HOME AUTOMATION USING VOICE CONTROLLED TECHNOLOGY-A REVIEW

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Abstract- In future all the things moving towards smart in the view of technology wise. It can reduces the man power and complete the work in a short period of time. The people are wasting large amount of power by ON, the light and fan if there is no need or they forget to OFF after the use of it. To make the things, it should be fully automated. We propose the concept of SHAS, which is the home automation system. The IOT is the going to play a vital role in the future. The can occupy the better place among the smart technologies. They can collect the data which is provided by the user and it works based upon it. In this paper we propose the voice controlled system in home automation. By giving input as the voice through our smart phone we can able to control all the devices. For example if the input voice is " light on" the light is turned on automatically and the second command is "fan on" it can automatically turn on the fan. The signal can be transferred from the mobile to the controller with the help of the HC-04 Bluetooth module. It can pairs the signal with the mobile and makes to communicate to each other. The prototype has been made and carried out. it gives the result of about 94% with more effective.

Keywords-DC motor, Arduino Controller, Transmitting Time, Receiving Time, Bluetooth module.

I INTORDUCTION

In before system all the lights and the fan in the home are controlled by the switch. We want directly operate the switch to on and off the all the equipments in the home. So to control the equipments it needs the man power. If the old age people who are lonely in the home he can't able to on and off the equipments every time it makes them so tired. Now a day peoples are forget to off the equipments after the need is over. So the power gets wasted in unusual way. It may mainly happen in school and colleges. To avoid this kind of drawbacks this system proposes the SHAS. The smart home automation system which makes the all the electrical things which can be operated by automation. The use of the UART protocol which is the universal asynchronous receiver transmitter it has the two pins which is the TX and RX pins which can act as the transmitting and receiving medium through which the data is get transmitted. The home automation we can able to controlled by various method by using the WSN based control method by using the sensor and able to control the devices. ESP 8266 module which is the Wi-Fi module. By using the IP address we can able to on and off the devices from anywhere in the world. In this paper we use the VCT which is the voice controlled technology. The controlled is interfaced with the Bluetooth module by connecting the RX and TX pin. This Bluetooth is paired with the smart phone once it get paired we can bale to control the devices which is connected to the controller.

The controller which is used is the ATMEGA328P which is the microcontroller comes

under ATMEL series. Using this method we can able to control all the devices from the one place and it does not take more time to control the devices. This system can makes the human work more simple and it reduces the man power. Several researches are made in this method to obtain a exact result with more accuracy. The home automation we can able to controlled by various method by using the wireless sensor network based control method by using the sensor and able to control the devices. This method is encouraged by the people in all sort of manner. It can control all the devices in one single place. It can save nearly 30% of power which is being wasted unusually. Several methods has been provided to control the equipments but all does not provide exact output and accuracy when compared to this method. The input voice command can be given which can be accepted as the bit format and this command is to be matched with the command which is already given. If it is matched it can be operate the equipments.

II LITERATURE SURVEY

Tui-yi yang et., al., proposed in the rapid growth of the technology all the things turned into smart world. The IOT can be used in all the major places which can plays a separate role in the home automation. The network topology and embedded are playing a major role in the trending technology. The use of the home automation system in which can operate the electrical equipments with the help of the sensor. So the major thing is that the power condition to the entire sensor network. The power can be supplied with the limited amount to operate the home automation. The required power for all the sensor is about 5V. So to supply the continuous power and in the limited range we uses the ACS which is the adaptive classification scheme to classify the power between the sensor. The second thing they proposed about the DDEM which is the dynamic distributed energy management algorithm which can separate the energy between all the devices. This can method can maintains the limited amount of power to the

various sensor for the smooth operation of home automation. This method can able to operate the network path in the effective manner and avoid the occurrence of the overflow of current and prevent the equipments from damage. These systems can gives the accurate result in the home automation is saving the devices. The ACS method is being implemented in many resources. Several researches have been made on in this method to provide the accurate and effective result. This system can reduce the power consuming cost. [1]

Ishan Krishna et., al., proposed the home automation system can be being encouraged by most of the people it makes the work more simple and able to control all the equipments at the instant of time. The equipments can be operated by the sensor based they can sense the surrounding atmosphere and sense the data to the controller based upon the data value the light and fan be operate. These type of system is used in the developing countries like India but in the developed countries this system is not much popular because it consumes high cost and the method is the hard code so it is not convenient to the users. It can arise some sort of problem at any time and it needs the continuous monitoring of the sensor. To overcome this method in this paper they proposes the VCHAS which is the voice controlled home automation system which can control all the equipments through the voice command. They uses the ZIGBEE or the ESP8266 module which can get the signal from the controller based upon the data signal the equipments is get operated. The network topology is implemented which can increase the supply path and it can be operated from the varied distant. [2]

