ANDROID BASED VOICE OPERATED HOME AUTOMATION: A REVIEW

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Abstract— Now a day's home automation through voice operated goes to popular. This method relies on Android system. Voice controlled House Automation System leverages the facility of Arduino to supply a holistic voice controlled automation system. Using normal language processing and therefore the available hardware in most smart phones, it translates voice to be used for controlling electrical devices.

Keywords—*Arduino UNO, Bluetooth, Smart phone, Relay control panel*

I. INTRODUCTION

In this world voice is the best way to communicate with each other. Now the technology and science is going through very tough challenges. When the first computers came around in the world achieving the level of sophistication so as to narrate commands using voice. However with tremendous trends in the technology, we are using voice to interface with various devices. Using this effective method of communication, we would humanize technology to Voice controlled House Automation System deploys the use of voice to control appliances. Voice controlled House Automation System enlarge the power of Arduino to provide a fantastic voice controlled automation system. Using normal Language Processing and the available hardware in most smart phones, it translates voice to be used for controlling electrical appliances.

II. SYSTEM MODEL

In this system model we introduce the block diagram with various components.
The block diagram includes power supply, Bluetooth model, Arduino circuit, relay circuit and various types of house load. The power supply gives the 12v dc to the Arduino circuit. The Bluetooth Model is also connected to the Arduino. Arduino is gives signal to the relay circuit. Relay circuit gives command to house load to perform the given condition.

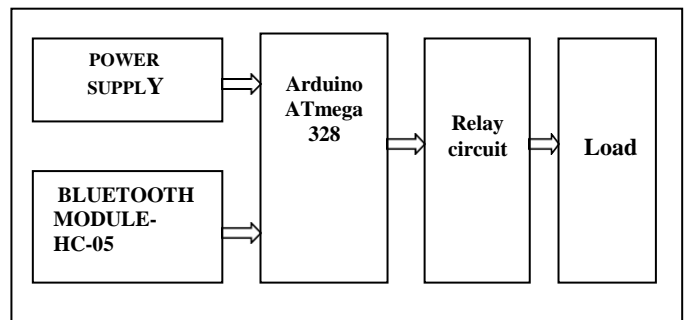Block diagram shows our proposed work is represented in fig. 1

Fig.1 BLOCK DIAGRAM

2.1 Power supply Unit:

This unit supplies the auxiliary power to all the accessories exist on the main circuit board. An Ac/Dc adapter or Ac/Dc converter is a type of external power supply, often enclosed in a case similar to an Ac plug. Adapter is used to supply power to the Arduino circuit. The specification of adapter is 230V~ 1A. The output of this adapter is given to the Arduino the obtained output voltage is 12Vdc.

Fig 2 Adapter

2.2 Bluetooth Module

Block: Communication Type: HC-05
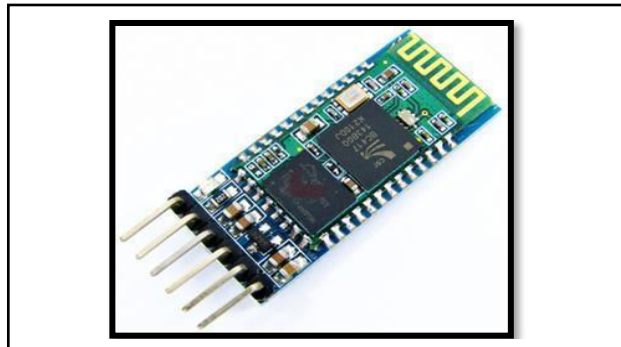Analog/Digital: Digital Pins Interface: 4 Pins

Fig. 3 Bluetooth Module

Bluetooth may well be a specification for a low- cost radio solution providing links between computers, mobile phones and other portable handheld devices, and connectivity to the online. it'll enable users to attach a large range of computing and telecommunications devices easily without the necessity to buy, carry, or connect cables.

It is a wireless technology. There's no charge for communicating between two Bluetooth devices. From the user's point of view, there are 3 important features to Bluetooth.

1 Its wireless. After you travel, you don't should worry about keeping track of a briefcase stuffed with cables to connect all of your components, and you'll design your office without wondering where all the wires will go.

2. It is cost effective.

3. Bluetooth doesn't require you to try and do anything special to do its work. The devices find each other and strike up a conversation with none user input the least bit.

It is a wireless protocol that's accustomed communicate from one device to a different during a small area usually but 30 feet.

