Iot Based Home Automation Using Blynk Framework

S. Ragu

Assistant Professor, Department of EEE, Surya Group of Institutions, Villupuram, Tamilnadu, India

ABSTRACT

The project discussed here is designed to control and monitor the home appliances via smart phone using (ESP-32) and Wi-Fi. All the appliances and sensor are connected to the internet via ESP-32 microcontroller. The core system of this work is embraced from the blynk framework. Smart automation (or) home automation is the automation process of having control over domestic appliances like fan, light. Home automation through Internet of Things (IoT) plays an important role by reducing the energy consumed by domestic appliances. The main objective of home automation security system is to help physically challenged people who enable themselves in controlling home appliances.

KEYWORDS: ESP-32, Motion Sensor, Temperature Sensor, Relay, Smoke Sensor, Light Control, Fan Control, IoT, Home Automation, Blynk.

INTRODUCTION

Nowadays, increasing in population also increases the usage of mobile devices. High usage of mobile devices is because of development of internet and internet of things. The usage of home automation systems is popular because of theirease of use. In this paper, an automatic control of home automation system using blynk framework has been developed, In order to overcome the disadvantages of the existing work.

In existing work, the push button switch and the mobile devices are not directly. So, in our proposed work we can control automatically using mobiles device as well as push button switch using blynk framework. IoT is the system which controls the home appliances using Wi-Fi (Internet) from all over the world using smart phone and also monitoring data from the sensor and home appliance by the blynk application.
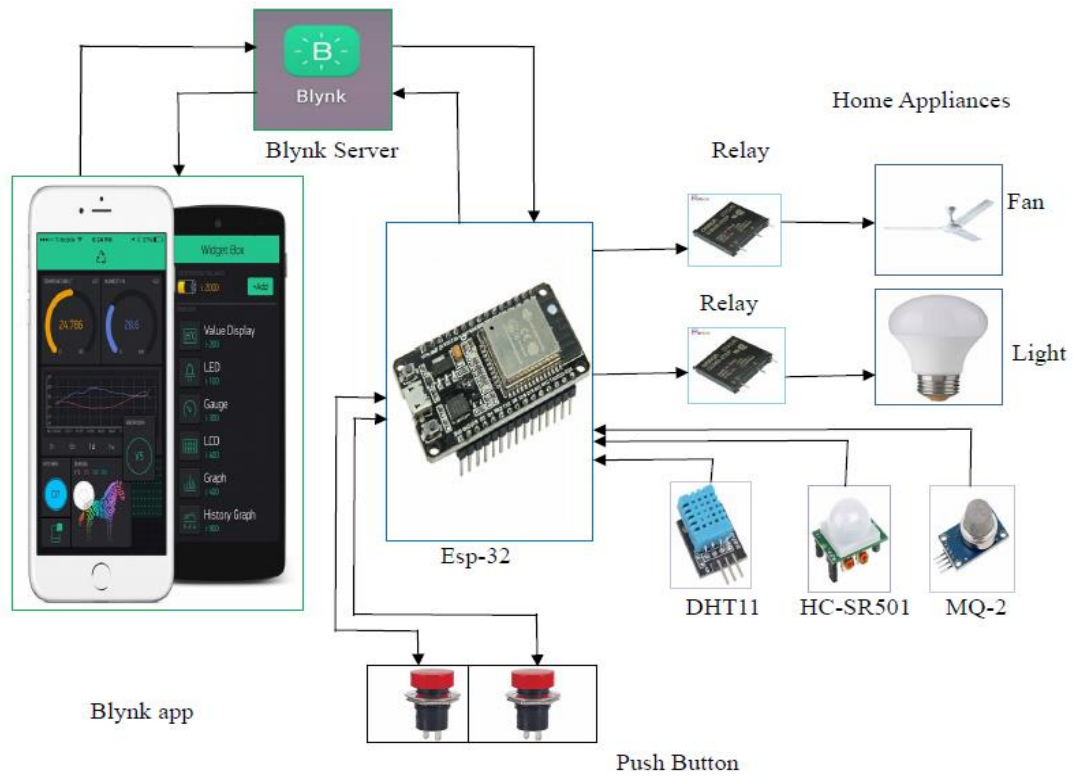
PROPOSED SYSTEM

