

# Smart Home Automation Voice Controller

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## Abstract

Each day we are aiming for a smart living condition and make our lives more convenient and fast. The traditional wired electrical device controlling switch is an old concept now. “Voice operated device controlling” utilizes human voice commands to control electrical appliances. This research aims to design and implement a cost effective, portable, user-friendly, secure and simpler Home automation voice controller that can be operated by using Android smart phone. It also reduces the energy usage in the residential sector. This system is also designed to assist and provide support in order to fulfill the needs of elderly and disabled in the home.

This research describes the way of remote controlling and monitoring electrical household appliances using Android Smart Phone Bluetooth features and wireless Bluetooth technology module depending user voice commands. The proposed system has two main components, namely voice recognition system and clicking mode facility. When automating a home load not available in the visible range, fault identification system in this design helps the user to ensure that their home appliances had gone exactly ON or OFF. The app was designed by allowing the user to add or edit the appliances. The user had the freedom to add appliances names to this app. User can select either voice mode or clicking mode. Even he/she can check the current status. Changing the language is also available in this app. As an example device name is Fan. The user has to say “Fan” to switch ON. If user wants to switch off, again, has to say “Fan”. Google voice recognition with its voice recognition and voice command features has been used to determine the voice of the user. From the commands received from an android device, the electrical appliances’ current status can be controlled. Android Phone will convert voice into a string of data using Google voice recognition feature. This string of data will be sent to Bluetooth module and then to Arduino UNO. After that, Arduino decodes and process it. The Figure 1 expresses the system architecture of the entire system.

Arduino UNO is very popular, cheap product and very easy to use. Bluetooth module, relays are interfaced to the Microcontroller.

The data received by the Bluetooth module from an Android smart phone is fed as input to the controller. The controller acts accordingly on the relays of the electrical appliances. The electrical appliances in the research can be made to switch on or off using the Android phone. The application shows the status of switch whether on or off. In achieving the task, the controller is loaded with a program written using Arduino language.

This system facilitates features such as automation, multi-functionality, adaptability, interactivity and efficiency for home appliances controlling. As future enhancements, hope to design input voice commands in different language and hope to design smart watch with hand gestures to control in a more user friendly.

**Keywords:** *Smartphones, Electrical Appliances, Voice recognition*



Figure 2: System Architecture of Smart Home Automation System