



Voice Controlled Home Automation Using Zigbee

Bhavesh C. Nandanwade¹, Kinikar P. I²

Student, E&TC Dept., Daulatrao Aher College of Engg, Karad, India¹

Assistant Professor, E&TC Dept., Daulatrao Aher College of Engg, Karad, India²

Abstract: In this paper a voice controlled wireless smart home system has been presented for elderly and disabled people. The main goal of this system is to control home appliances by using voice commands. The proposed system can recognize the voice commands, convert them into the required data format, and send the data through the wireless transmitter. In this the home appliances are controlled according to the commands given by the human and the commands are recognized by the speech recognizer and the commands are processed by the microcontroller and loads are controlled according to the instructions given to the microcontroller by the programmer. These commands are transmitted to the receiver from transmitter through the zigbee wireless communication zigbee works as a transceiver here, the commands of our speech are transmitted to the receiver through zigbee from the speech recognizer kit and the controller. The receiver side zigbee will receive the commands from the transmitter and zigbee and then to the controller and loads are operated through these commands.

Keywords: Level Shifter ,LCD Display, Micro-controller 8051 ,Voice Recognizer ,MAX 232 ,Relay Driver ,Zigbee.

I. INTRODUCTION

Voice controlled home automation systems have drawn considerable attention in the recent years. Initially, home automation systems were designed for the people seeking luxury and sophisticated home. But, there was always a need to develop home automation system for the people with special needs like the elderly and the disabled. In order to assist the old people and the people with disability home automation technologies are adopting voice control or voice recognition techniques. The main idea is to control and monitor home appliances by using voice command. The motivation behind this work is also the same.

II. PROPOSED SYSTEM

The basic block diagram of voice controlled home automation using zigbee is shown in the fig. 1.

This block diagram consist of the following essential blocks.

1. VOICE RECOGNIZER
2. MICRO-CONTROLLER 8051
3. ZIGBEE
4. MAX 232
5. Level Shifter
6. Relay Driver

1. Power supply:

For getting +5 volts supply, the + 12 volts supply from power supply output is taken. And it is given to 7805. The minimum input to 7805 is +7 Vdc and Maximum input is + 35 vdc. And we are giving + 12 Vdc as input to

the 7805. Therefore the output of the 7805 is constant regulated +5 Vdc.

2. ZigBee:-

ZigBee is a wireless serial communication protocol, with the operating frequency of 2.4GHZ. ZigBee Home Automation provides better operating range. With the use of ZigBee Home Automation circuit considerable amount of power minimizing is possible and it is compatible with future upcoming technologies so it can be easily customized for individual requirements.

3. Micro-controller 8051:

It is a low-power, high-performance CMOS 8-bit microcomputer with 4K byte of Flash Programmable and Erasable Read Only Memory (PEROM). The device is manufactured using Atmel's high-density non-volatile memory technology and is compatible with the MCS-51™ instruction set and pin-out. The on-chip Flash allows the program memory to be reprogrammed in-system or by a conventional non-volatile memory programmer. By combining a versatile 8-bit CPU with Flash on a monolithic chip, the Atmel AT89C51 is a powerful microcomputer, which provides a highly flexible and cost effective solution so many embedded control applications.

4. VOICE RECOGNITION UNIT:

The voice recognition system is completely integrated and easy to use programmable speech recognition Circuit. Programmable, in the sense that we can train the words or commands that we want the circuit to be recognized. This