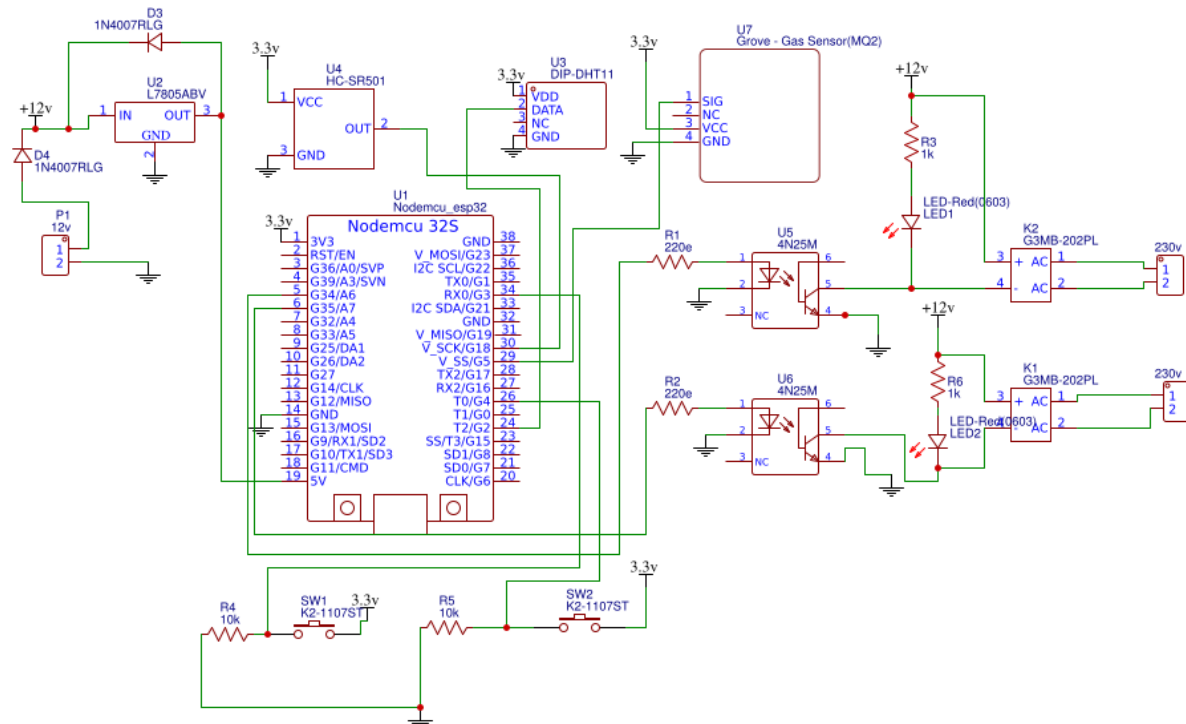**Fig Block Diagram of the Proposed System**

**Fig Circuit Diagram of the Proposed System**

In this project, the blynk app is free to use. The proposed system is used to control the home appliances and also both the physical button and blynk application is synchronized together. In this project, The PIR motion sensor is used because of saving the power in absent of human in the home. MQ-2 smoke sensor is also used in this project to detect the smoke and LPG gas it detect the leakage in the home it send the notification to the blynk app. DHT11 is the temperature and humidity sensor used to monitor the temperature and humidity in the home for the comfort feeling. In this circuit diagram, the main component (microcontroller) ESP-32 is brain for this whole circuit. Its input and output pins is named as GPIO. Using this GPIO pins input and output data should be controlled and monitored by ESP-32 microcontroller. Maximum input voltage of microcontroller is 12V.but we reduce it as 5V by LM7805 voltage regulator and diode (D3) is connected anti-parallel to the voltage regulator to protect from short circuit fault and the diode (D4) is connected series to the circuit from reverse polarity protection. optocoupler is used in this circuit, because of maximum output voltage of microcontroller is 3.3V and static relay operating voltage is 12V.

To isolate this microcontroller and static relay, Two different voltage in optocoupler is provided in this circuit to provide the optically isolation. From that optocoupler output, the static relay is operated.DHT11 temperature and humidity sensor is connected in the microcontroller pin D2.MQ2 gas sensor is connected in the microcontroller pinD5.The physical light switch is connected in the microcontroller pin D25. The physical fan switch is connected in the microcontroller pin D26.PIR motion sensor is connected in the microcontroller pin D18.D34 pin's output connected in optocoupler U5 it control output of static relay K2 by controlling the static relay output light can be turned on and turned off.

D35 pin's output connected in optocoupler U6 it control output of static relay K1 by controlling the static relay output fan can be turned on and turned off.

