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IOT AUTOMATION WITH NODEMCU ESP8266

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Abstract : Basic principle behind the project is to develop a home automation system using Node MCU board that can be controlled using internet from Android phone. As technology advances, homes are becoming smarter. Modern homes are increasingly moving from traditional switches to centralized control systems with remote control switches. Currently, traditional wall switches located in multiple locations throughout the home make it difficult for users to get close to the switch and operate it. It is even more difficult for older people or people with physical disabilities. A home automation system that can be controlled remotely is the latest solution using a smartphone.

IndexTerms - IOT, Automation, Internet,Smart**.**

I. INTRODUCTION

As the name suggests, home automation systems based on the Internet of Things (or IoT, as it is commonly called) are designed to control all smart home devices via Internet Protocol or cloud computing. The concept of home automation aims to give users the ability to control modern home appliances at their fingertips by providing them with the necessary lighting and using positive energy to provide better energy savings. In addition to lighting solutions, this concept continues to complement, in particular, home security and home entertainment management. As the name suggests, home automation systems based on the Internet of Things (or IoT, as it is commonly called) are designed to control all smart home devices via Internet Protocol or cloud computing. IoT-based home automation systems provide greater convenience compared to traditional wiring and have many advantages such as ease of use, ease of installation, no complicated wiring, and no risk of fire accidents. Electronic connections are easy to find and install, and most importantly, they are still present. Easy to transport. IoT-based home automation systems include various types of sensors and servers. These servers are remote locations on the Internet that help you manage and process your data without the need for a personal computer. It can be managed with a web-based server to manage and monitor multiple sensors installed in desired locations.

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.

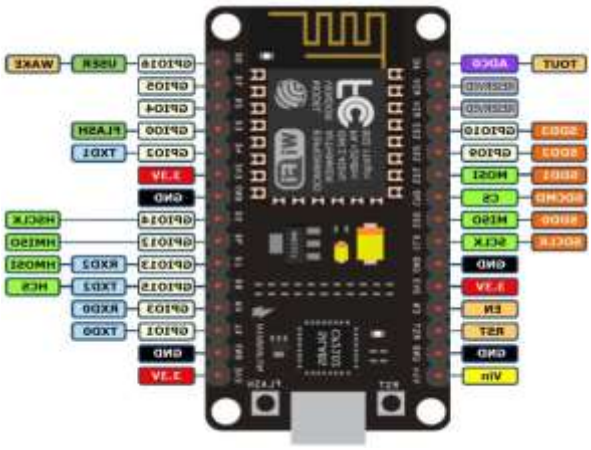


Fig.NodeMCU ESP5266

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-Arudino Software,IoT App.

III.PROGRAMMING

How to Program NodeMCU ESP8266 Using Arudino

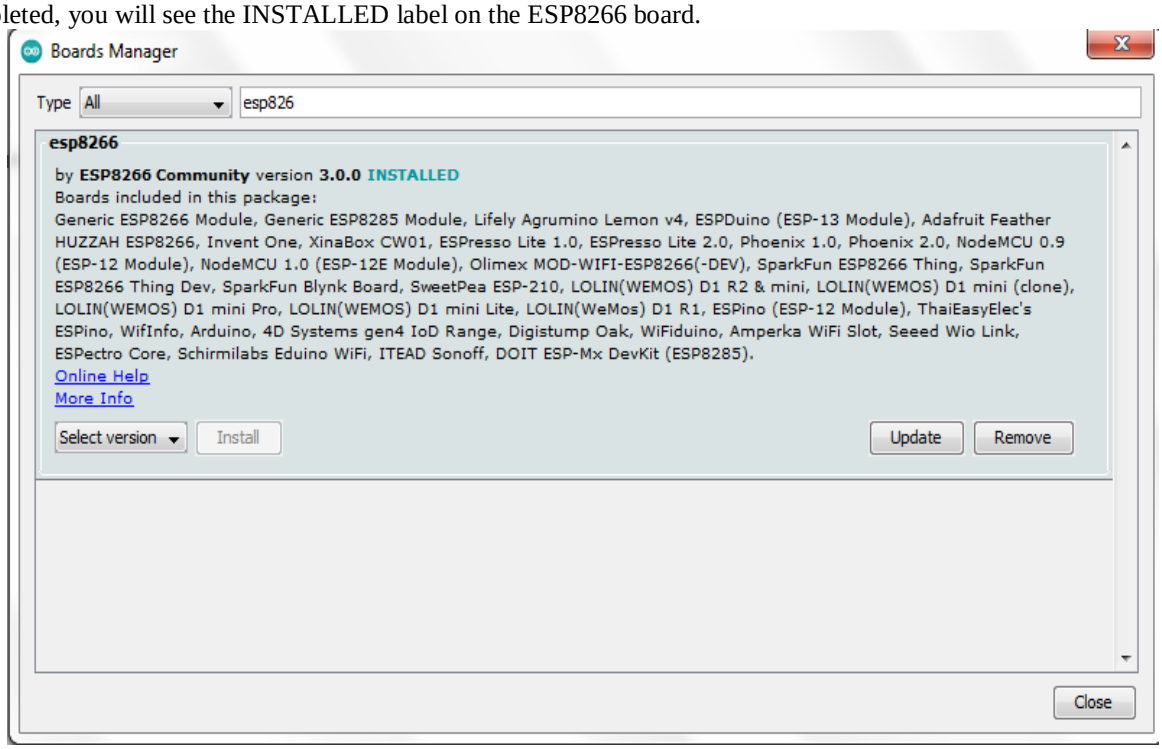
To program NodeMCU using Arduino IDE, you must first bring it into the software.

