

TOPIC—SMART HOME
AUTOMATION SYSTEM
USING NODE MCU IOT
PLATFORM

Why smart home automation system ?



Smart home automation system as the name suggests is the controlling of various appliances at home with help of internet and its applications for monitoring and management.

As we all know energy is a limited resource and cannot be created again , and in real world there are many instance where we are actually wasting the energy .

With the help of our smart home automation system one can easily dictate how a device should react , when to react and how to react. We can easily control the functioning of lights and fans , while being away from our homes.

Now a days everyone wants to live a convenient life with every feature in their hands . For which we have designed a smart home automation system directly connected to our mobile phones with the help of blynk app . Our automation system is not only cheaper compared to others but is also easy to use .



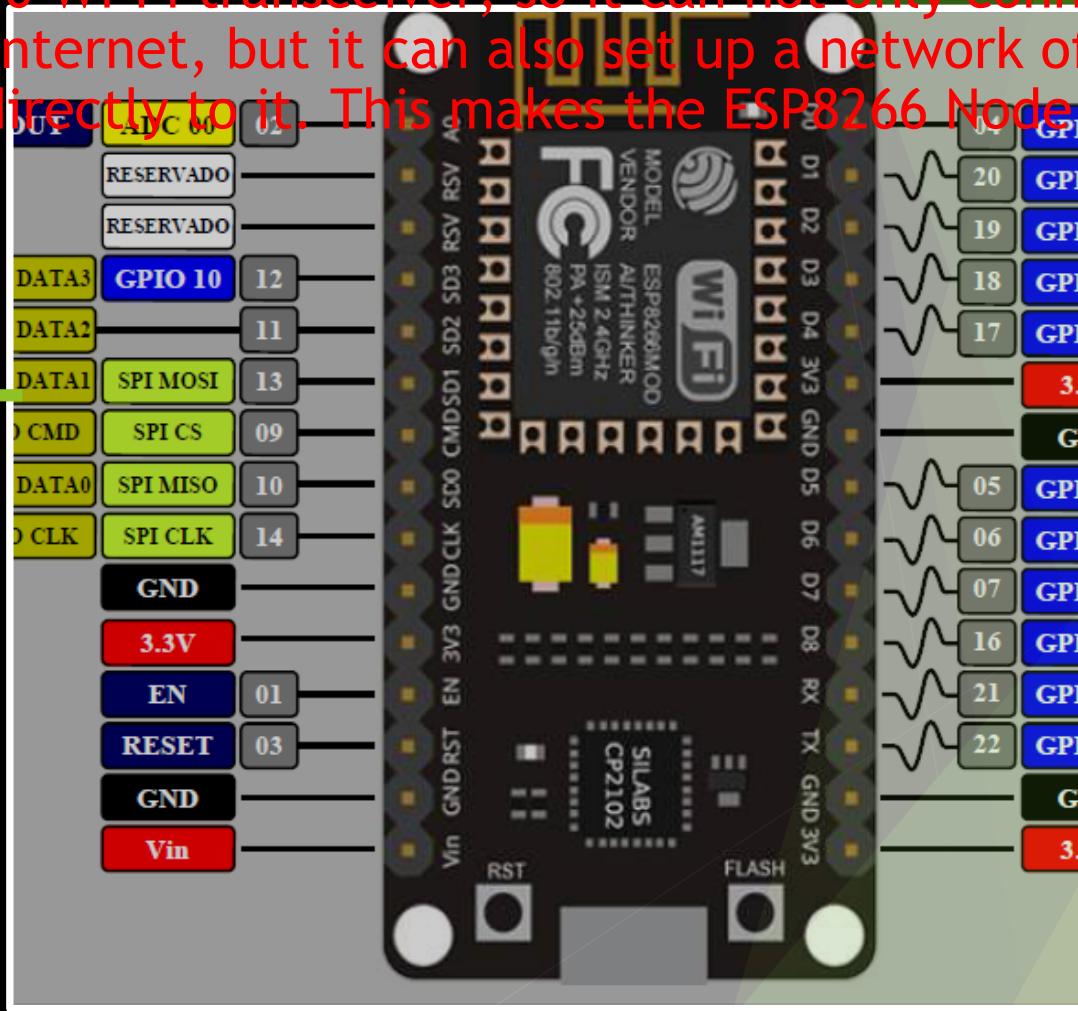
Cost minimization – a valuable factor

With the growing situation it is our first priority to keep the cost minimal so as to grab lot of customers moreover common people . For which we have used all the elements in our project that are cheap but is effective in use .