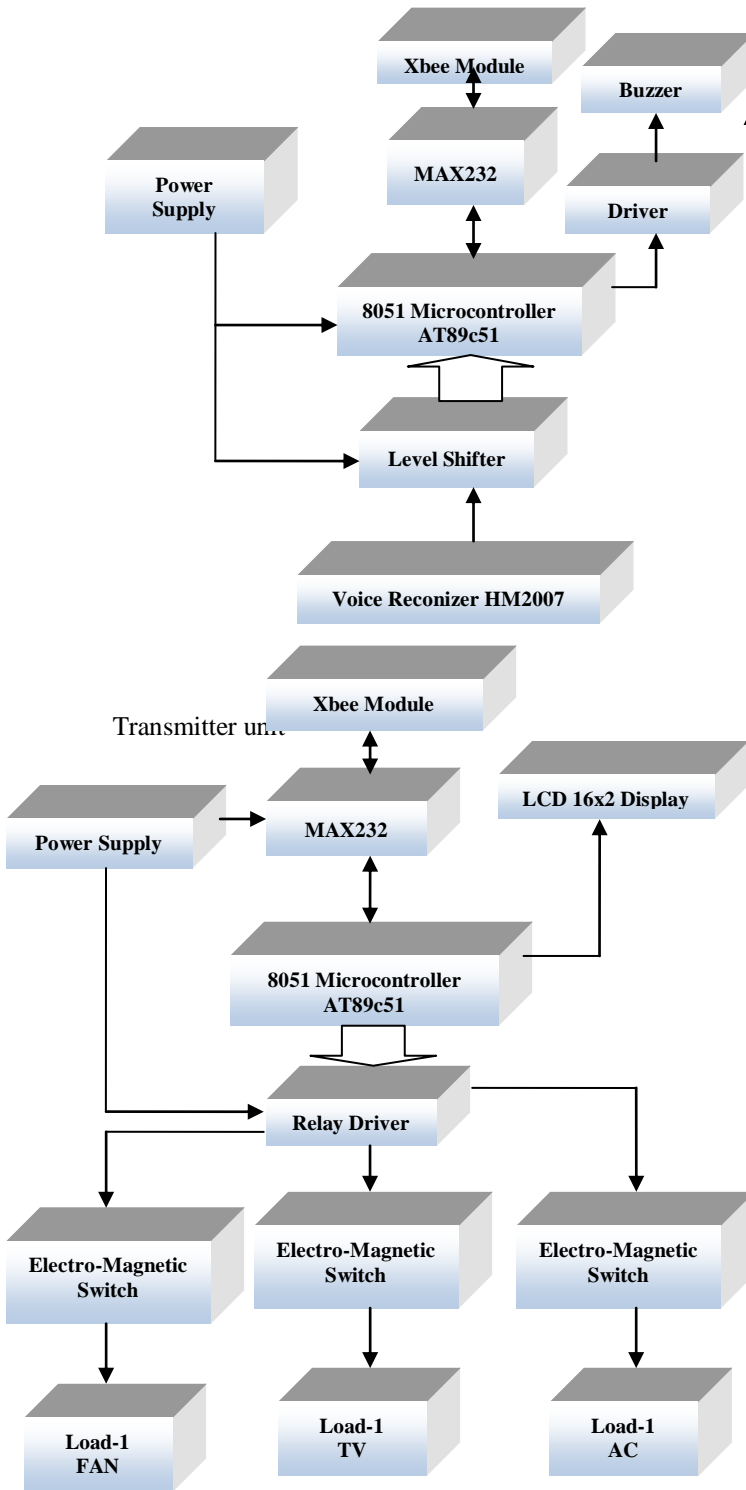


circuitry allows us to experiment with many facets of speech recognition technology. It has 8 bit data out which can be interfaced with any microcontroller for further processing and development.

5. Buzzer:

Buzzer is main indicator of the designed system through which the Guardians of the disabled people can be alerted to check disabled person when buzzer makes a sound and take necessary care. If the patient needs then by voice command he or she may turn on the buzzer for help.

5. System Circuit Diagram:-



Receiver circuit

Fig. 1. System Block Diagram

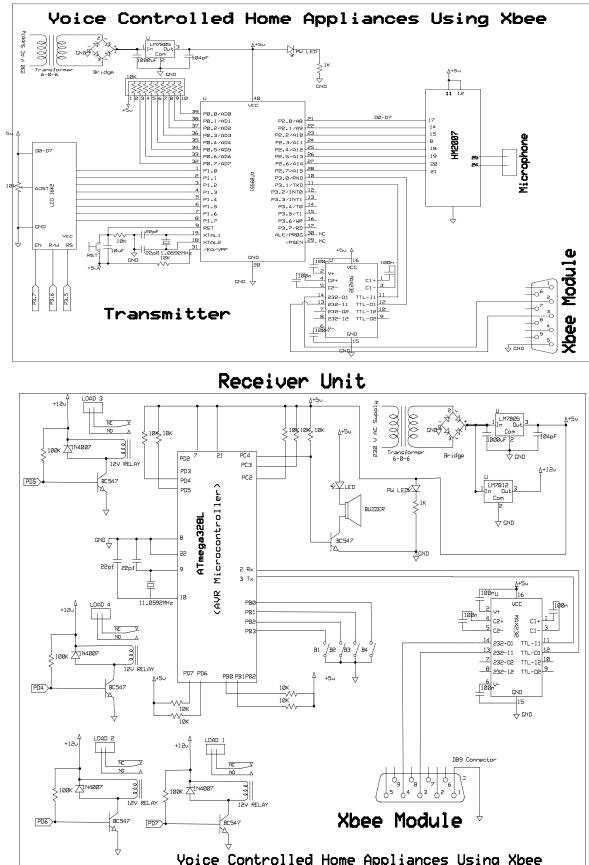


Fig.3. System Circuit Diagram

III. REVIEW

Home automation is used to control and monitoring of household appliances and residential house features like doors, gate, tv, fan and even the ac. This is a demonstration of how to design and build a multi-purpose wireless system that can switch off and on any electrical household appliance depending on the voice produced.

IV. CONCLUSION

Voice recognition Wireless Home appliances controlled system Based on ZigBee is a very useful project for the people like senior citizens and physically handicapped persons, who are unable to do different activities effectively when they are at home and need one's help to handle those tasks. With the Voice Recognition along with ZigBee network we can minimize the complexity of hardware circuitry in case of wired automation and also it



prevent to get up and down again and again to on/off appliances.

ACKNOWLEDGEMENT

We express our sincere thanks to **Ms. Kinnikar** whose supervision, inspiration and valuable discussion has helped us tremendously to complete our project. His guidance proved to be the most valuable to overcome all the hurdles in the fulfillment of this Project. We grateful to Prof. Chorage P. J. for direct or indirect help in the completion of this project. Last but not least, this acknowledgement would be incomplete without rendering my sincere gratitude to all those who have helped us in the completion of this project.

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