Diana Moneta et., al., proposed that the power demand is the major problem in the all the developing and the developed countries. The Italian power sector can bring the common rule among the domestic and the small scale sector. The government will provide the limited amount of energy supply and after the limited value you can use their own

energy. So based upon this rule they can use the renewable energy system. They use the solar which can produce the energy which is stored in the battery. This energy can be used in the home which can be converted into the operating voltage level by the use of some rectifiers. After that the energy is supplied to home. The smart home which can be operated in the automation manner they can use the limited amount of power to operate the equipments and it can saves the energy of about 85%. The demand can be adjusted based upon the tariff level. The power consumption can be monitored in the electric board of Japan. Even this method affects the people in the initial stage at later part it will provide the benefit to the people. This system will implement soon in other countries like Australia, china etc., [3]

Sandra Ivanović et., al., proposed that the collection of the data from the cloud which can gathers then large amount of data in the storage medium. In before existing system they use the big data for the data storage. These methods can retrieval the data at each period of occurrence within the home automation. The data record is maintained about the past occurrence of the data. Now in this period we use the IOT as the cloud platform which can store large amount of data it can overcome the entire problem from the existing system. The data recorded in the existing system can be used to compare the some sort of things which is happened in the current situation of IOT. The dataset can be designed using SQL method which can design as in the table form or in the tree structure. Based upon the need the structure is designed for the retrieval of the data in simple way. The data set can be used in various resources. [4]

Balakrishna Gokaraju et., al., proposed that the home automation system which uses the several sensor and the voice method to operate all the devices. It can be controlled only in the limited distance. To overcome this use of the wifi module in the home system which can upload the data in the server? They use the ARM controller and the wifi

module it can sends the information to the authorized person on sensing the data. When the unknown person enters the home it will make the alarm to ring in the mobile phone and there is any leakage in the gas it will sends an Email. But this system is highly sensitive and it can be available in the market. For the wifi data charge we want to pay the monthly amount to the network we used. But this method can raise several problems like unwanted phone calls and emails which can continuously disturb the person. When the relatives came to the home it can sense and sends the data continuously. So to overcome the problem they use the image capturing and comparison technique for the accurate result. The researches have been made on this method for the better outcome. The same program is implemented which use different controls whether it is ATMEGA or PIC. This system is highly secured in operation and safe guard of all the major things .The data which is sensed is get uploaded in the cloud server. This system is encouraged to the maximum level. [5]

Jiun-Ren Ding et., al., proposed in before years they can shows about the digital technology of automatic maintenance, automatic surveillance and the health care system. The system can implemented in the smart home but the communication of the network will raise the problem with the various sensors. The system can show the interconnection of home to the various sensor devices. The data can be communicated from the sensor to the controller. For the proper communication the network can be designed using the topology. The supply can be provided using the connection network. The HAN system can gain the proper data value. [6]

S. M. Brundha et., al., proposed that today all the major things that uses the IOT platform to update their data. The IOT can play a vital role in the many resources. In this paper they proposed that the home automation system is used to control all the devices in smart way. They use the sensor which can be communicated to the IOT through the wireless band.

The frequency range is about 115200 band rate in the particular range the communication van be happened to the cloud platform. The ATMEGA 328 microcontroller is used in this system to communicate the sensor data to the cloud. The sensor can sense the data at every period of time. The sensed data can be directly uploaded in the cloud server. Here the cloud will be acted as the thing speak server the sensor value can be monitored in the cloud platform. The data can be formulated in the graphical manner. This data in the cloud is highly secured that can use the smart secured method algorithm that is implemented. The secured data can be used in the further analysis. The network data can travel in the path of the TX and the RX pin the transmitter and the receiver can be act as the communication path. The main role of the cloud system is the data fetching and collecting. To provide the secured form of the data smart algorithm is used. The data extraction can be made using the data mining technology. [7]

Muhammad Asadullah et., al., proposed that the remote technology system in the home automation. They use the automatic gardening of plants. For this they use the ATMEGA328P microcontroller, Bluetooth module, ultrasonic sensor, moisture sensor. The ultrasonic sensor can sense the level of water content once the level is below the threshold value it can automatically ON the motor and pumps the water into the tank. Once the water level reaches the threshold value it can automatically OFF the motor. The soil moisture sensor can be immersed in the soil it can sense the moisture content of the soil if the moisture level is less beyond the threshold value it will water the plants automatically if the water content is high the motor will be in OFF condition. This system can be more useful in the absence of the person in the home. It reduces the man power to a great extent and saves the plant by continuous watering and monitoring. [8]

Danish Chowdhry et., al., proposed that to secure the home from the unauthorized person. The HAS system can be implemented in the domestic appliances. They can remotely monitor all the data which is sensed by the sensor and it updates the value in the server. The HOG is used which is the histogram of oriented gradients to avoid the false detection the SVM algorithm that is used. This can minimize the unwanted buzzer sound and it sense the human accurately can send the data. It can control the power consumption can operates the equipment in that time of need. The system is more effective and accurate to get the outcome. [9]

