

# Voice And Non Voice Control Based Wireless Home Automation System.

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**ABSTRACT:** Automation is the latest trend comes to work in new field like industry, library, home etc. here we want to describe home automation, which can villagers also able to use in their village. Wherever we go, home buyers also think about automation in home to make it boom in city and well demanded estate. Home automation is the target for the rich people about their houses, now days. This paper presents the idea about wireless home automation that how we can implement automation in small villages, also describes the existing systems. Voice recognition module is the main part for easy operation and it is more advanced. So our friend, other family member's voice may be matched and recognized by this module. 80 voice commands are stored with no group of instruction so our voice can also recognized with respect to 80 voice samples. 7 voice commands are work at a time. By the way, there were a problem occur in voice recognition module and we want to operate home appliances control then that time keypad managed this system by pressing just a key. Keypad works to operate home automation which is useful for elderly person, handicapped person and patients too. Children also used this system because their hand cannot reaches to switch board else switch board caused to children so this works operated by voice sampling.

**KEYWORDS:** home automation, voice recognition module, RF transmitter and receiver, keypad.

## I. INTRODUCTION

By understanding the future scope of technologies available today we will have a various types of application and improvement of home automation and it will be able to form supposed opinions regarding its availability and applicability to us. Home automation with voice recognition based is the most precious and improved technique. We also like to describe home automation as technology enabling the achievement of a desired home design through proposed control of the home environment. This voice recognition module (V3) has version 3 is used to replacing the other voice recognition module like HM2007, voice recognition module with version V2, etc. Voice or speech recognition is the technique of a machine that is module to receive and try to explain the meanings of the word, phrase, or to understand spoken voice commands. Such module identifies voice commands from stored commands and our home appliances will be automatically controlled. Keypad also connected to make it more capable and to improve efficiency of system.

## II. LITERATURE REVIEW

There are many paper presented to automate our home appliances by voice and wireless system. Bluetooth is initially merged in late of 1990. Paper [1] describe the home automation by Bluetooth which is embedded Bluetooth. And appliances in this system are communicated with the network they formed. Home automation protocol (HAP) used for the communication between host and client module with wireless system like Bluetooth. In paper [2] authors described more adequate and advanced security in home with the help of Zigbee and Wi-Fi networks. Embedded server with Zigbee [3] also useful for security of home appliances and it controlled by remote control.

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RF Zigbee wireless communication module [4] stores 1225 voice commands with 35 groups of 35 voice commands. Whereas speech recognition module HM2007 [5] stores 70 voice commands with 10 groups of 7 voice commands. Every time, voice read by voice recognition module and that time initially calls to group of voice commands to recognize voice.

This paper shows the comparison of the voice recognition module and which system is more precious for us to use in villages too. Villagers only want the automation with home appliances like light, fan, and motor etc. Elderly person or handicapped person also used this system and it is also efficient for best rest patients

### III. METHODOLOGY

This system is modified with two methods; first one is by voice and next is by without voice. With the help of voice recognition module, we automate our home appliances by voice that recorded in it. Module can be configured by sending commands with serial port via microphone to PC and stored in module. This stored voice is not erasable after power off. Keypad is simple and more easy method to create operation with system because of to replace problem will occur by voice recognition module. Voice recognition module is well developed and advanced so no problem is created by this module but by the way if it not works then we can be use another method like non voice method (keypad). Communication is the main aim of the system. We used RF transmitter and receiver with ISM band of UHF 314-434MHz. It has high sensitivity, wide working voltage and low power consumption. Transmitter has ASK modulation characteristics internally.

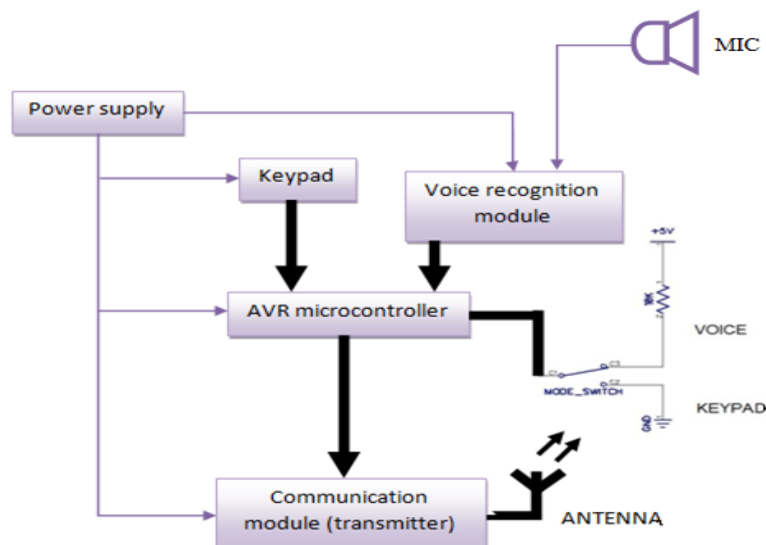


Fig (a): Transmitter Part of the System.

Figure (a) shows that the mode of switch; voice mode and other one is keypad mode. Initially system detects microcontroller is in which mode? If it is in voice mode then voice recognition module easily works by microphone. On the other hand, if microcontroller is in keypad mode then we able to use keypad. After that communication module means RF transmitter transmits data to receiver by antenna. Receiving data from transmitter and operation system is shown in figure (b).

