IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

ISO 3297:2007 Certified ⁜ Impact Factor 8.066 ⁜ Peer-reviewed / Refereed journal ⁜ Vol. 10, Issue 6, June 2023

DOI: 10.17148/IARJSET.2023.10693

Home Automation For Disabled Using Voice Tag

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Abstract: Since the emergence of the Automation is a trending in the 21st century making it to play an important role in our daily lifes. The main attraction of any automated system is reducing human labor ,time and errors due to human negligence . With the development of modern technology ,smart phones have become very important for all humans . Applications are being built on android systems that are useful to us in various ways. Another upcoming technology is natural language processing which enables us to use command and control devices with our voice.

Combining all of these ,our paper presents a microcontroller based voice controlled home automation system using smart phones. Such a system will enable users to have control over every appliance in his/her home with their voice. All that the user needs is an android smartphone,. When the first computers came around ,achieving the level of sophistication so as to narrate commands using voice to a machine was only realised in science fiction and movies. However with tremendous evolution in this field, we are at great enthsiasm using voice to interface with devices.

Keywords: Bluetooth Hc05, Audino UNO, DC Motor,12V 4Channel Relay Module.

I. INTRODUCTION

The Automation plays a key role in human life. Home automation allows us to control householdelectrical appliances like light, door, fan, AC etc. It also provides home security and emergency system to be activated. Home automation not only refers to reduce human efforts but also energyefficiency and time saving.

The main objective of home automation and security is to help handicapped and old aged people who will enable them to control home appliances and alert them in critical situation. Smart Homes systems are somewhat different from ordinary homes, where the different smart devices in the presence of communications network being installed that allows the devices to communicate with each other. Integrated communication systems provide the facility for monitoring and managing the performance of the home, and offer the choice support to the occupants for available facilities.

The varieties of systems are installed in today's modern home such as central air conditioned and heating, fire and security alarms, and different other devices, such as home theater,televisions, lights etc. These systems and devices usually exist in total isolation from each other. Smart home provides the facility of passing information and commands among different installed devices and systems. Such facility and control not only provide better control locally and remotelybut also supports special needs, particularly services that support the elderly.

Smart home technologyalso greatly improves the usability and functionality of any home. It also allows to potentially reducing power consumption by preventing occurrences such as lighting and air conditioning beingleft on longer than necessary. A smart Home Automation system allows saving money and the environment. Voice controlled wireless smart home system has been presented for elderly and disabled people.The concept of controlling home appliances using human voice is interesting. The proposed system has two main components, they are voice recognition system, and wireless system. This system is used to control home appliances with the help of voice controlled android application.

II. LITERATURE SURVEY

➢ The title of the literature survey is Home System for Disabled and Elderly People,authored by A. Naeem, M. A. Khan, and M. Arshad, published in the Journal of Healthcare Engineering in 2021[3]. Advantages are Increased independence for disable and elderly people. The final conclusion is High installation and maintenance costs

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➢ The title of the survey is Home automation using Bluetooth ,authored by Rejwan Bin Sulaiman University of Bedfordshire Thesis January 2018 DOI:10.13140/RG.2.2.32540.23683[5] .Advantages are Turn on/off the appliances remotely from far without getting up from their seat, using a smartphone. The final conclusion is Privacy and ethical concerns related to data collection and use.

➢ The title of the survey is Home Automation using Arduino and Smart Phone,authored by Mr. T. M.Senthil Ganesan M. Rama Jothi R. S. Sangavi , L. Umayal International Journal of Engineering Research & Technology (IJERT)ISSN: 2278-0181 Published by, www.ijert.org ETEDM - 2019 Conference Proceedings[7].Advantages are Voice commands are given to control as voice command devices, and it is more convenient.The conclusion is Security issue as it take all noise

➢ The title of the survey is The Smart Home System,authored by M. Alzahrani, M. A. Alsulaiman, and A. Alshurideh, published in the International Journal of Advanced Computer Science and Applications 2021 [9].Advantages are Improved access to healthcare and medical services through remote monitoring and alerts.The conclusion is Limited customization and personalization options.

➢ The title of the survey is Design and Evaluation of a Voice Controlled Home Automation System for the Elderly and Disabled.Authored by R. Liu, C. Liu, and X. Yang, published in the Journal of Ambient Intelligence and Humanized Computing in 2020 [10].Advantages are Enhanced cognitive and memory functions through interactive and stimulating features.the conclusion is Potential privacy and ethical concerns related to data collection and use.