EXPERIMENTAL SETUP
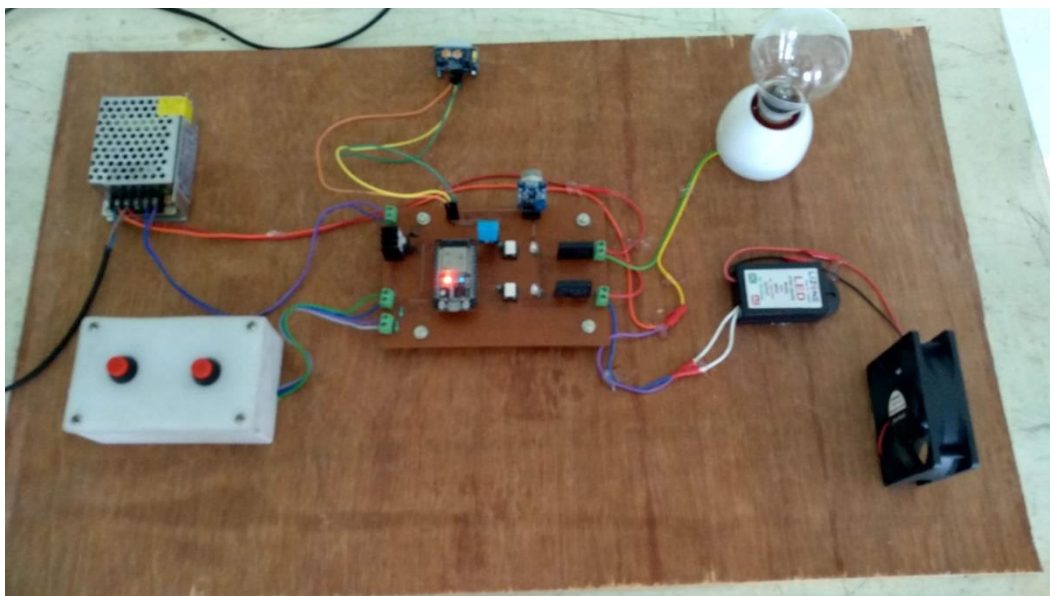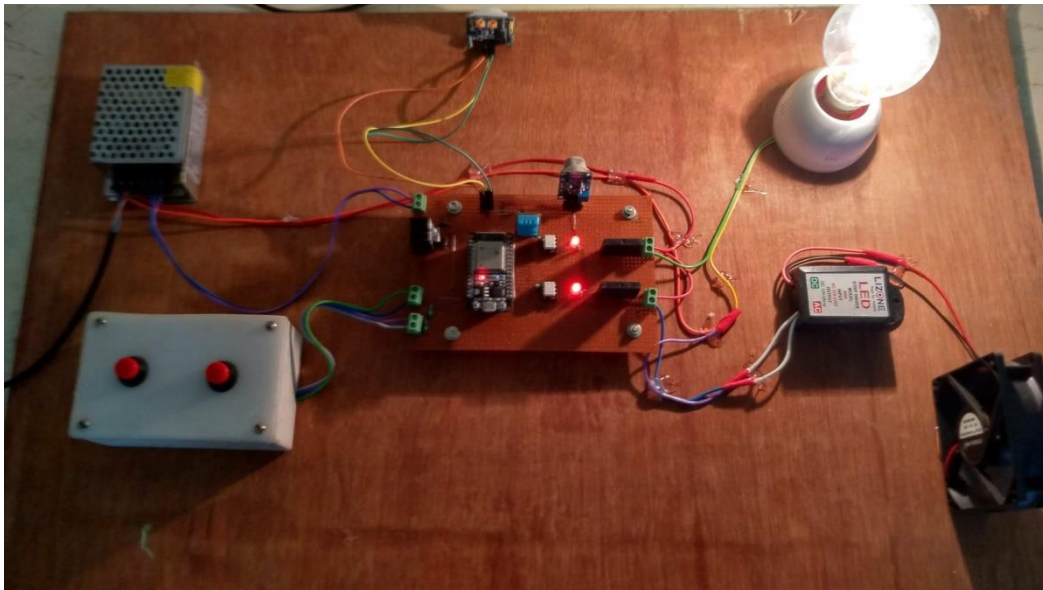
CONCLUSION:

In this project, the home management & security system is done. The project is mainly focused to overcome the day to day problems faced by the people in power cut-off, unmanaged urbanization, lack of man power in agriculture and farming. The prototype system can be applicable to real-time home security, automation, monitoring and controlling of remote system. A smart home system with low cost has been developed and all the processing is handled by microcontroller and so there is no requirement of PC.

The IoT based home automation system will bring more convenience and comfort to people's life. We have done the home automation system to control the fan and light.

REFERENCE

1. R.Aravindhan and etal,"Home Automation using wi-fi interconnection",(IRJET),volume:04 issue:03/Mar-2017
2. Mr.pratik P Jesani and etal,"A Review on IOT based Smart Home Using Blynk Framework",(IJARIIE),vol-3 issue-5/2017
3. Tanishsehgal and etal,"Home automation using IOT and mobile app",(IRJET),volume:04 issue:02/Feb-2017
4. Bharat bohara, sunilmaharjan and bibek raj shrestha," IoT based smart home using blynk framework", ZERONE SCHOLAR, VOL. 1,NO. 1, NOVEMBER 2016
5. http://www.blynk.cc
6. http://www.arduino.cc
7. https://www.espressif.com
8. https://www.instructables.com/id/Simple-Led-Control-With-Blynk-and-NodeMCU-Esp8266-/