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HOME AUTOMATION USING IOT

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Abstract: The modern world is moving fast then our older world invention of high tech appliances has revolutionized our whole world and it has also sprouted the idea towards automation. Human lifestyles have been much easier thanks to the tv remotes we have had for our tv and many other electrical gadgets today. How many of you have considered automating home, that could allow you to use a controller to operate fan, led bulbs, as well as other electronic items in your house? Because humans have little time to manage any work, automating appliances is a quick and easy technique to manage any instrument or gadget that will perform as we want. As idea of automation is rapidly developing, we have seen a number of domestic automation technologies emerge over the years, like Home for Apple, Google Home, Amazon Echo, and zigbee automation and we can see many startups are working on it . The above technology makes our homes smarter, but they require a significant investment. So, the target of the project would be to put a efficient and pocket friendly home automation program in place.By bringing into use the day to day household items like fans and geaser this system is implemented. With the help of microcontroller and special support from IFTTT and blynk programmes the voice commands which siri recieves or alexa are translated. w hen necessary, the relays attached to appliances are controlled by microcontroller, which switches the connected device to each relay ON or OFF in accordance with the customer's request to Voice Assistants.The NodeMCU [ESP8266] microprocessor is employed, and Wireless Fidelity is used to establish connection with both the microprocessor as well as the applications.

Keyword: IFTTT, NodeMCU, Relay Module, and Blynk.

I. INTRODUCTION

21st century is the era of convenient, comfortable, secure and economical appliances. Humans have created home automation as a means of achieving their goal in order to make this a reality. Home automation can be defined as a system of hardware, communication, and electronic interfaces that connects common households devices to each other over the net. The world is delighted to have constantly evolving technologies that revolutionised the way one looks at home appliances. The main goals of technology are to make things easier and more efficient. Iot devices has been given a lot of prominence in today's popular culture. Because automation requires less work and is more effective, we may successfully operate the appliances in many different locations by utilising IOT.

There truly isn't any support developing for individuals who are physically unable to profit from technology, despite the fact that it continues to improve in our daily lives. However, introducing technologies that are supported by voice-activated home automation is one method to become technologically inclusive. Once we actually build the speech-enabled home automation systems, voice control of the appliances will be possible. Customers' speech will therefore be supplied into the microphone as an input, and the microphone will then pick up the customers' voice and send it to the recognition module. If there are any interruptions, the system will search for nearby words and, if it finds the order (ON or OFF), will carry out the pre-programmed operation.

The project is set up to create a low-cost ecosystem using only a relay board, IFTTT, blynk, and nodeMCU as its primary components.

II. PROBLEM STATEMENT

Manual switching has been identified as a risky method of operating appliances. Human activities include circuit complexities and manually switching for changeover. Several batteries are used. The use of expensive sensing devices and equipment comes at the expense of maintenance.

III. BLOCK DIAGRAM

Smartphones can be used to access Google Assistant. For example, if a person says on their phone, "OK Google, turn on the fan," it starts the process because Google Assistant will begin sending the received command to IFTTT. IFTTT will interpret it and send the command, which could be an ON or OFF signal, to the blynk app via its server. which blynk will then relay to NodeMCU, which will decode the signal and send it to our electronic devices By the way, it's not always as

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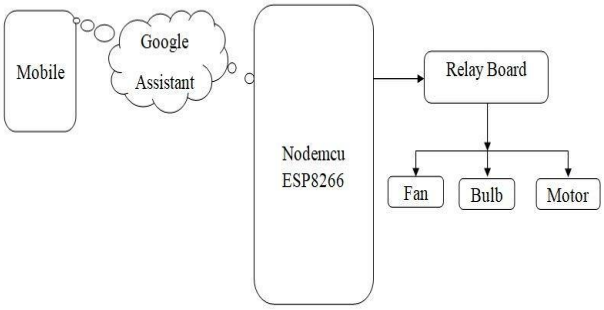
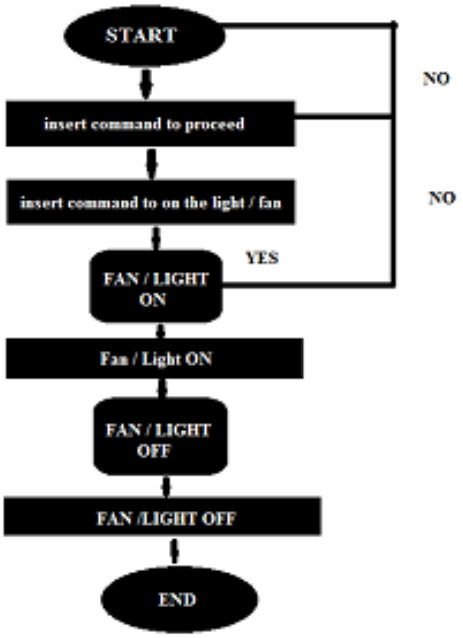
simple as it appears; for example, the connection between our voice and fan can fail. As a result, if the fan does not turn on, then a few precautions must be taken to ensure that it starts.



