HOME AUTOMATION USING AI CHATBOTWITH FIRE DETECTION ALARM SYSTEM

[1] A.Karthikeyan, [2] R.K.Ajay Prasath, [3] V.Anu Priya, [4] P. Balaji, [5] V. Naveenkumar

[1]Associate Professor, [2]Student, [3]Student, [4]Student, [5]Student
[1]Department of Electronics and Communication Engineering,
SNS College of Technology, Coimbatore, Tamil Nadu, India

Abstract : Due to the rapid development in the field of Automation, the way of life of the people is greatly improved and higher in all sectors. In the current situation, computer systems are more popular than non-automated gadgets. The proposed program contains a Hardware interface and a software program.It implements a design thinking concept. On a virtual computer interface, the integration of the ESP8266 Wi-Fi home control system for home appliances and sensors is displayed, and the software is given control over more than one home, with smart phones, tablets, and laptops. This device is one of the best ways to manage your home without having to worry about a few customers and one of the best ways to manage your gadgets. Access to the entire system is provided by its excellent controller to specialized customers. This device can similarly be expanded to control a wide range of home appliances and home safety and security purposes with durable sensors because they are available on a Wi-Fi network. Our program focuses on home automation by connecting our modules to social media software that sends a picture message to the homeowner in case a case arises in the residence and provides an alarm in the event of an institutional accident. Our system can manage and monitor house locks, fire status and all home gadgets from around the world. Updating our device information takes only 3 seconds. As a result, the person with the disorder may take important steps unexpectedly. Our system can be managed in many ways such as mobile phones, voice control, internet and power switch. With IoT technology, the user can reduce power consumption by following proper tracking and control.

I. INTRODUCTION

The home automation system will display and control home features including lighting, weather, entertainment facilities, and electrical appliances. It may also include home security that includes control access and alarm systems. When connected to the Internet, home devices are an integral part of Internet of Things ("IoT").

The flexible home gadgets usually connect gadgets hosted to an important smart home hub (sometimes called a "gate"). The human visual system interface uses wall terminals, tablets or computer systems, a mobile phone system, or a web interface that can also be accessed offline by a web page. While there are many competing carriers, there are growing efforts towards open source systems.

However, there are problems with today's home automation regime such as the loss of standard safety measures and the withdrawal of old gadgets without regression. In the 21st century of laptops, the ever-increasing number of bonds has grown exponentially. default. Automation can make things simpler, more secure, and often more economical. Globe exhibitions and science fiction are true today, so find out about the benefits and skills of using the modern era in your home.

II. DESCRIPTION

Due to the rapid development in the Automation business environment, human life is becoming more advanced and better in every respect. In the current situation, computer systems are preferred over a non-computer machine. With the rapid growth within the number of customers using the net over the years, the internet has become an important part of life and IoT is the latest and growing generation. The internet of things creates an important position in a person's life and within the teaching environment because they can provide the records and all the responsibilities provided while we are busy doing some small work. In this paper, the prototype and performance of Smart Home Automation that generates Wi-Fi are verified. Wi-Fi technology used by ESP266. The proposed system contains a hardware interface and a visual interface of the software. In a virtual computer interface, the integration of the ESP8266 Wi-Fi generation of home and sensory device controls is displayed, and the app is provided with control for more than one home user, with smart phones, drugs, and laptops. This machine is one of the most efficient ways to control home

devices without any hassle with many customers and is one of the best ways to control the power supply system. Acquisition access to the entire gadget is provided with the help of its best manager for special customers. This gadget can likewise be expanded to control most home appliances and for home safety and sensory safety as long as it is still available on Wi-Fi network insurance.

III. HARDWARE COMPONENTS

3.1 Node MCU ESP8266

NodeMCU is an open-source Lua based firmware and development board specially targeted for IoT based Applications. It includes firmware that runs on the ESP8266 Wi-Fi SoC from Espressif Systems, and hardware which is based on the ESP-12 module.

