

## **Voice actuated hospital bed control system. Very useful in operation of selected bed movements and room environment functions associated with a provided multi-function hospital bed**

The main aim of this project is to design and construct a voice operated hospital bed control system along with electrical devices. This system acts as human-machine communication system. Speech recognition is the process of recognizing the spoken words to take the necessary actions accordingly. User can also control the electrical devices like fan, door etc with the help of voice recognition system. This device is very helpful for paralysis, and physically challenged persons especially in hospitals to control their bed height by themselves.

The speech recognition system provides the communication between the user and the microcontroller based bed control mechanism. This project makes use of a DC motor for moving the bed based on the voice/speech commands given by the user and voice recognition chip is used for recognition of the voice commands. Also, switches Relay and triac are interfaced to controller to which electrical appliances are connected. Microcontroller is programmed, with the help of embedded C instructions. The microcontroller is capable of communicating with all input and output modules. The voice recognition system which is the input module to the microcontroller takes the voice instructions given by the user as input and the controller judges whether the instruction is to lift upwards or to the downwards or to control electrical devices, and according to the users voice command, the appropriate action will be performed. Also, LCD display is available for visual information of operations being performed.

**The main objectives of the project are:**

1. Movement of hospital bed through Voice commands.
2. Controlling of electrical appliances through voice commands.
3. LCD display for status of devices.

**This project provides us with the learning's on the following aspects:**

1. Characteristics of speech recognition system
2. Speech recognition system interfacing with the controller.
3. Relay and Triac working.
4. Relay and Triac interfacing with Microcontroller.
5. Embedded C programming.
6. PCB Design concepts.
7. Motor interfacing with Microcontroller.

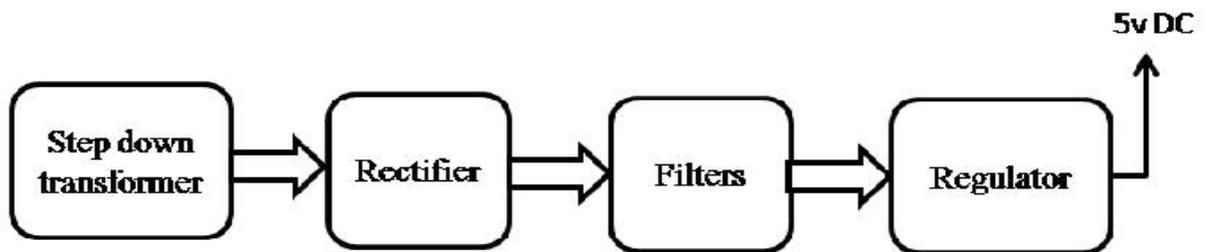
**The major building blocks of this project are:**

1. Regulated Power Supply.
2. Microcontroller.
3. Speech recognition system.
4. DC motor with driver.
5. LCD display with driver.
6. Relay with driver.
7. Triac with driver.
8. Reset.
9. LED indicators.
10. Crystal oscillator.

**Software's used:**

1. PIC-C compiler for Embedded C programming.
2. PIC kit 2 programmer for dumping code into Micro controller.
3. Express SCH for Circuit design.
4. Proteus for hardware simulation.

**Regulated Power Supply:**



**Block diagram:**

**Voice actuated hospital bed control system**

