

# Voice Operated Intelligent Lift

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**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.

## 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 MAT lab 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. For fault detection and power failure buzzer is used.

An embedded system is a programmed controlling and operating system with a dedicated function within a larger mechanical or electrical system, often with real-time computing constraints. It is embedded as part of a complete device often including hardware and mechanical parts. Embedded systems control many devices in common use today. Ninety-eight presents of all microprocessors are manufactured components of embedded systems.

Machine learning is a subfield of computer science that evolved from the study of pattern recognition and computational learning theory in artificial intelligence. In 1959, Arthur Samuel defined machine learning as a "Field of study that gives computers the ability to learn without being explicitly programmed". Machine learning explores the study and construction of algorithms that can learn from and make predictions on data. Such algorithms operate by building a model from example inputs in order to make data-driven predictions or decisions, rather than following strictly static program instructions.

Arduino is an open source computer hardware and software company, project, and user community that designs and manufacture single-board microcontrollers and microcontroller kits for building digital devices and interactive objects that can sense and control objects in the physical and digital world. The 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 OF THE PROJECT

- Operation of lift through Voice based commands.
- Also, operation of electrical device in lift through voice commands.
- Audible information about task being performed.

## 2. LITERATURE SURVEY

A Survey Paper on Design & Control of an Elevator for Smart City Application it is concluded that the design and control of three floor elevator for smart city application. The main requirement of the multi storage buildings are elevators. Elevators ease the work human being and keep them in the comfortable zone. One can make the better use of PLC in the designing of the elevator control system. This control is based on the input that is received from the operator as well as from the sensors. Elevator control system is needed to control all the functions of the elevator. It is the one which guides the elevator car, Elevator car is one which actually carries the passengers between the different floors; it also controls the opening and closing of doors at different floor, and the safety switches are also controlled by the elevator control system. The ladder logic programming is used to simulate the proposed system. Because of use of PLC, elevator systems are getting better, faster, stronger and better quality elevators are produced. Hence more importance is given to the design of an elevator control system.

In paper design and implementation of Embedded based elevator control System it is concluded that the elevator control system is one of the important aspects in electronics control module in automotive application. In this investigation elevator control system is designed with different control strategies. First the elevator control system is implemented for multi-storage building. This implementation is based on FPGA based Fuzzy logic controller for intelligent control of elevator group system. This proposed approach is based on algorithm which is developed to reduce the amount of computation required by focusing only on relevant

rules and ignoring those which are irrelevant to the condition for better performance of the group of elevator system. Here only two inputs are considered i.e. elevator car distance and number of stops. Based on these data, fuzzy controller can calculate the Performance Index (PI) of each elevator car, the car which has maximum PI gives the answer to the hall calls. This would facilitate reducing the Average Waiting Time (AWT) of the passenger. In the second level, the dispatching algorithm is implemented for multi-storage building. Here six types of dispatching algorithms are considered. Based on the traffic situation and condition, one algorithm out of six is operated, that facilitates reducing the Average Waiting Time of the passenger and also reduces the power consumption of the elevator system. The hardware part of the work comprises a simple D. C. Motor, which can control the up and down movement of the elevator car. This D. C. Motor is controlled through the MC9S12DP256B microcontroller. Here four floor elevator systems have been considered and every floor has two switches, one switch is used for up movement and another switch is used for down movement. Based on the switch pressed, the elevator car can move either in upward or downward direction. Here two sensors are used in every floor. One sensor is used for detecting the elevator car when elevator car reached to its destination floor. This sensor detects the car and stops the D.C. Motor. At the same time, another sensor is used for opening and closing the door. Finally, a novel fuzzy based PID controller algorithm is implemented using MC9S12dp256B microcontroller. This algorithm is mainly used for maintaining the constant speed of D.C. Motor with different load conditions.