The development board equips the ESP-12E module containing ESP8266 chip having Tensilica Xtensa® 32-bit LX106 RISC microprocessor which operates at 80 to 160 MHz adjustable clock frequency and supports RTOS.

The ESP8266 Integrates 802.11b/g/n HT40 Wi-Fi transceiver, so it can not only connect to a WIFI network and interact with the Internet, but it can also set up a network of its own, allowing other devices to connect directly to it. This makes the ESP8266 Node MCU even more versatile.

NODE MCU IOT PLATFORM



Home automation using Node MCU

Node mcu is a readily available development board which is connected to WI FI. Here we have connected the node mcu development board to a 4 channel relay module to work with as many as 4 different devices .

It depends on the user about the choice of relay module if the user wants to work with more no of gadgets we can extend the relay channels. .

In the next stage ,we have programmed the node mcu using the blynk app.

Blynk app

Blynk was designed for the Internet of Things. It can control hardware remotely, it can display sensor data, it can store data, visualize 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.

Features

Similar API & UI for all supported hardware & devices

Connection to the cloud using:

Wi-Fi

Bluetooth and BLE

Ethernet

USB (Serial)

GSM

Set of easy-to-use Widgets

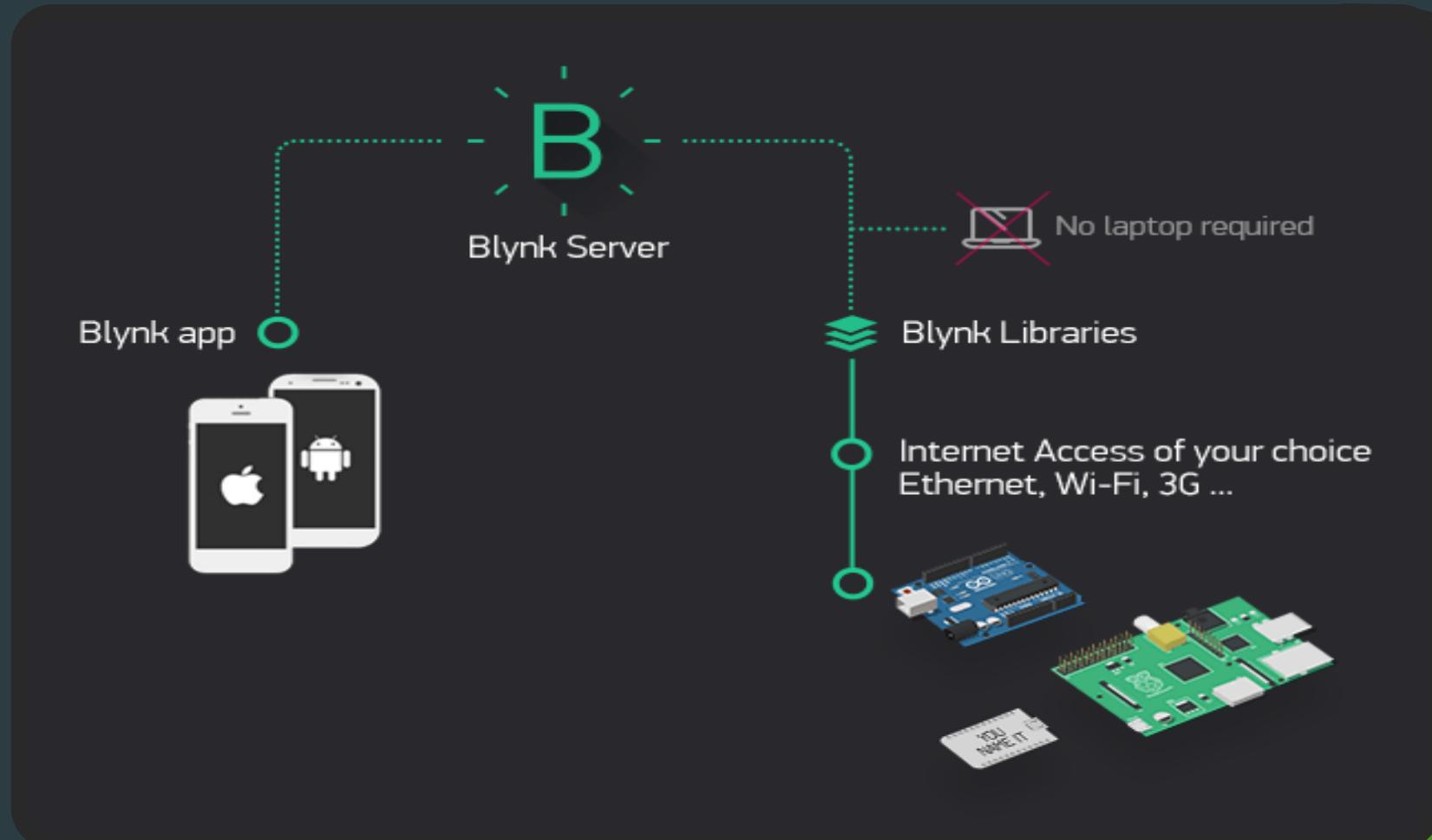
Direct pin manipulation with no code writing

