GOOGLE ASSISTANT SMART HOME USING A MULTI-LINGUAL SPEECH RECOGNITION SYSTEM

1. Radha Krishna Singh. B, 2. Vyshnavi. J, 3. Sindhu. Y, 4. Sri Sai Tarun. K, 5. Srikanth. B

1Associate Professor, Dept. of ECE, DVR & DR. HS MIC College of Technology, Andhra Pradesh, India.
2,3,4,5 Dept. of ECE, DVR & DR. HS MIC College of Technology, Andhra Pradesh, India.

---***---

Abstract –

The conception in the reverse of Google assistant Smart Home using a Multi-Lingual Speech Recognition system is to control domestic bias with voices in distinctive languages. On the request, there are multitudinous widgets to be had to do that, still, making our veritably own is stupendous. In this design, the Google adjunct calls for voice instructions. Adafruit account, a pall- primarily grounded free IoT web garçon used to produce digital switches, is linking to the IFTTT website shortened as " If- This Then That" used to produce if- additional tentative statements. The voice instructions for Google adjunct were delivered through the IFTTT website. In this home robotization, as the stoner gives commands to the Google adjunct, home appliances like bulbs, Fans and motors etc., can be controlled consequently. The commands given through the Google adjunct are decrypted and also transferred to the microcontroller, the microcontroller in turn controls the relays connected to it. The device connected to the separate relay can be turned On or OFF as per the stoner's request to the Google Assistant. The microcontroller used is NodeMCU(ESP8266) and the communication between the microcontroller and the operation is established via Wi-Fi (Internet).

Key Words: *element, formatting, style, styling, insert(keywords)*

1. INTRODUCTION

" Home robotization " refers to the automatic and electronic control of ménage features, conditioning, and appliances. The serviceability and features of our home can be fluently controlled via the Internet. There are three main rudiments of a home robotization system detectors, regulators, and selectors.

Having day to day developing technology is a proud moment for the whole world. The foremost end of the technology is to increase effectiveness and drop the trouble. In this trending world, the Internet of effects is being given extreme significance. In that, robotization leads to lower trouble and further effectiveness. By using IoT, we're successful in controlling the appliances in colourful areas, in which one of which is to control the home robotization by using Node Microcontroller. We can also use other boards like jeer pi,

beagle bone etc., In present-day technology, the whole work is done through communication so the effective way of communication can be done through voice.

Indeed though the technology is developing in our day-to-day life, there's no help coming into actuality for the people who are physically not well-grounded in technology. As the speech- is enabled, the home robotization system deploys the use of voice to control the bias. It substantially targets the physically impaired and senior persons. The home robotization won't work if the speech recognition is poor. The speech given by the stoner will be given as input to the Microphone. The microphone recognizes the speech given by the person and sends it to the feting module. It searches for the nearest word indeed if there are any disturbances in it. The action is done if the command(ON/ OFF) is given. also, the line following the robot functions concerning the speech commands given to it. The line following robot moves forward and backwards with the help of detectors and a motor motorist board.

Home is the place where one solicitation to rest after a long tiring day. People come home exhausted after a long hard-working day. Some are way too tired that they find it hard to move formerly they land on their settee, lounge or bed. So, any small device/ technology that would help them switch their lights on or out, or play their favourite music etc. on a go with their voice with the aid of their smartphones would make their home more comfortable. also, it would be better if everything similar as warming bath water and conforming to the room temperature were formerly done before they reach their home just by giving a voice command. So, when people would arrive home, they would find the room temperature, the bathwater acclimated to their suitable preferences, and they could relax right down and feel cosier and rather, feel more uncomely. mortal sidekicks like biddies were a way for millionaires to keep up their homes in history. Indeed now that technology is handy enough only the well to do people of the society are blessed with their new smart home bias, as these bias costs are a bit high. still, not everyone is fat enough to be suitable to go a mortal adjunct or some smart home tackle. Hence, the need for chancing an affordable and smart adjunct for normal families keeps growing.

