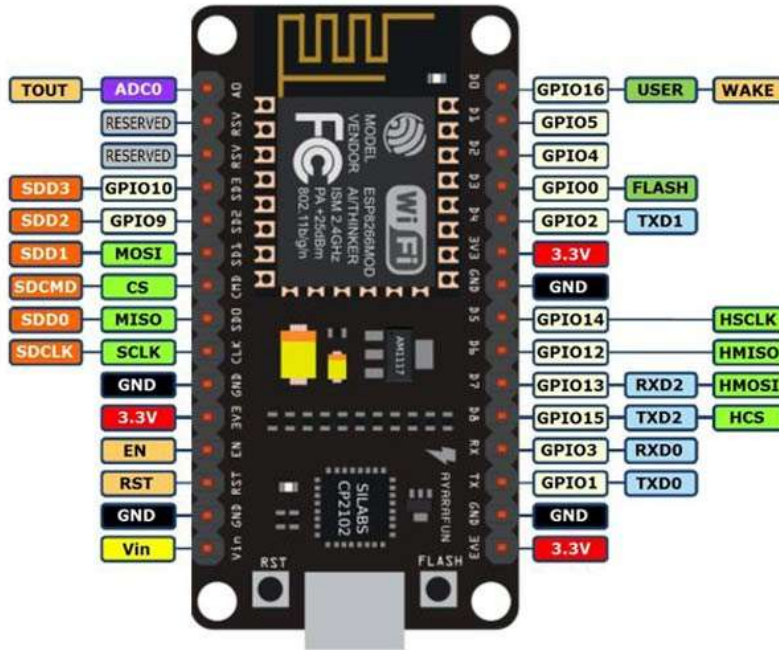


Fig 1: Nodemcu Pindigram

#### IV. RESULTS AND DISCUSSION

##### How to Program NodeMCU ESP8266 Using Arduino

To program NodeMCU using Arduino IDE, you must first bring it into the software.

##### Step 1

Open the Arduino software application. Select "Preferences" from the "File" menu and then enter the code in the "Other Clipboard Manager URL" section. Then click OK.

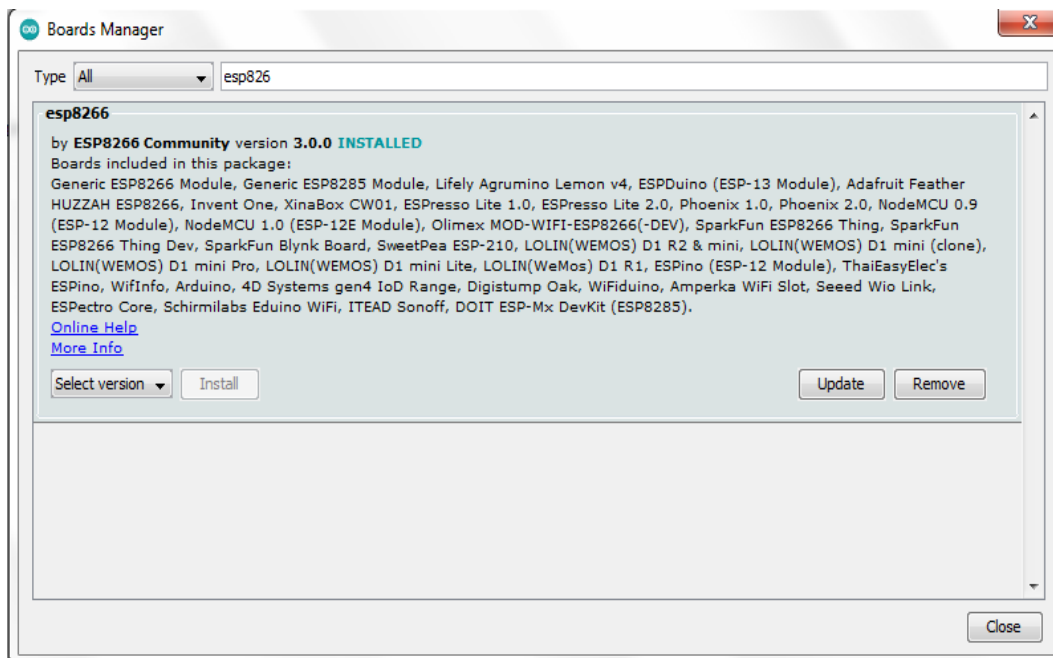


Fig 2:

##### Step 2

Search for the word ESP8266 from the Boards > board manager in the menu. Then install the ESP8266 board. When the installation is completed, you will see the INSTALLED label on the ESP8266 board.