The fan should be turned on or off whenever the consumer toggles the switches on the Adafruit IO centre console. If the fan is not turned on, there may be a problem connecting to the server, it may not be subscribing to the field, or it may be checking the wrong string values. Examine the ESP8266 device's digital indicator output to figure out what's wrong with it.



IV. METHODOLOGY

This project is quite concerned with home devices. A defined process is adopted to ensure that the project is delivered on time. This includes both software and hardware design. The primary component employed in this project are:- Input block: The input block for the processing unit has been outfitted with a 5-volt DC adapter. Processing unit: The processing unit's main drain is comprised with Node MCU ESP8266 and Arduino UNO. Output block: according to the input block's input, that triggers the output block's relay module i.e google assistant. In our home automation project, individual users can control home appliances such as light bulbs, fans, and motors by merely giving commands to the Google Assistant. The NodeMCU receives the decoded command from the Google Assistant. The relays connected to the NodeMCU are then controlled by it.

V. FLOW CHART

The diagram below shows how our home automation project will work; the main requirement is that the smart phone have good internet connectivity. Individuals who use this can access their smart home through Web services or Google assistance.

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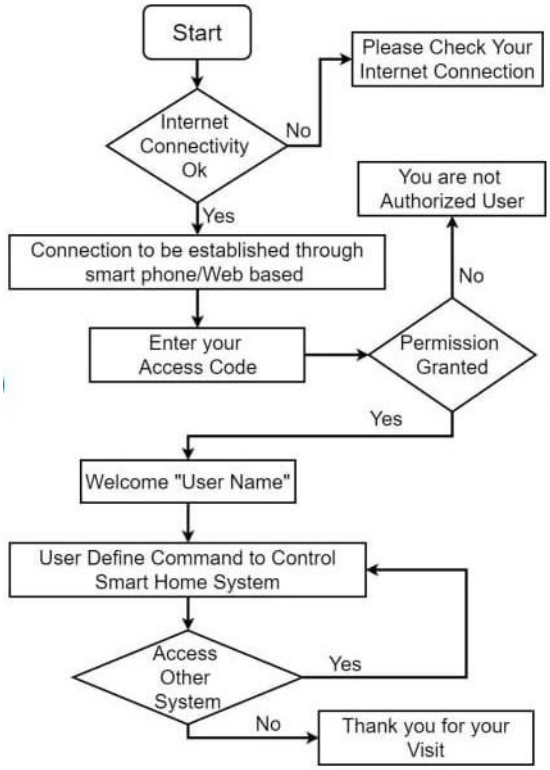
Google assistance is primarily used to control and monitor, but a web-based service can also be used in the case of a noisy background. Home automation can be linked to a web-based service for security purposes. which will only be accessible through verification via code by Google assistance, preventing unauthorised access to smart homes
once the user and smart home have established a successful connection The IFTTT command now gives the user access to their smart home appliances. which can be accessed via Adafruit in order to establish secure connections between Google Assistant and NodeMCU. The main control unit of a smart home is NodeMC, which is linked to a set of relays. The primary functions of such relays are to turn the main control unit ON or OFF.



VI. CONCLUSION

The conclusion must be written to summarise the project and bring it to a close, which will be just the beginning of achieving the project's full potential. The key components in this project are IFTTT, NodeMCU, Relay Module, and Blynk. Google Assistant receives voice commands, which are then routed to IFTTT and the Blynk app. In our home automation project, users can use Google Assistant to control led bulbs, fans, and motors. The commands are encoded before being deciphered and sent to the microcontroller (NodeMCU) and its relays. The command is then executed in accordance with the user's request.
to simply give an idea our project is all about smart home automation using smart phones, which truly helps us to achieve our objective that was to develop convenient, comfortable, secure and economical appliances. as a result it seems to be a great system that cater solution to many unaddressed problems like high cost, security and steadiness and it also proves to be beneficial in reducing energy cost and increasing security and improving the comfort of our home. .It is very convenient to use and improve the comfort of our home.

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