2.3 Arduino Uno:

- ⬚ Block: Microcontroller
- ⬚ Type: ATMEGA328
- ⬚ Analog/Digital: Digital Pins for Interface: 20 Pins

Fig. 4. Arduino UNO

Arduino is a device for appearing well and good and control a greater amount of the actual world than your PC. It's an open-source actual processing stage dependent on a straightforward microcontroller board, and an improvement climate for composing programming for the board. Arduino is accustomed develop interactive objects, taking inputs from a spread of switches or sensors, and controlling a spread of lights, motors, and other physical outputs. Arduino tasks can communicate with programming running on your PC.

The Arduino Uno is a microcontroller board reliant upon the ATmega328p. It has 14 advanced info/yield pins which

6 analog input data sources, a 16 MHz crystal, a USB association, a force jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller. We need to interface it to a PC utilizing a USB link and force it with an AC-to-DC connector. The Arduino circuit goes about as an interface between the software part and the hardware part of the project.

2.4 Relay circuit:

A relay is an electrical switch that utilizes an electromagnet to move the change from the OFF position to ON position rather than an individual moving the switch. It has required relatively small amount of power to turn on but relay has ability control something that draws much more power. A relay is utilized to control the forced air system in your home. The AC unit likely runs off of 220VAC at around 30A. That is 6600 Watts! The coil that controls the relay may just need a couple of watts to arrange the contacts together. Commonly used relays are available in numerous configuration of operating voltages like 6V, 9V, 12V, 24V etc. The output section of relay consists of contactors which connect or disconnect mechanically. in a very basic relay, there are 3 contactors: normally open (NO), normally closed (NC) and common (COM).
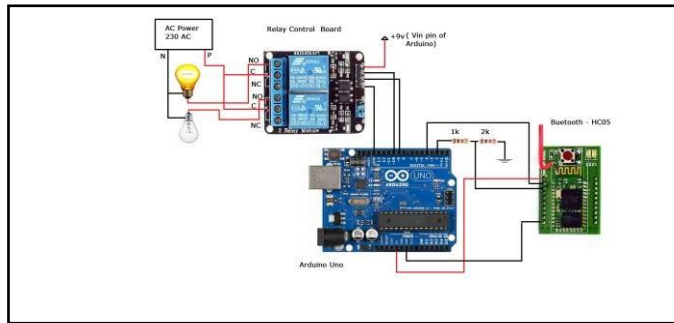

Fig. 5. Relay Circuit

2.5 Load circuit:

Load circuit consists of an LED bulb, Incandescent bulb, CFL bulb; it also may be fan or a Television etc. These types of load are connected across the relay circuit. which operates on tripping of relay coil.
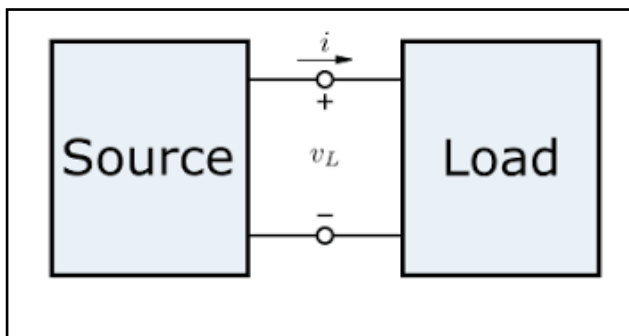
III. IMPLEMENTATION, PROTOTYPE

Fig. 6. Load Circuit

The implementation, prototype, and software developed for our proposed method is shown in this section. The basic setup is shown in figures and respectively.
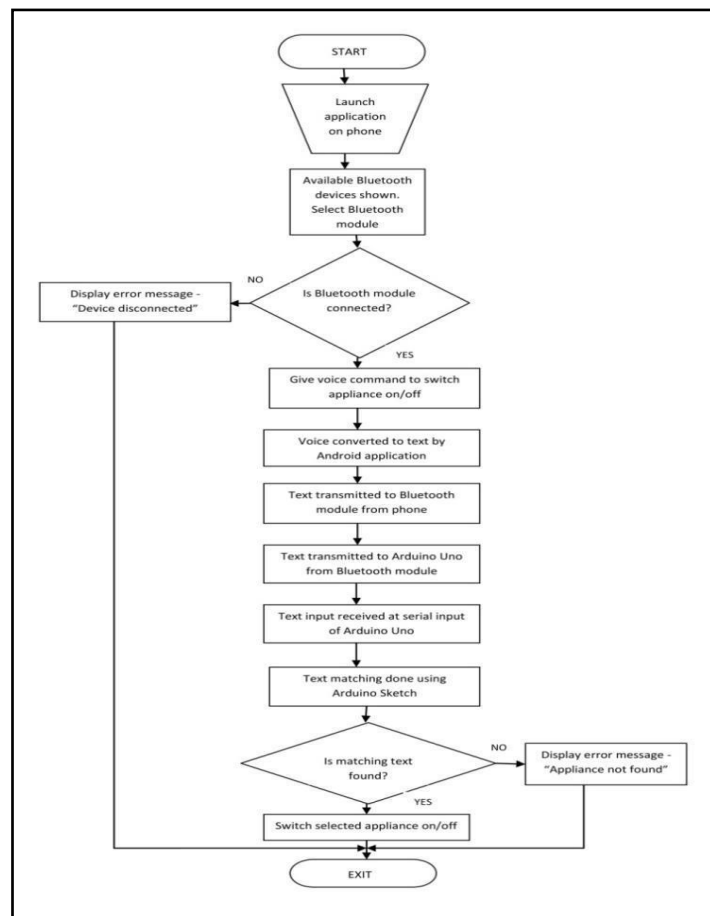
IV.   FLOWCHART