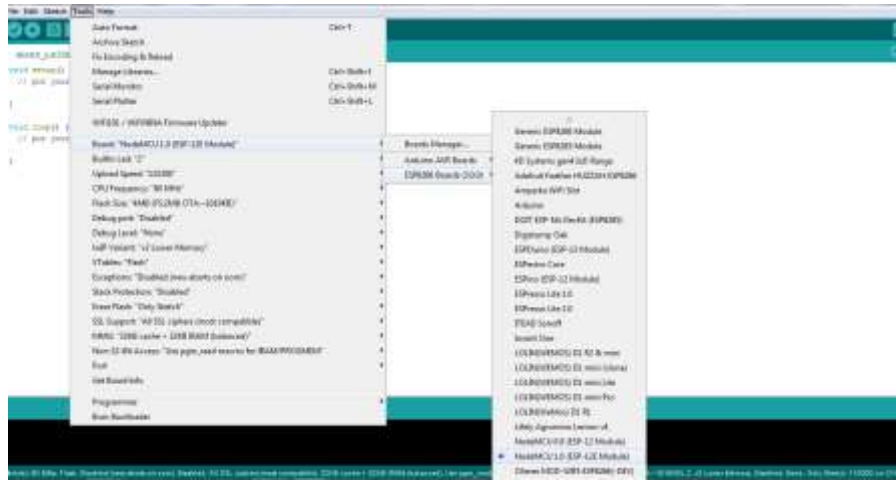


Fig 3:

**Step-3**

Select the appropriate board to upload the code to NODEMCU.



Fig 4:

**Step-4**

To connect blynk application we have to install libraries.

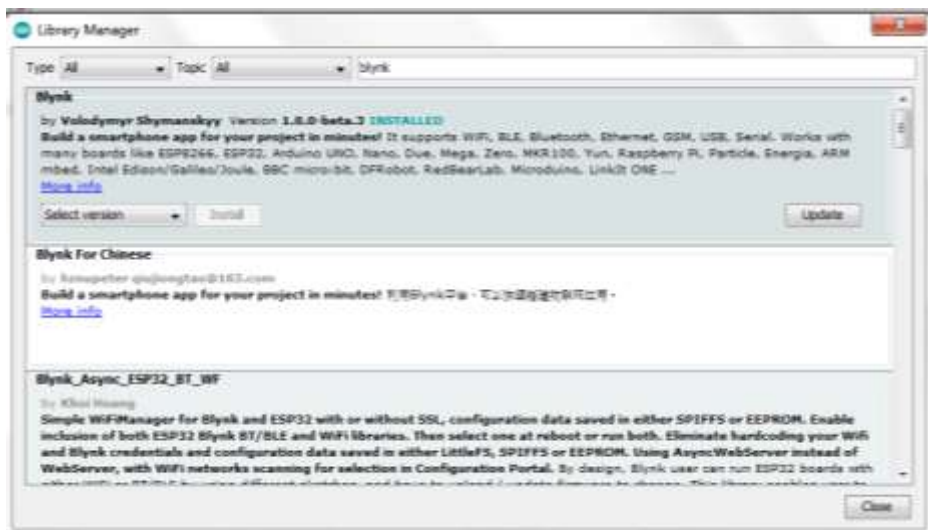


Fig 5:

**Step-5**

Upload the program to nodemcu board.

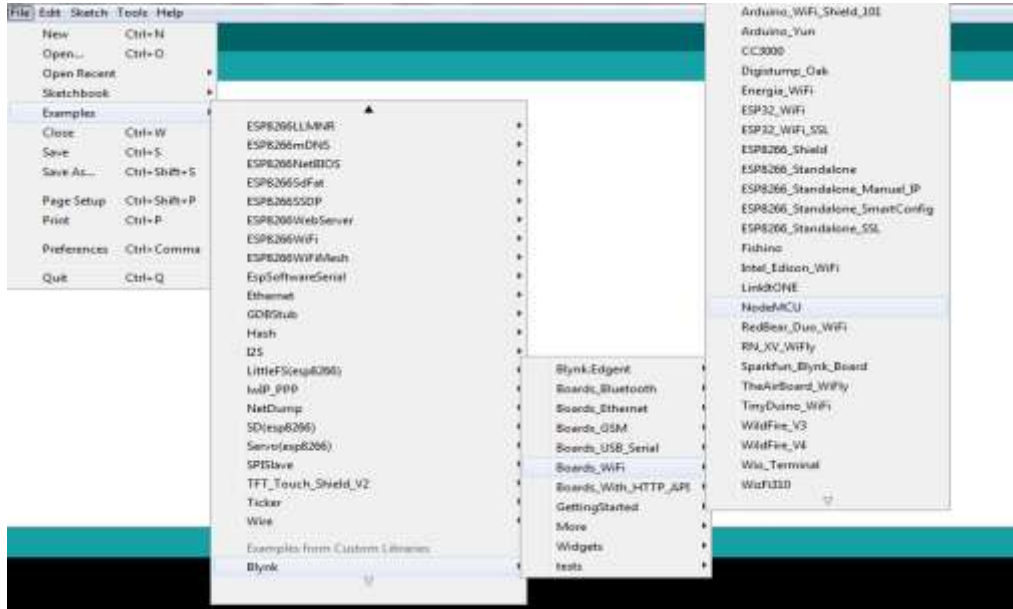


Fig 6:

**V. CONCLUSION**

In this project, all management is done with the Blynk application. Blynk supports Arduino, Raspberry Pi, etc. over the network. It is a platform with IOS and Android applications that can control devices. It is a digital control panel where you can create interactive graphics for your project by dragging and dropping widgets. First open the app and create a new account using your email ID. Then click "New Project". Connect the mobile application to the nodemcu board by selecting the necessary tools for automation. Once connected, you can control the device.

**VI. REFERENCES**

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