2. PROBLEM IDENTIFICATION& PROBLEM SOLVING

2.1. EXISTING METHOD

A home robotization system allows addicts to control electric appliances of varying kinds. numerous being, well-established home robotization systems are rested on wired communication. This doesn't pose a problem until the system is planned well in advance and installed during the physical construction of the structure. . Internet or IP protocol-rested communication in home robotization systems is always a popular choice. The capacity of a product or system to communicate in a standard way with other products or systems is Interoperability. The being system has a disbenefit in that the graphical stoner interface(GUI) isn't handed to the stoner and the stoner has to flashback all the AT commands to control the connected bias. Also, the system uses Java-rested functions. presently, the operation of those mobile has lower. But in the proposed system we're controlling all bias through android mobile and web garçon and the stoner doesn't need to flashback the commands also. Some impulses are automated like cooler, Fan, Light, Electric motor etc.,

2.2. PROPOSED METHOD

The proposed system eliminates the complication of wiring in the case of wired robotization. A considerable quantum of power force is also possible. The operating range is further than the Bluetooth. The being system doesn't allow remote monitoring and controlling of appliances. But whereas in the proposed system the system uses the Wi-Fi- grounded home robotization system which allows for monitoring and control of the appliances. The home robotization of the being system in the 1990s, the people in every home have an electronic bias which is controlled manually but in our proposed system we're controlling all electronic appliances ever. The IoT operation has come this popular in the 21st century due to the dominant use of the internet, the elaboration of smartphone technology and raising the standard of mobile communication.

2.3. PROBLEMS OF HOME AUTOMATION

Wired or wireless systems, while in the house not veritably likely to face numerous problems. still, when controlling the operation locally or ever, we can face problems similar to detainments in performance and that's frustrating. Detainments could be due to poor internet connection and planning in the house. However, also battery problems could be another issue for what we have to deal with and the voice-recognition of Google adjunct isn't over to the mark if there's a noisy terrain If we're having battery-operated bias and their operation is further than normal. Due to the hindrance of the near noise, the Google adjunct commands may also not work duly. Home robotization is still a precious product, by Indian consumer norms, and there are a lot of reaches for the prices to be whittled down by an order of magnitude at least in the coming many times. This will be as further companies manufacture the crucial factors of robotization systems(regulators, Gatewaysetc.,) and husbandry of scale take over.

2.4. PROBLEMS SOLVED BY HOME AUTOMATION

The coming bone is Safety, in every home, situations arise when parents have to leave the terminal and kiddies stay alone at home. In this script, robotization helps in securing kiddies ' safety. One can install surveillance cameras and keep covering through mobile from anywhere around the globe. Also. Detectors can be placed outside once it's locked from the inside. Also, Detectors can be placed outside which can turn on the light automatically at night if someone tries to intrude into the home. These are the main problems resolved using the home robotization bias. There are numerous further benefits of Home robotization.

3. METHODOLOGY

The methodology of this design includes the performance of the proposed system. There are some introductory was involved in the Methodology of the product. Adafruit IO is a website used to produce virtual switches which will be turned ON or OFF depending on the commands given to the Google Assistant the alternate step is connecting the ESP8266 and the last step is connecting to Google adjunct through IFTTT. IFTTT is also a website used to produce a simple chain of conditional statements for like if- fresh statements. By following these three - ways, the performance of the proposed system is going to be done.

4. IMPLEMENTATION

The perpetuation of the design can be divided into two sections; Hardware and Software executions. The tackle perpetration consists of the development of the main regulator, detector networks and the smart home while the software perpetration focuses on the programming of the Node microcontroller using Arduino IDE.

4.1. HARDWARE REQUIREMENTS

1. NodeMCU – 32-bit ESP8266 development board with Wi-Fi SoC.

2. Relay module.

3. One 15W Bulb.

4. One 9V DC Fan.

4.2. SOFTWARE REQUIREMENTS

1. Google adjunct operation

2. Adafruit IO

3. IFTTT Service.

4. Arduino IDE.

The block illustration of the Google adjunct-controlled Home robotization is shown in Fig3.1.

3.1 Block diagram of Google assistant Smart Home using Multi-Lingual Speech Recognition system.

In Google adjunct-controlled home robotization, first, the stoner should have an Android smartphone with Google Assistant installed on it. When the stoner gives commands to the Google adjunct, the commands will be checked with the commands on the IFTTT website which are formerly set. Also, the coming step is setting up the virtual switches on the Adafruitwebsite. However, also depending on that commands, the virtual switches in Adafruit will be turned ON or OFF, If the commands given by the stoner match with the commands on the IFTTT website. This will be tasted by the Node microcontroller and it'll turn ON or OFF the relay depending on the commands. All this will be done over the Internet.