In paper Voice Operated Elevator with Emergency Indicator it is concluded that elevator is the main part in day to day life .it become transport devices that we are using every day .elevator is useful to move goods and persons. In this project, we are using the microcontroller AT89S52 .on this microcontroller the elevator controller is constructed to simulate as elevator in the real elevator. This project dissertation documents the results of a research on a microcontroller based elevator control system. It provides useful data to those who want to carry out a elevator Control system research. This System is

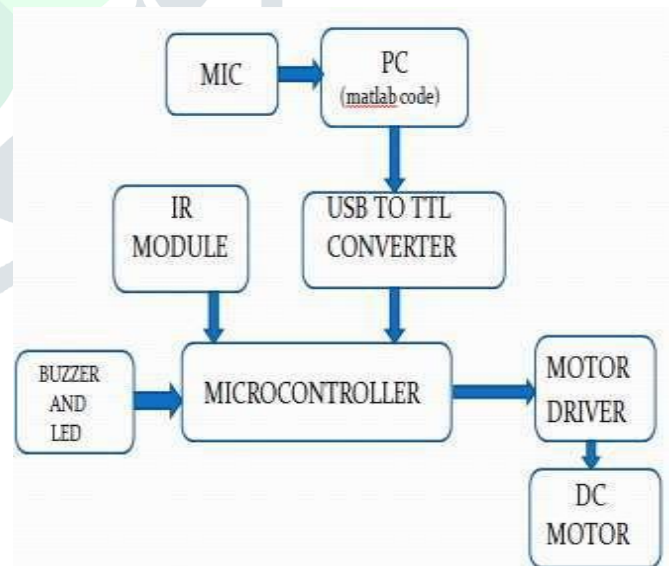
operated on the Voice of any person which will help the handicap person to Travel from one place to another without any help of other. Microcontroller is become main part of each application now a days. Application in each and every automation control like Hand-held communication devices Remote controllers,, automatic and automobiles, security system, telephone printing machines, indicating ,measuring instruments and products of day to day life. The project described here being also a microcontroller based, used for security purpose and in emergency condition. The use of microcontroller in this project is to store the data which is using in the programming for purpose of moving the elevator, process data that will be according to the user wishes.

In paper elevator control system project it is concluded that as part of the requirements in a junior-level measurements & instrumentation course (for an Electrical and Computer Engineering Technology program), students are required to design and implement an elevator control system project. The elevator simulator is pre-built and equipped with a car that travels through three floors, a car hoist system that uses a 12-volt DC motor, floor sensors to detect the position of the car, and an elevator call pushbutton on each floor. Terminal strips are provided for I/O connections. Students are required to use a National Instruments data acquisition system with analog I/O and digital I/O capability. The objective of the project is for students to design the software (using LabVIEW) and hardware interfacing electronics for the simulated elevator control system such that it mimics the operation of a typical elevator. This paper provides a detailed listing of the engineering requirements for the system and the functional test procedure for verifying proper operation of the system. Examples of student work are provided, along with a project assessment. This project is also linked to several ABET criteria and can be used for assessment of the same. Recommendations are provided to help ensure student success on the project. This project has

been found to effectively integrate both hardware and software design, while utilizing information covered from many prerequisite courses. Due to the slow response characteristics of this system, this PC-based control project lends itself well to this application.

### 3. MODULE DESCRIPTION

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. Fault indication is done by buzzer.



## REFERENCE

[1] Li Deng, Fellow, IEEE, and Xiao Li, Member, IEEE, Machine Learning Paradigms or Speech Recognition: An Overview IEEE Transaction on audio, speech and language processing VOL. 21, NO. 5, MAY 2013.

[2] Richard VCox, Fellow IEEE, Candace A. Kamm, Senior member, IEEE, Lawrence RRabiner, Fellow, IEEE, Juergen Schroeter, Senior member, IEEE and

Jay G Wiplon, Fellow, IEEE, Speech and language processing for next –millennium communication services proceeding of the IEEE, VOL. 88, NO.8, AUGUST 2000.

[3] Roger K Moore, Member, IEEE, PRESENCE: A Human-Inspired Architecture for Speech-Based Human-Machine Interaction IEEE Transactions of computer, VOL. 56, NO. 9, SEPTEMBER 2007.