The NodeMCU ESP8266 development board comes with the ESP-12E module containing the 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 a Micro USB jack and VIN pin.
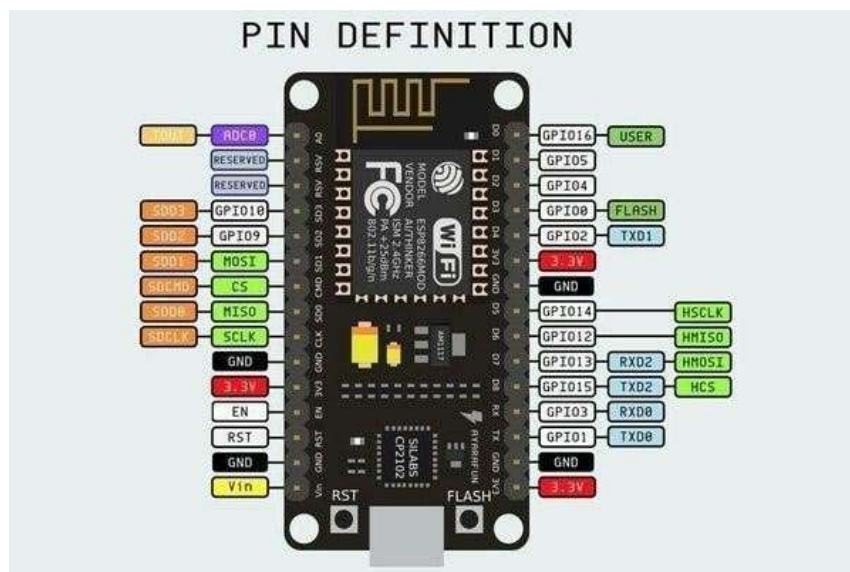

Fig:3.1 Node MCU ESP8366

3.2 Flame sensor module

This module contains a photo transistor and signal learning physics. A photo transistor conducts a lot of electrical current once exposed to lightweight. Physics educated US that (visible) lightweight includes of all colour from red to violet. By coating the photo transistor with black epoxy, it becomes a lot of sensitive to red or maybe invisible below red or infrared. apparently, flameemits infrared emission. Thus, once this detector sees flame, it conducts a lot of current.
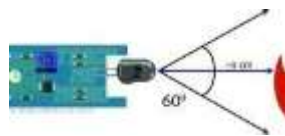

Fig:3.2 Flame sensor module

3.3 Dual channel relay module

The relay has 2 outputs-normally open and unremarkable closed (NO and NC). Connecting a circuit or device between one among these 2 pins, the common pin on the relay output, and an influence supply can permit you to toggle power to a circuit or device. The dual-channel relay module is a lot of or less a similar as a monophonic relay module, however with some further options like optical isolation. The dual-channel relay module will be wont to switch mains steam-powered masses from the pins ofa micro controller.

Fig:3.3 Dual channel relay module
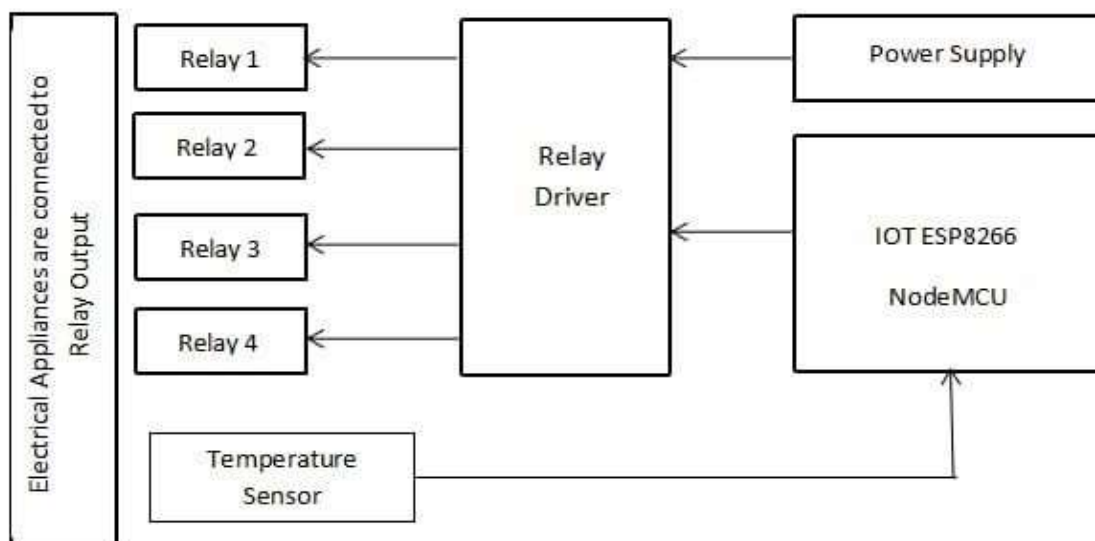
IV. EXISTING SYSTEM

IoT Based Home Automation Project uses Blynk & NodeMCU ESP8266. One of the most common and popular hobby projects you will encounter online is the Smart Home Automation Project. With Home Automation we propose to control lighting, weather, entertainment facilities, and electrical items without manual switching. It may also include home protection that includes access to controls and alarm structures. When connected to the Internet, home devices are an integral part of Internet of Things ("IoT").