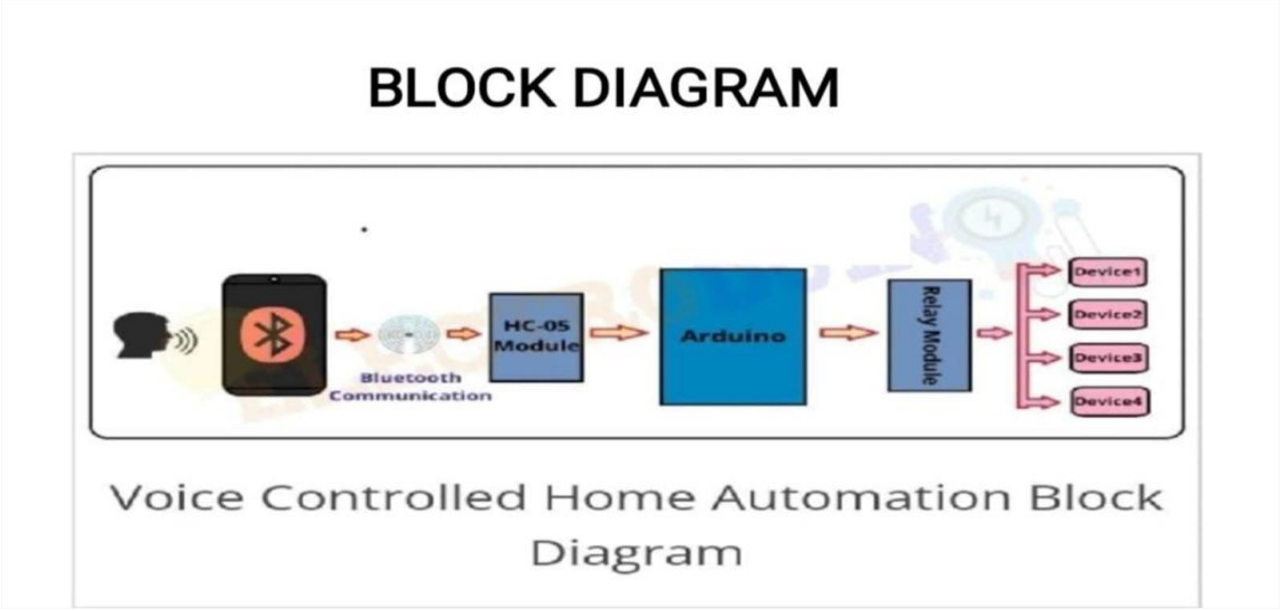

Fig.1.Block Diagram

This system is designed to receive the command signal which is connected to Bluetooth and worked using Aurdino application. The device, which can help the disabled, works by turning on the lights,fans etc using Voice tag.