Shradha Somani et., al., proposed about the control and the security in the home automation system. To make the home more secured this system is proposed. The sensor can sense the data at regular interval of time and upload the data in the server. The data communicate to the server are in the decrypted form using the AES method. The data can be gathered in the cloud when the data is fetched by the authorized person the data is encrypted and understand by the human. This system can more helpful for the aged people who are lonely in the home.[10]

III REVIEW IN HOME AUTOMATION USING VOICE CONTROLLED TECHNOLOGY

In this paper the proposed SHAM is the smart home automation method to control the appliances in the automated way. The equipments can be controlled through the voice control method. The command can be provided as the input signal based upon that command the equipments can be operated. The microcontroller can be connected to the Bluetooth module and it is get paired with the mobile phone from the application we can provide the required input depends upon the input the device gets operated. This system is more effective and being encouraged by all the peoples. The cost is low and the power consumption is also less.
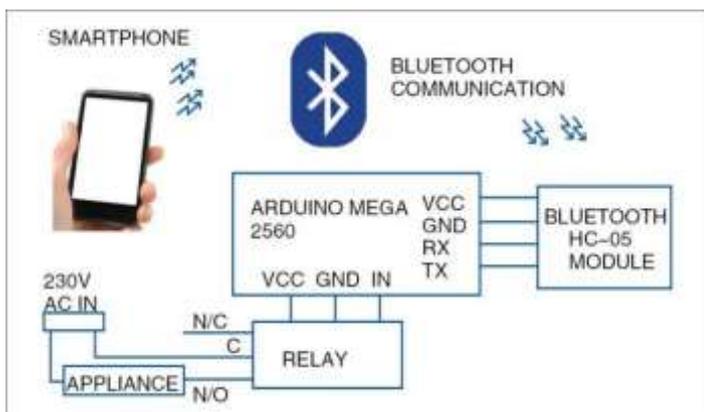
Figure 1: Block Diagram

IV.RESULTS AND DISCUSSIONS

This proposed technique was designed over a low cost home automation set up. The specially designed on an android app was utilized to give the instructions. The user has to give the commands such as LOAD ON and LOAD OFF by giving voice command in the app. So whenever the voice is been activated the signal from the phone will travel to the kit with the help of Bluetooth connected to it. According to the instructions the LOAD will be turn ON and Turn OFF. The following table shows us the comparison of home automation with three different techniques.

TECHNIQUE	RANGE	PROBLEM
GSM	Long	Signal will be weak
RF	Short	Signal will be short
WI-FI	Short	Signal will be short

Table 1: Comparison Table with Existing Techniques

V.CONCLUSION

The proposed technique was carried out to build a smart home with automation that works fully on android application. Here the setup is very simple and cost effective. We can also alter the design at anytime according our ideas whenever we can. Since we are using android based system the operating speed and receiving speed will be very high and resulting in high accuracy output.

REFERENCES

[1] "A Dynamic Distributed Energy Management Algorithm of Home Sensor Network for Home Automation System" by tui-yi yang in 2016.

[2] "Intelligent Home Automation System using BitVoicer" by Ishan Krishna School of Computer Science and Engineering, VIT University, Vellore, India in 2018.

[3] "New interactions between LV customers and the network: further possibilities for home automation functions" by Diana Moneta CESI RICERCA SpA, Milano, Italy; CESI RICERCA Power Systems Economics Dept., Italy in 2007

[4] "Collection and Analysis of System Usage Data in Smart Home Automation Systems" by Sandra Ivanović
Faculty of Technical Sciences, University of Novi Sad, Serbia in 2017

[5] "Integration of intrusion detection and web service alarm for home automation system using 'ARM' microprocessor" by Balakrishna Gokaraju
Department of Computer Information Systems and Technology, College of Business and Technology, The University of West Alabama, United States of America in 2016

[6] "The Management of Device Group for Home Automation Network" by Jiun-Ren Ding
Dept. of Digital Home Syst. Technol., Ind.Technol. Res. Inst., Tainan, Taiwan in 2010

[7] "Home automation in client-server approach with user notification along with efficient security alerting system" by S. M. Brundha Dept. of Computer Science and Engineering, Amrita School of Engineering, Bengaluru, Amrita Vishwa Vidyapeetham, Amrita University, India in 2017

[8] "Smart home automation system using Bluetooth technology" by Muhammad Asadullah
Department of Electrical Engineering, National University of Computer and Emerging Sciences, Peshawar, Pakistan in 2017

[9] "Smart home automation system for intrusion detection" by Danish Chowdhry Faculty of Engineering and Applied Science University of Regina Regina, Canada in 2015

[10] " IoT Based Smart Security and Home Automation" by Shradha Somani Department of Computer Engineering, PVG's COET, Pune, India in 2018