In this Home Automation System, we can manage 4 home appliances such as TV, Fan, Bulb, Vehicles, Refrigerator connected to transfer application Blynk Application. Wi-Fi Module NodeMCU ESP8266 will receive instructions on the wireless phone via the Internet. To enter the ON / OFF signal code and send it to the Server and ESP8266 Board we need a good IoT Platform. So we chose Blynk as no different software could be better than this one. This function requires an internet connection and you cannot draw without an internet connection.

NodeMCU may be the most popular in Home Automation. The power of Wi-Fi and the help of Arduino IDE making it very difficult for IoT applications. It is very small and has many PINs for Digital I / O, Serial Communication and I2C Communication. NodeMCU has a small USB port for use with your existing mobile cable (no additional editor required). There is a replacement called the ESP32 Development board with additional Analog PINs and Digital PINs. You can use any of them in these machines according to your needs. Here we can share the use of NodeMCU.

Blynk is a mobile application with its own personal server to process personal requests. It is an open app and everyone can use it in their Home Automation to control gadgets, monitor sensory facts and get notification with the help of a few steps. It has an exciting GUI with Graphs, Timers, Slide, Joystick or Video Stream. If NodeMCU is connected to Wi-Fi, you may be able to trick the module transmitted via the Blynk App. You can cheat, monitor real-time voice transmission from anywhere internationally from the Blynk App. When the net returns, NodeMCU will download the pre-switch state from the Blynk IoT cloud server and therefore turn on and off relays.

BLOCK DIAGRAM OF EXISTING SYSTEM

4.1 Drawbacks of existing system

- Only home appliances can be controlled
- Installing an additional application for home automation process is also needed.

V. PROPOSED SYSTEM

Home automation is now an integral part of IoT packages and people are using their mobile phones to trick home appliances from anywhere online. There are various ways to trick AC home appliances, some of which we have included in our previous IoT Automation Tutorial, today we will explore one great way to control electrical appliances with our smart phone. In this IoT challenge we will treat the AC light with a text message from the Telegram software using the ESP8266 Node MCU. It is an IoT platform for open source. Includes low-cost Wi-Fi enabled firmware powered by ESP8266 Wi-Fi SOC from Espressif Systems, as well as software based software modules ESP-12. It has GPIO, SPI, I2C, ADC, PWM AND UART voice exchange anchors and controls other border-bound objects attached to it. On board NodeMCU has CP2102 IC which provides USB to TTL power. In this business we will use the D0 GPIO PIN to trade in the transfer nation.

BLOCK DIAGRAM OF PROPOSED SYSTEM
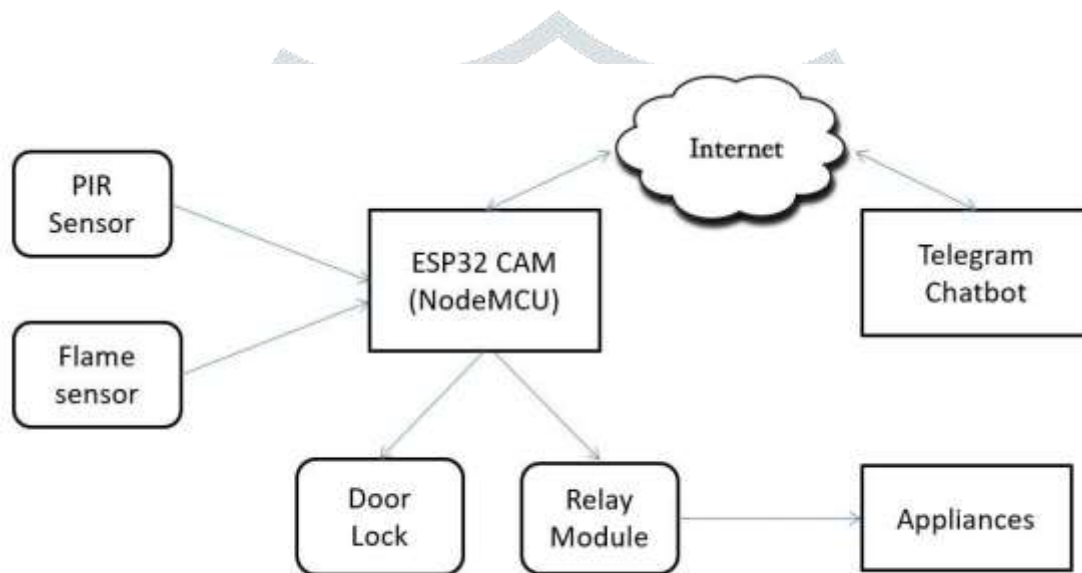
5.1 Advantages of proposed system

- We can control our home appliances via telegram, one of the social media apps.
- It can send a warning message to the owner in case of fire in our house.
- We can control our smart door locks wirelessly from anywhere.

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