

Controlling of Electrical Apparatus via Smart Phone

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ABSTRACT- Home automation means controlling of home functions and features automatically and sometimes remotely using one or more computers. An automated home is also called as a smart home. Speech based home automation uses human voice commands to operate the electrical appliances in the home. It is very useful for human beings especially for elderly and physically handicapped people. In this paper, we present the implementation details of two schemes for speech based home automation and control. The first scheme uses the Bluetooth technology for controlling of electrical appliances when we are at home. It uses a HC-05 Bluetooth module and Arduino Bluetooth controller mobile application for switching on or off the appliances. The second scheme uses GSM/GPRS technology for controlling the electrical appliances. The developed system also alerts the user about any intrusion into the house when we are away from the home. This system is implemented on ARM11 Raspberry Pi microcontroller board. Python integrated development environment (IDE) is used for developing the necessary software.

Keywords- HAS, Arduino UNO, IDE, Embedded C, Relay Board, Wifi.

I. INTRODUCTION

Home automation (also known as demotics) refers to the automatic and electronic control of household features, activity and appliances. The electrical switch boards located in different rooms of our home make it difficult for the members in the home, especially, the elderly and physically handicapped to operate them. Speech based home automation gives us access to control devices in our home by giving speech commands using a mobile phone remotely. Inclusion of security surveillance in a home automation system (HAS) by using web cameras and relevant sensors helps to monitor intrusion into the house by thieves or strangers.

The foremost aim of technology has been to increase efficiency and decrease effort. With the advent of Internet of Things in the last decade, we have been pushing for ubiquitous computing in all spheres of life. It thus is of extreme importance to simplify human interfacing with technology. Automation is one such area that aims that achieves simplicity whilst increasing efficiency. Voice controlled House Automation System aims to further the cause of automation so as to achieve the goal of simplicity.



Fig. 1 General representation of System

II. HARDWARE/SOFTWARE REQUIREMENTS

HARDWARE REQUIREMENTS

NODEMCU micro controller, Wi-Fi module, Relay module, Android Phone, Bulb

Software Requirements

Arduino IDE
Embedded C Programming.