Easy to integrate and add new functionality using virtual pins

History data monitoring via Super Chart widget

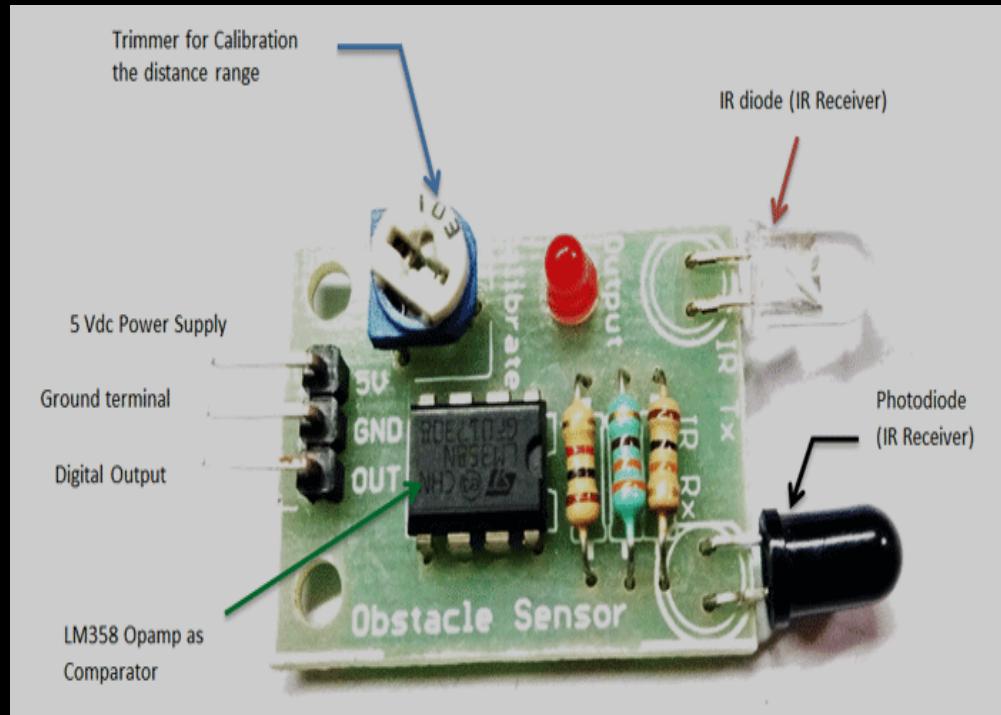
Device-to-Device communication using Bridge Widget

Working with blynk app



**SOME OF
OTHER
GADGETS ON
THE IDEA OF
SMART HOME**

AUTO DOORBELL USING IR SENSOR



The IR sensor module consists mainly of the IR Transmitter and Receiver, Opamp, Variable Resistor (Trimmer pot), output LED in brief.

