VOICE AUTOMATION FOR ELEVATOR

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Abstract: Considering the use of technology for each and every purpose the use of elevators as a medium of transport is also considered to be a very essential part .So we have implemented an easiest way of using elevator through voice commands instead of switches which would be mostly beneficial to physically-challenged people and would provide a bonus benefit during peak hours. So the elevator can be further modified that is instead of using switches for moving the elevator there would be a voice recognition chip which will accept the speakers command either to move the elevator up or down command would be processed by the microcontroller and would be fed to the snipper motor and the necessary actions required would be performed.

Keywords: Microcontroller ,Voice Recognition Module ,Arduino

1. INTRODUCTION:

Elevators is also considered an ineluctable part of our society. But Elevators till now are all switched based that is it requires humans physical interaction for its movement .So considering different aspects of automated technology we came up with an idea of designing the elevator that would be automated which will perform all the task using voice commands of users as input instead of physical input .with just giving a voice command the user can reach the destined floor without any manual work which would provide an ease to user to reach their destined floor during peak hours and will also give a ease to physically-challenged people.

2. LITERATURE REVIEW:

The system uses a compatible controller along with voice recognition chip for accepting voice command and uses a logical lift program to connect[1]. The microcontroller AT89S52 is used in this system .On the microcontroller the elevator controller is constructed for simulating the elevator. This paper elaborates the voice operated elevator which is easy to use by the users[2]. Controlling The paper consists of voice acknowledgment and programmable terminal and has a coherent elevator program. It uses Dynamic Time Wrapping Technique. It consists of words such as up, down etc.. The speech recognition system is main part of this project along with this microcontroller, motor etc. also plays an important role.[3]

3. COMPONENTS USED:

- Voice Recognition Chip- The speakers commands would be fed as an input to the chip and then the chip will produce a digital signal as output which will be fed to the microcontroller
- Microcontroller-The output from the voice recognition chip would be taken as an input by the Arduino and after the processing of the input is done the command would be passed to the snipper motor to perform the task respectively.
- stepper motor-will perform tasks in steps
- Motor Driver-L293D motor driver is used

4. WORKING:

The main component or the heart of the entire implementation is the voice recognition chip .The user entering the elevator would just give a voice command for moving up or down instead of manually pressing the switches. The voice recognition module and take that input provided by the speaker and would convert it to digital signal and in turn would be fed as an input to the microcontroller.
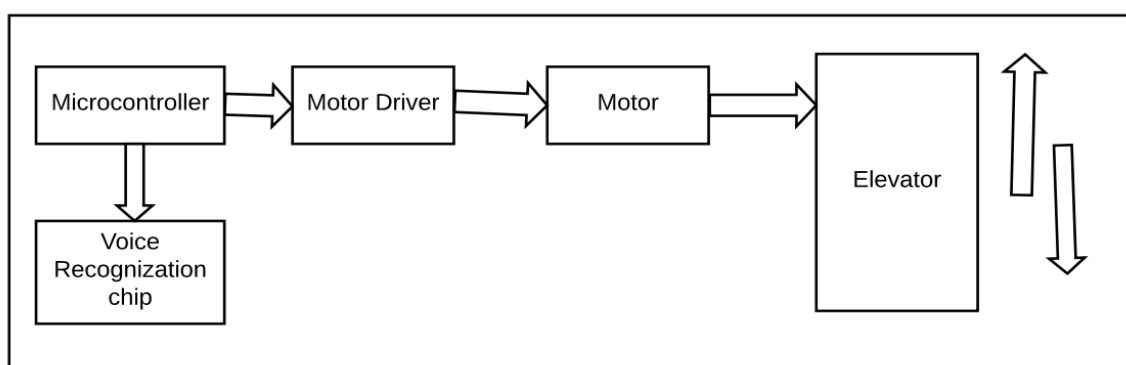