Step 1

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

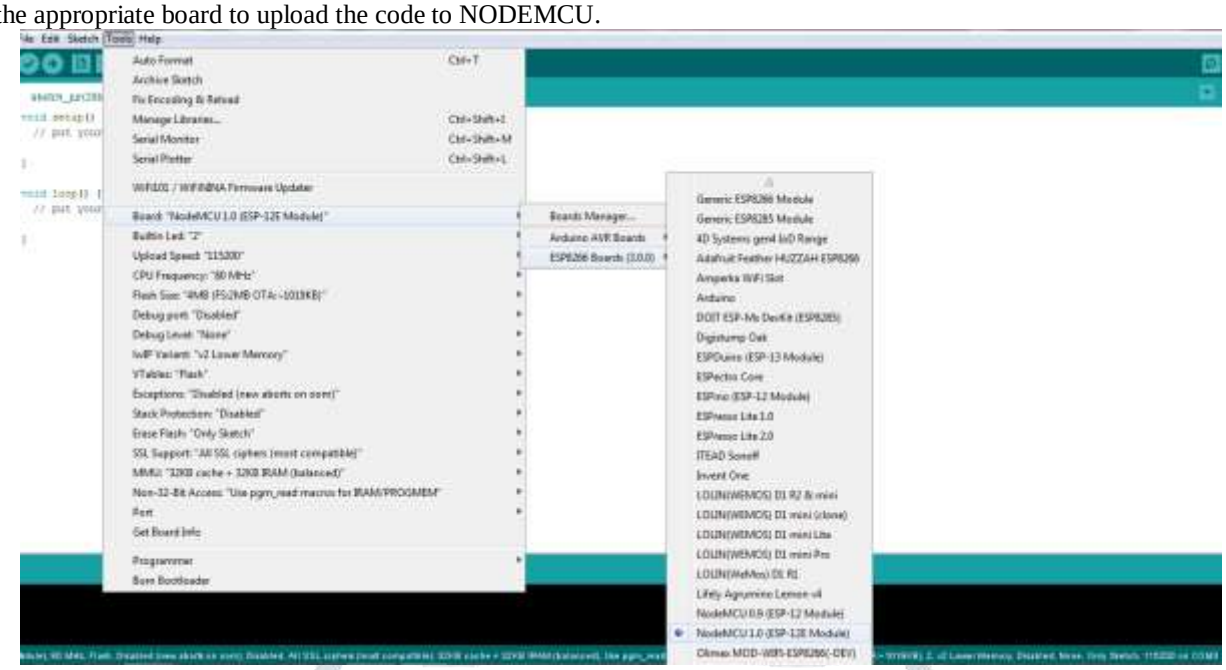
Step 2

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



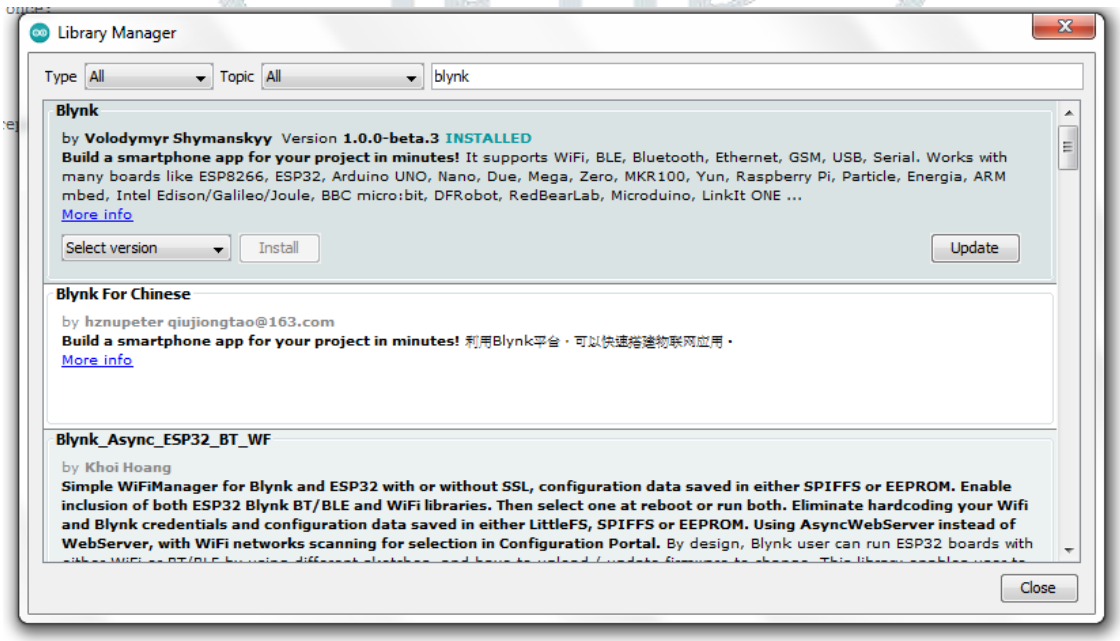
Step-3

Select the appropriate board to upload the code to NODEMCU.



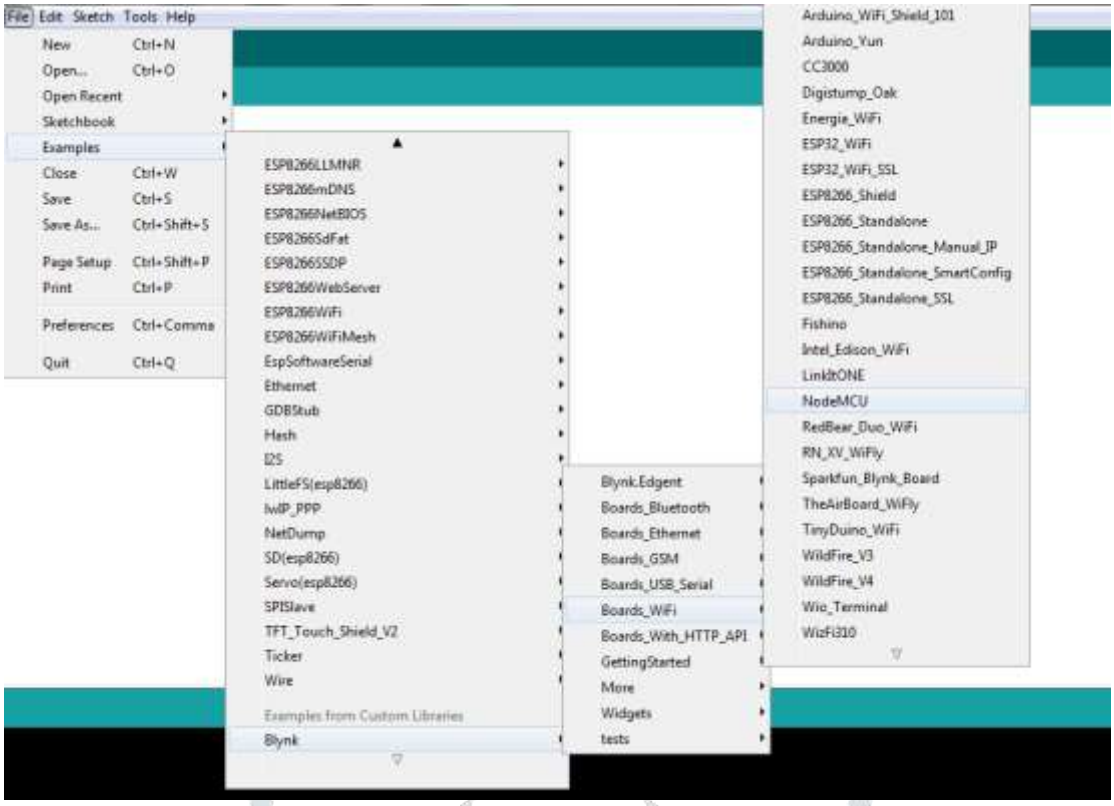
Step-4

To connect blynk application we have to install libraries.



Step-5

Upload the program to nodemcu board.



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.

REFERENCES

1) Luigi Atzori, Antonio Iera and Giacomo Morabito, "The internet of things: A survey", Computer Networks.

2) Kang Bing, Liu Fu, Yun Zhuo and Liang Yanlei, "Design of an Internet of things-based Smart Home System", Intelligent Control and Information Processing (ICICIP) 2011. .

3) Ming Wang, Guiqing Zhang, Chenghui Zhang, Jianbin Zhang and Chengdong Li, "An loT-based appliance control system for smart homes", Intelligent Control and Information Processing (ICICIP) .

4) P. Friess and P. Guillemin, "Internet of things strategic research roadmap", The Cluster of European ResearchProjects.

5)Y. Kang and Z. Zhongyi, "Summarize on internet of things and exploration into technical system framework", 2012 IEEE Symposium on Robotics and Applications (ISRA).

6)Arudino software Ndoemcu and Blynk libraries.