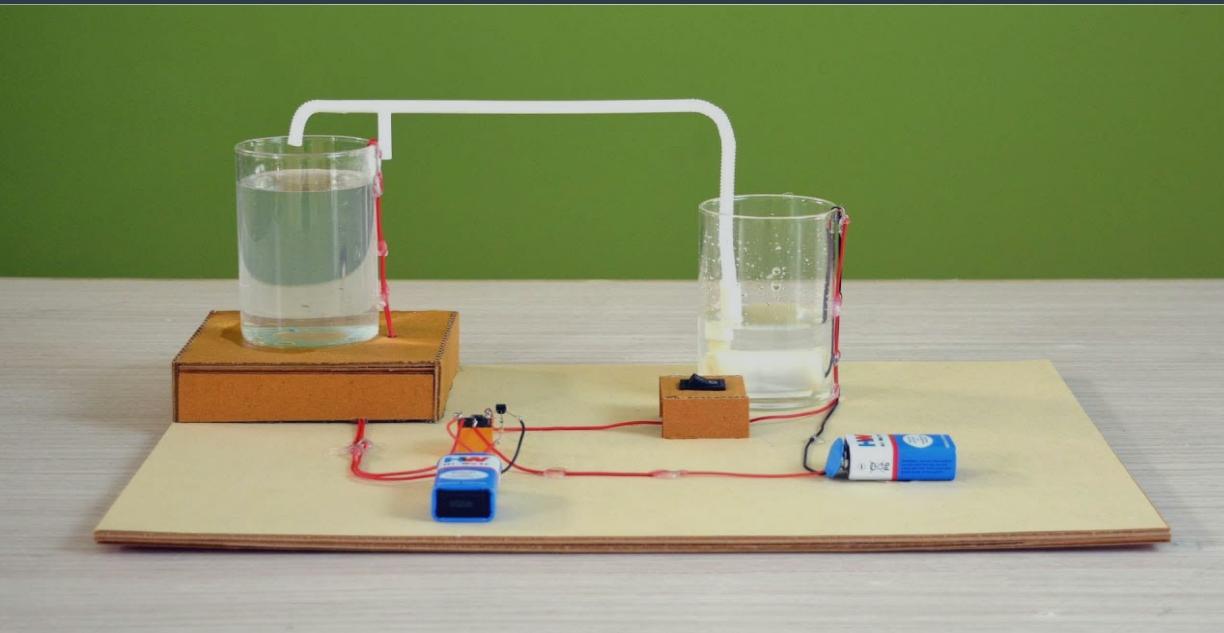
IR LED emits light, in the range of Infrared frequency. IR light is invisible to us as its wavelength (700nm - 1mm) is much higher than the visible light range. IR LEDs have light emitting angle of approx. 20-60 degree and range of approx. few centimeters to several feet.

FOR OUR DOORBELL SYSTEM we have connected a buzzer with the IR sensor module and connected a battery source everytime an obstacle comes the IR sensor starts working and buzzer produces the required output.