III. PROPOSED SYSTEM

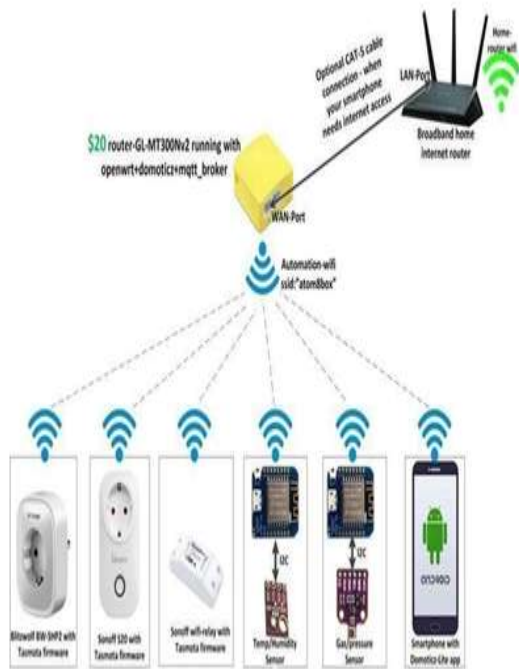
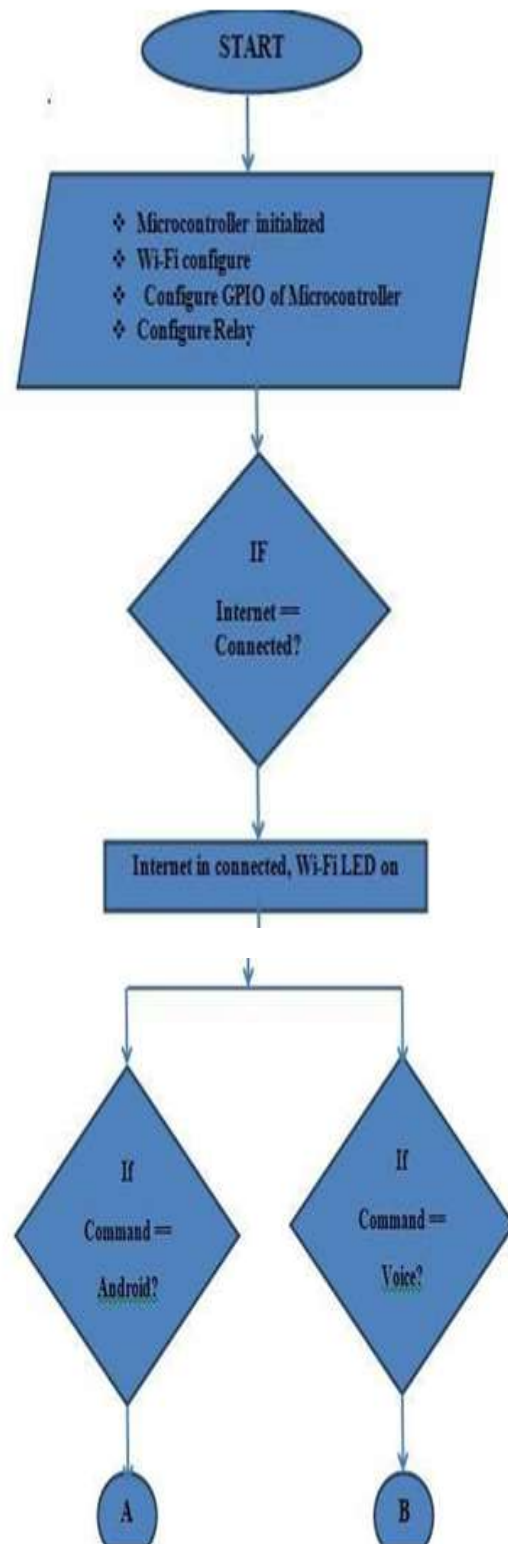
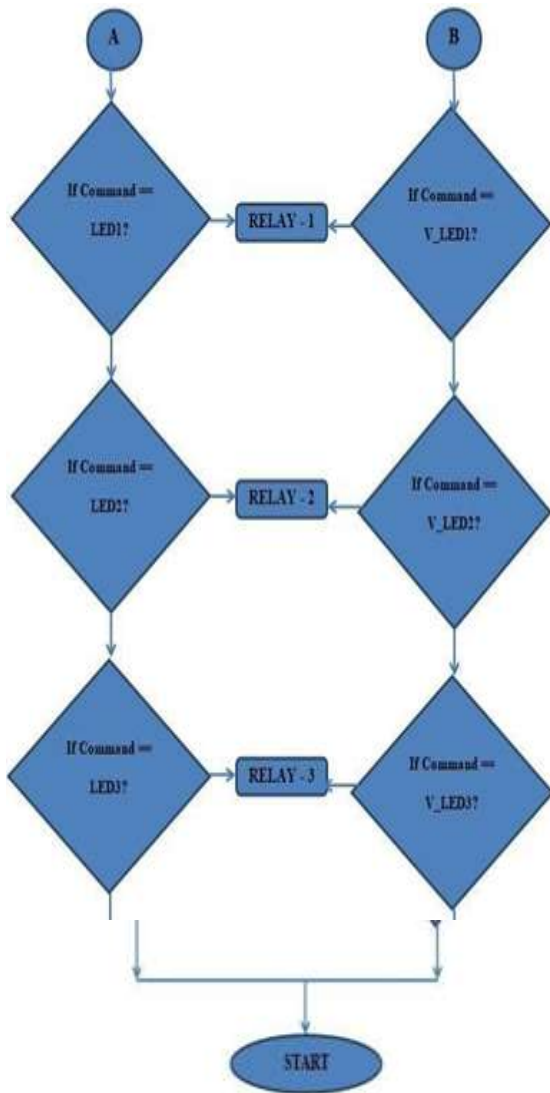


Fig. 2 Block diagram of proposed system.

