ABSTRACT
This project represents the voice operated intelligent lift. This follows the principle of speech recognition. The lift is controlled by the user’s voice commands. This project is useful for paralyzed, blind and physically challenged people. The lift operates based on the input voice commands. This eliminates the use of buttons in the lift and is user friendly. This project behaves like the human-machine interaction system. This project will be highly beneficial for the society. In this project MATLAB coding is used for voice recognition and IR sensor is used for detecting the floors and stopping the motor rotation. The DC motor is used for controlling the lift. The microcontroller is programmed using Embedded C instructions.

Keywords: Mel Frequency Cepstrum Coefficient (MFCC), Motor Driver, Speech Recognition, Voice Recognition Module.

1. INTRODUCTION
The main aim of this project is to design and construct a voice operated lift/elevator control system. This system acts as human-machine communication system. Speech recognition is the process of recognizing the spoken words to take the necessary actions accordingly. This device is very helpful for paralysis, short height people and physically challenged persons. The speech recognition system provides the communication mechanism between the user and the microcontroller-based lift control mechanism. This project makes use of a DC motor for moving the lift/elevator based on the voice/speech commands given by the user and MATLAB code is used for recognition of the voice commands. 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, and according to the users voice the switching mechanism controls the lift.

1.1 Problem Statement
At present, the lift is operated by buttons which is difficult to operate for blind people and people with disability. When the blind and disabled people are alone they find it difficult to operate the lift so, this is a problem for these categories of people while using the lift.

1.2 Solution Statement
This problem can be solved by using the voice commands to operate the lift. The voice commands are given as an input and the input is processed and the lift is operated upwards or downwards depending upon the voice input given. This becomes easier for the people with disability to operate the lift using voice commands.

1.3 Objectives
1. Operation of lift through voice based commands.
2. Also, operation of electrical device in lift through voice commands.
3. Audible information about task being performed.

1.4 Scopes
2. No complex wiring required for push buttons.

2. WORKING
Input voice of the user is received by the system using the inbuilt MIC in the pc. This sound input is given to the mat lab code in pc. After receiving the input voice MFCC of the voice is found. This MFCC is compared with the
previously created database in mat lab. Using DTW algorithm similarity between the two MFCCs are calculated. Thus we can decide the floor insisted by the voice command of the user. By means of USB to TTL converter, we are giving the data from PC to PIC microcontroller. 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. According to the users voice the switching mechanism controls the DC motor through L293D (motor driver). The clockwise and anticlockwise rotation depend upon the input floor number. IR sensor is used for detecting the floor and stopping the motor rotation.

**Figure 1 Block Diagram**

2.1. Hardware Interfaces
1. Arduino.
2. Motor Driver.
3. DC Motor.
4. IR Sensors.
5. Voice Recognition Module.
6. MIC.
7. 7-Segment Display.

2.2. Software Interfaces
1. Programming Language: Embedded C.
2. Tool to be used: MATLAB.

3. CONCLUSION
This project will be helpful for people with physical disabilities and blind people. With the help of voice commands people can operate the lift. This project eliminates the complex wiring for push buttons. Lift operator is not required for this kind of lift.
References


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