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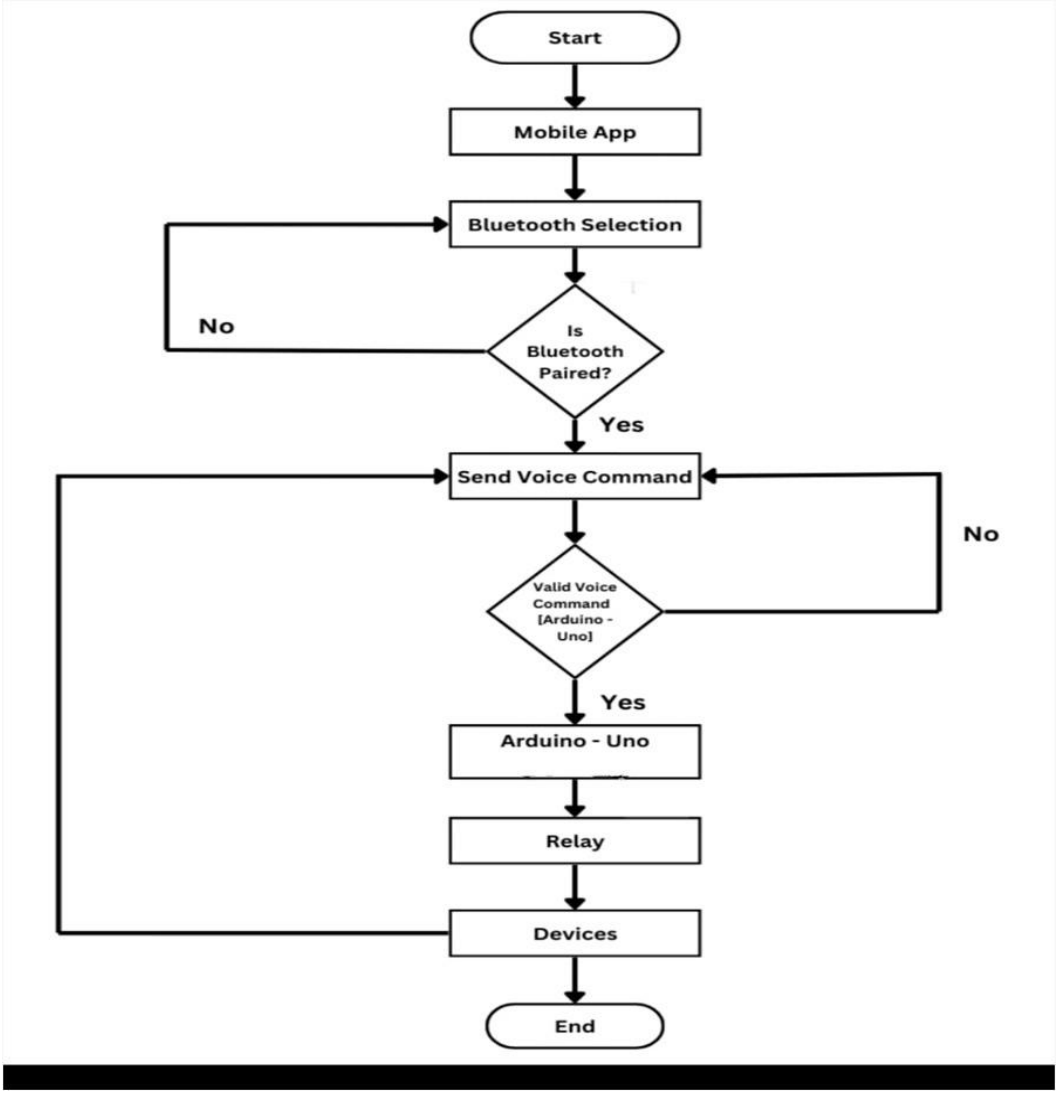

Fig.2.Flowchart

III. METHODOLOGY

In this project first we connect the Arduino UNO controller to HC-05 Bluetooth .Then we send the voice command through smartphone via Bluetooth. Then we program the Arduino microcontroller using Arduino IDE ,later we give the power supply to Arduino board through power bank or battery. The signals sent through Bluetooth are received by the ARDUINO-UNO, the command is sent to the relay and corresponding devices are controlled accordingly.

HARDWARE IMPLEMENTATION:

This home automation system has Bluetooth,Relay and Audino etc to perform objected function.

1) Bluetooth Hc05: It is basically used to transfer data between two devices in this module we use Bluetooth for serial communication which provies switching mode between master and slave.
2) 9V Bulb:led is used for showing corresponding device is turned on i.e,controlled or not it is indicated by glowing of corresponding BULB.
3) Ardino UNO: It is a microcontroller board based on ATmega328P.It has 14 digital input/output pin 6 analog inputs,a 16 MHz watch crystal,a USB connection a power jack,an icsp header and a reset button.
4) 12V 4Channel Relay Module : 12V 4channel relay board control both ac and dc appliances such as solenoids,motors,lights,fan,etc.Screw terminals(terminals block)provided(c,nc,no)for quick and easy connection.

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IV. CONCLUSION

In this project we have successfully implemented voice-controlled home automation system controlling relays using Arduino with Bluetooth module HC-05. This project can be used for controlling '4' number of input controls i.e., by extending number of relays we can modify it. Our implemented module is more reliable and flexible in order to control any devices with in the area for wireless control is 10 meters. Thus, Arduino based voice-controlled home appliances proves to be a better remote-controlled operation on home appliances using Bluetooth module HC-05.

V. FUTURE SCOPE

Home Automation is creating new and evolved automation technologies for houses that will make them advanced using internet-based technologies. Further coverage area can be also increased by use of GSM modules. It can be modified by installing camera to have a look at the disabled people and monitoring them continuously, where in emergency cases like fluctuation and all someone can monitor them.

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