The primitive man realized that an effective way to communicate with one another is through voice. With minimum effort, ideas could be narrated with relative ease. When the first computers came around, achieving the level of sophistication so as to narrate commands using voice to a machine was only realized in science fiction. However with tremendous breakthroughs in the field, we are at the precipice of truly using voice to interface with devices. Using this effective yet ingrained form of communication we would humanize technology to a great extent. Voice controlled House Automation System deploys the use of voice to control devices. The advantages of using voice as an interfacing medium are multifold. Firstly we would do away with or significantly decrease the need of training for operating technology. Secondly, the simplification of services would entail a wider adoption of existing technology and would help people with varied disabilities access the same technology. We have deployed an Android Application as user front end primarily because of the ease at which the platform provides us with means to use complex technology and due to the widespread adoption in the mobile industry.

IV. FLOW CHART





V. RESULTS

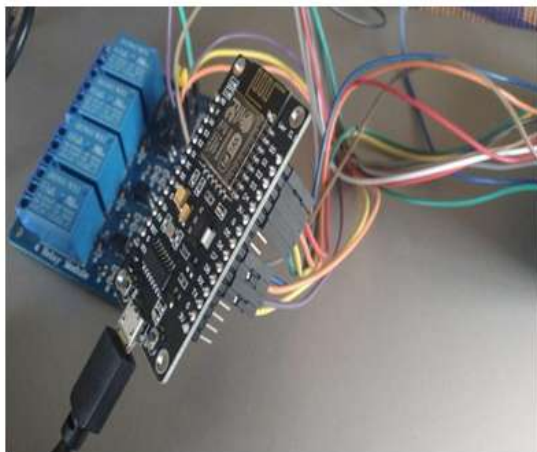


Fig.3 Interfacing ESP8266 With Relay



Fig.4 Interfacing of LCD Display

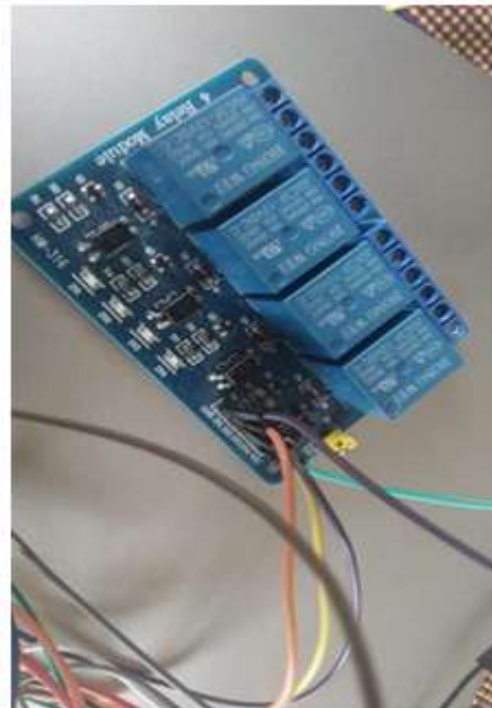


Fig 5. Interfacing of Relay Board with Arduino

VI. CONCLUSION

The prime objective of our project is to use the Smartphone to control the home appliances effectively. The switch mode and voice mode are used to control the home appliances. This project is based on the, Android platform Embedded C. So the overall implementation cost is low and can be easily configured. User can easily interact with the android phone/tablet. The user can send commands via the switch mode or speech mode. The data are being analyzed by the application and are sent over a network.

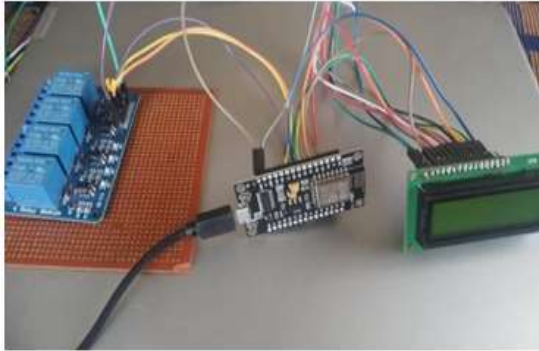


Fig 6. Final Assembled Model

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