Fig. 7. Flowchart of these project

Fig. 8. Basic Setup of Proposed Work

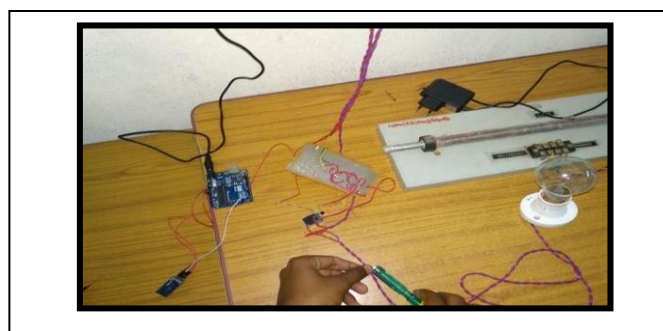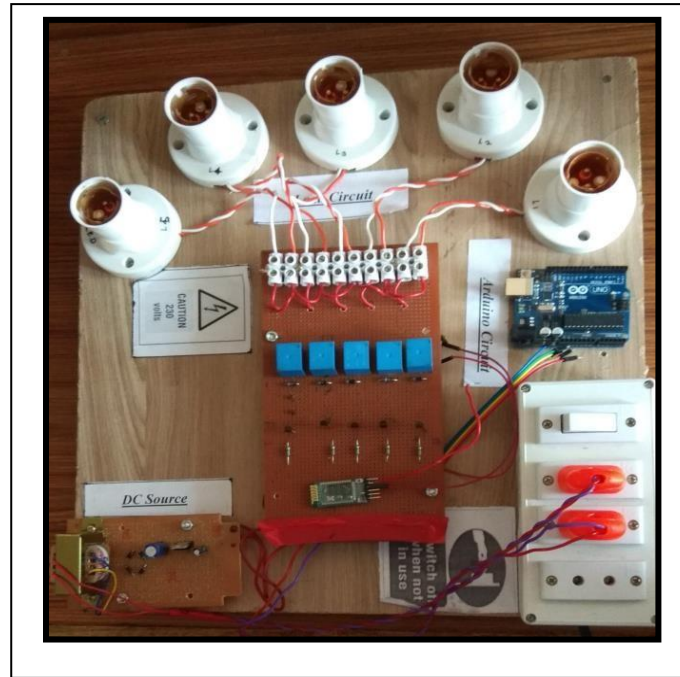## V. ACTUAL WORK IMPLEMENTATION

Fig. 9. Hardware Design

Fig.10. Actual Circuit

a. APPLICATIONS

- Can be used for home automation
- It can be used in HV substation for switching load on/off purpose
- It can be used for security purposes in offices, hospitals, banks, etc.
- It also can be used for cars & vehicle security.

b. FUTURE SCOPE

This project is open for developments from all sides. This can be expanded by employing wireless data transmission techniques like GSM technology to send the monitored data to control centers or control room which is located far away from the installed transformers. One can go on adding extra, rich features to this project.

c. CONCLUSION

From our project we conclude that, we are able to control our lighting load as per our requirement. As our project focuses on to decrease the efforts and increase the efficiency it's very helpful for physically disabled, and blind people along with the elderly people. The system is further simplified by controlling appliances with our voice. The user needn't must immense knowledge over the language of English. Just by saying the appliance name and also the corresponding number assigned thereto particular appliance, and telling it to change on or off will enable the user to possess complete control over any appliance with none effort.

Android applications are very simple and user friendly allowing the user to know its functionalities in little or no time. Hence, the employment of android application during this technique allows a user to easily learn the tactic and acquire familiar with the functions. Moreover, the entire system is incredibly flexible and scalable. Any number of appliances are often added as and when required. Hence, the systems finds use not only in houses but also in many offices where appliances like fans or lights on multiple floors could also be controlled by a private on any of the floors, saving labour and human effort to change on or off the electronic appliances, thereby saving time.

d. REFERENCES

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