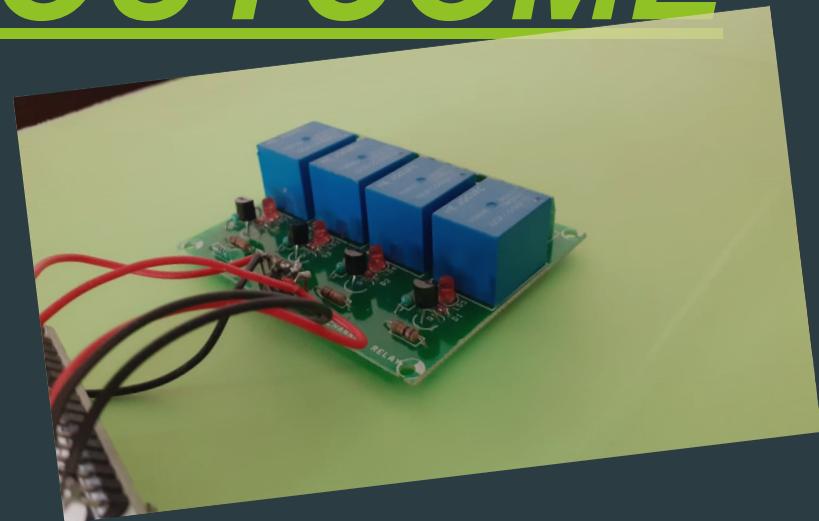
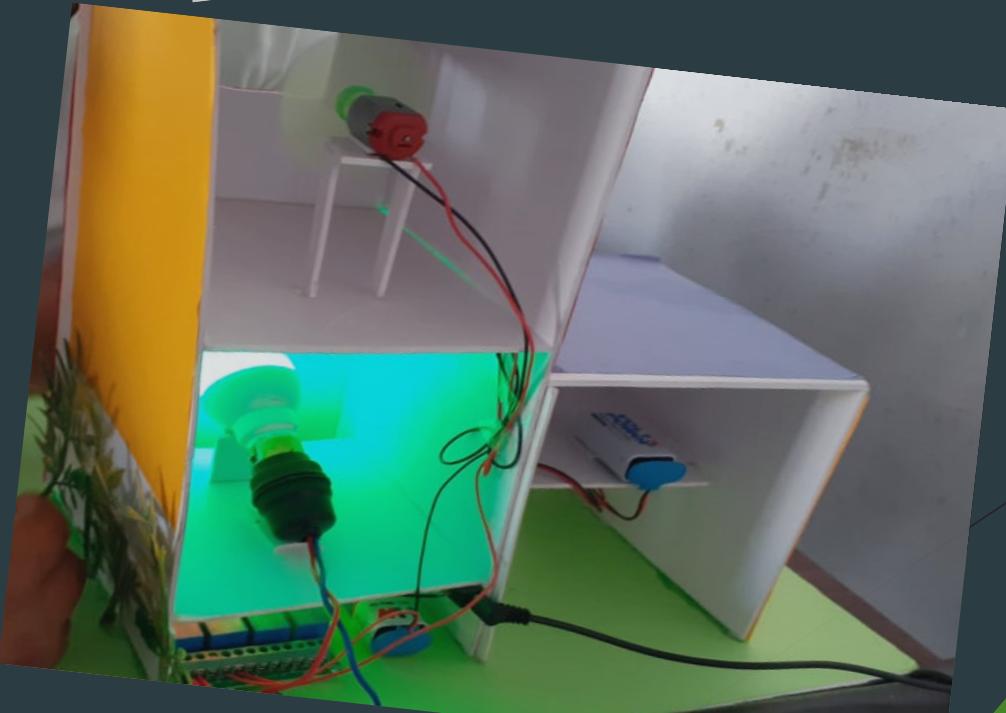
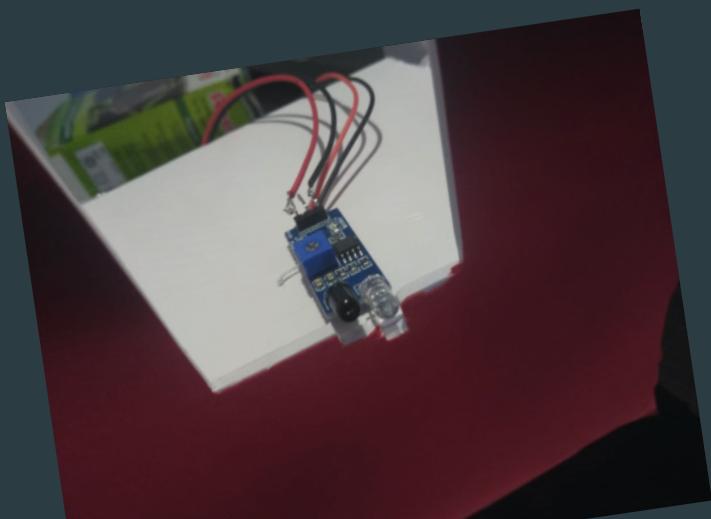
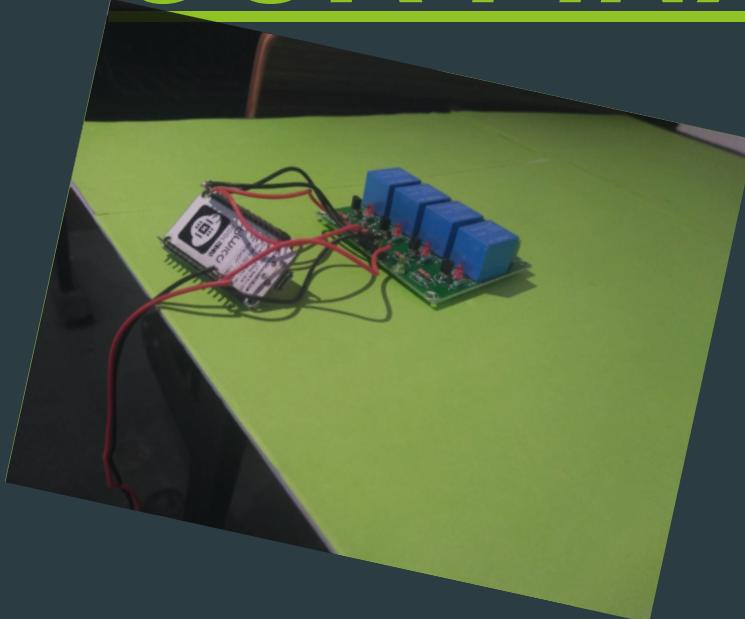
AUTO WATER PUMP CUT-OFF SYSTEM

An automatic water pump controller circuit that controls the water pump motor.

The motor gets automatically switched on when water in the overhead tank (OHT) falls below the lower limit. Similarly, it gets switched off when the tank is filled up. Built around only one NAND gate IC ([CD4011](#)), the circuit is simple, compact and economical. It works off a 12V DC power supply and consumes very little power



OUR FINAL OUTCOME



FUTURE DEVELOPMENTS ON SMART HOME SYSTEMS



- 1. The Next Security And Privacy Crisis**
- 2. Integration Of Smart Home Devices**
- 3. A Greater Role For Artificial Intelligence**
- 4. A Focus On Surveillance And Appliances**
- 5. More Security Concerns**
- 6. Increased Voice Control Integration**



REFERENCES

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Thank You!