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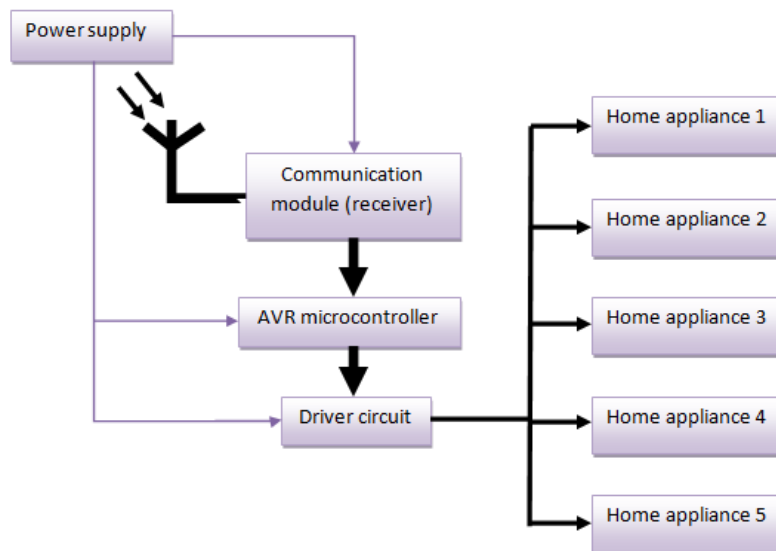


Fig (b): Receiver Part of the System.

Driver circuit is the main device of receiver part having relays. Relays are SPDT (single pole double throw) type with 250 volts capacity. Other main parts described below; working of voice recognition module and keypad also explained.

**Voice Recognition Module:** Voice recognition module with version 3(V3) is the new version means more advanced that voice must recognize by sampling of voice not voice of person. When we speak, we create vibrations in the air. It samples, or digitizes, the sound by having precise measurements of the frequency wave. The system filters the output digitized sound to avoid and replace unwanted noise, and whenever we want to separate it into different frequency bands, we can it by module. It also simplifies the sound, or adjusts it to a range of same and constant volume (voice) level. Every person don't speak always at the same speed, same tone and same volume so the sound must want to adjust for to match the speed, tone and voice with stored sound samples that already saved in the voice recognition system's memory. Voice must be recorded and stored in system with the AccessPort software.

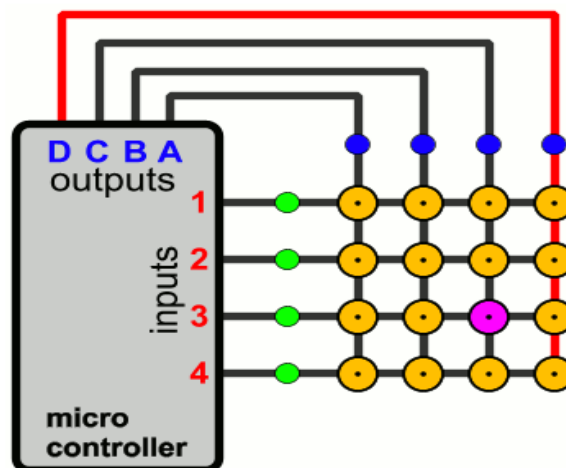
**Microcontroller:** Here we used ATmega328P AVR microcontroller with 32 K Bytes of In-System Self Programmable Flash Program Memory, low power, high performance. There are a switch connected to microcontroller, means that system in which mode. If switch denotes that, system in voice mode then we automate home appliances by voice commands and if switch mode is in keypad mode then we control home appliances by pressing key on keypad.

**Keypad:** If voice recognition module not works for some problem or reason then keypad is option for us. Here 4x4 matrix keypad is used in this system. Pressing a single key for home appliances control may be required by keypad. We can also manage the home appliance control with password obtained by keypad. Password or a single pressing of key is our choice. Operation of keypad is shown below.

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Fig(C): Operation of Key Of Keypad.

Output of keypad is depends on the HIGH signal generated by microcontroller. For example, the operator has pressed the C3 button. This button has shown in figure that it has column C, with the row 3. The microcontroller monitors the 4 inputs and detects that when the specific output (C) is high, there is a HIGH signal. And this is shown in fig (c). At the input 3, the signal is HIGH. So it is called as the input C3 is pressed.

**RF Transmitter and Receiver:** This is components with transmitter and receiver. It has specification of ASK which is Hybrid SAW based transmitter and ASK Super Heterodyne receiver having frequency range 315- 434MHz. Transmitter transmitted data is up to 3 KHz from any microprocessor.

## IV. EXPERIMENTAL RESULTS

This system is successfully implemented wherever we want. It is simple to use and low in cost so everyone will be used such system in simple operation of home automation. It is also useful for handicapped person, elderly person and children too. Because of relay having capacity of 250 volts, our real appliances like cooler, motor, AC may also use in this system.

## V. CONCLUSION AND FUTURE WORKS

The proposed system provides energy consumption and having secure lifetime of whole modules. As the working of this system is analysed in future with some modifications in design considerations the performance of the system can be compared with other system that having sensors, detection systems etc. We have used very small field of some home appliances. As number of appliances increases the complexity will increase; so security of this system makes new opportunities in villages. Here we implements security of voice system. We can increase the application and adds more advanced technique for security of home appliances to analyse the performance. We can also implement whole-house automation with outdoor control system, security alarms, monitoring systems etc.

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