5. RESULT ANALYSIS

The affair for IoT grounded google adjunct- controlled Home robotization is shown below. Fig5.1 shows the complete prototype perpetration of the proposed system.

Fig5.1. Results of IoT grounded google adjunct-controlled Home robotization.

6. CONCLUSION & FUTURE WORK

6.1. CONCLUSION

In this design, voice commands are given to the Google adjunct. The voice commands for Google adjunct have been added through the IFTTT website and the Adafruit account is also linked to it. In this home automation, the user has given commands to the Google adjunct. Home appliances like Bulb, Fan and Motor etc., are controlled according to the given commands. The commands given through the Google adjunct are deciphered and also transferred to the microcontroller and which controls the relays. The device connected to the separate relay is turned On or OFF as per the user's request to the Google Assistant. The microcontroller used is Node MCU(ESP8266) and the communication between the microcontroller and the operation is established via Wi-Fi (Internet). Consumers are looking to secure their home terrain in a moment's changeable world, and the new Home automation service gives them the peace of mind that they need to cover their family's well-being.

This design is about wireless home automation using Android mobile helps us to apply such a fantastic system in our home at a truly reasonable price using cost-effective bias. thus, it overcomes multitudinous problems like costs, harshness, security etc. In addition, it'll give lower advantages like it drops our energy costs and improves home security. In addition, it's truly accessible to use and will meliorate the comfort of our home. The design has proposed the idea of smart homes that can support a lot of home automation systems. C# programming language and Knot microcontroller have been used to connect the sensors circuit to the home.

1) Reduced installation costs.

2) Easy deployment, installation, and content.

3) System scalability and easy extension.

4) Aesthetical benefits.

5) Integration of mobile bias.

For all these reasons, wireless technology is not only an attractive choice for addition and refurbishment but also for new installations.

6.2. APPLICATIONS

• Lighting control system

• Appliance control with a smart grid

• Indoor positioning systems

• Home automation for elderly and disabled people

6.3. FUTURE WORK

There are a variety of enhancements that could be made to this system to achieve greater accuracy in sensing and detection.

a) There are a lot of other sensors that can be used to increase the security and control of the home like pressure sensors that can be put outside the home to detect that someone will enter the home.

b) Changing the way of the automated notifications by using the GSM module to make this system more professional.

c) A smart garage that can measure the length of the car and choose which block to put the car into it and it will navigate the car through the garage to make the parking easy for the homeowner in his garage.

REFERENCES

[1]. Tan, Lee and Soh – "Internet-based Monitoring of Distributed Control Systems", - Energy and Power Engineering. Publisher: IEEE Transactions on Education, Place: New Jersey, Country: USA, Year: 2002, Vol: 45, Iss. No. 2., pp. 128-134.

[2]. Potamitis, I., Georgia, K. Fakotakis, N., & Kokkinakis, G – 'An Integrated system for smart-home control of appliances based on remote speech interaction',- 8th European conference on speech and communication technology, Publisher: World Journal control science and Engineering, Place: Geneva, Country: Switzerland, Year: 2003, Vol. No: 2, Iss. No.1, pp. 2197-2200.

[3]. S. M. Anamul Haque, S. M. Kamruzzaman and Md. Ashraful Islam – 'A System for Smart-Home Control of Appliances Based on Time and Speech Interaction,- Proceedings of 4th International Conference on Electrical Engineering, Place: Bhubaneshwar, Country: India, Year:2006., pp.128 to 131.

[4]. N. P Jawarkar, V. Ahmed, S.A. Ladhake, and R.D Thakare – 'Microcontroller based Remote monitoring using a mobile phone through spoken commands',- Journal of networks, Publisher: World Journal control science and engineering, Place: Lagos, Country: Nigeria, Year:2008, Vol. No.:3, Iss. No.2, pp.58 to 83.

[5]. Prof. Era Johri– 'Remote Controlled Home Automation using Android application via Wi-Fi connectivity, - International Journal on Recent and Innovation and recent trends in computing and communication, Publisher: World Journal control science and engineering, Place: North Dakota, Country: USA, Year:2012, Vol. No.:3, Iss. No.3, pp.2321 to 8169.