Fig 1:Flow Mechanism

The microcontroller will compare the input from the stored input and if the result says to move the elevator downwards then it will accelerate the motor downwards and if the result says to move upward then the motor would be accelerated in upward direction thereby leading to the movement of the lift and allowing the speaker to get- off at the desired floor it would also be having a emergency switch for worst condition if the lift gets stuck.
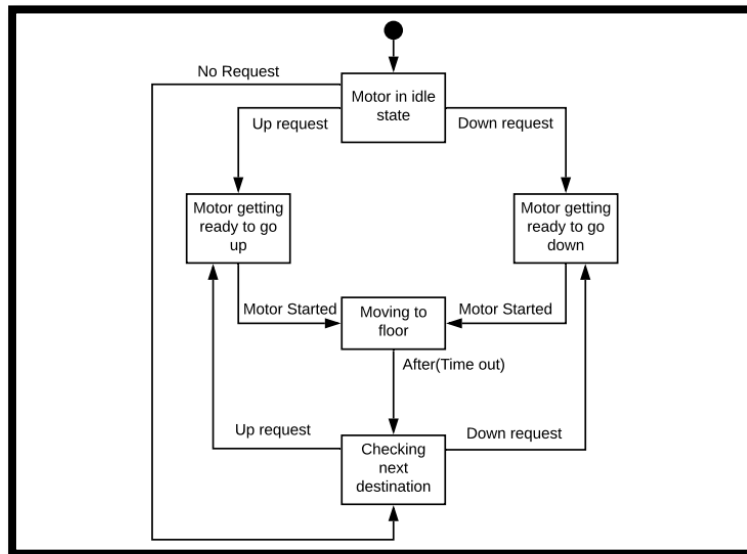

Fig 2: Working Mechanism

a) **Voice Recognition tool**: For the working of the elevator using voice command the first task that comes into account is matching the continuous speech signal with the sets of commands groups programmed in the chip accordingly. The matching is done by accepting an input signal with a set of words or sentences according to some optimality criteria and then by using parametric process the data would be converted into parameters and then it would be matched with the set of commands groups present.
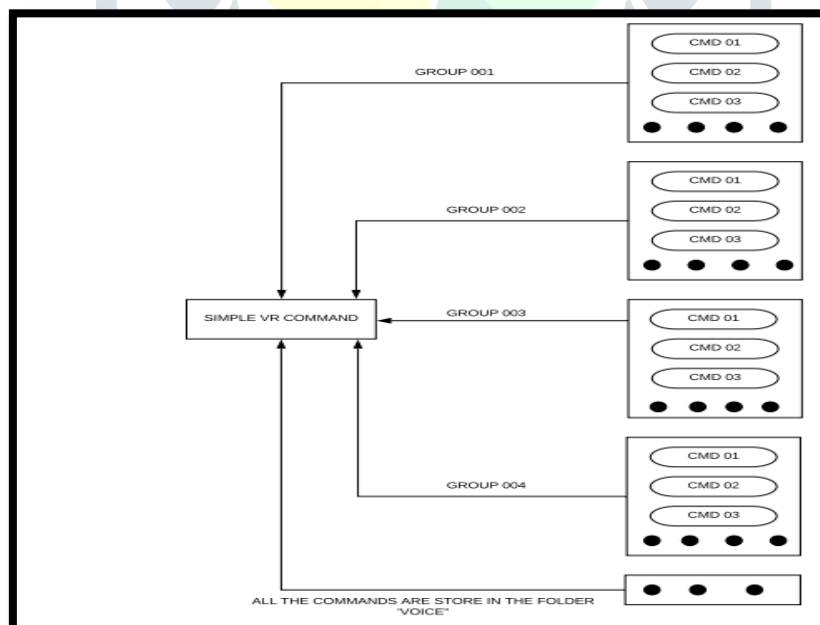

Fig 3: Grouping of Voice Commands

b) **Arduino:** voice recognition chip communicates with an attached Arduino through software serial library. The TX pin sends information to the Arduino. The Arduino has to rely on this pin to know when to read the instruction when it is available. After reading the instruction received the Arduino will drive the motor accordingly.

c) **Motor driver:** L293D is a dual H-bridge motor driver integrated circuit (IC). The motor connected operations would be controlled by input logic at pins 2 & 7 and 10 & 15. The logical input 00 or 11 will be used to stop the corresponding motor and the logic 01 and 10 will be rotating the motor in clockwise and anticlockwise directions. The Enable pins 1 and 9 should be high for the motors to start operating. When an enable input is high, the driver associated with it gets

enabled. As a result, the outputs become active and work in phase with their inputs. Similarly, when the enable input is low, that driver would be disabled, and their outputs are off and in the high-impedance state.

   d) **Motor:** Stepper motors are considered as DC motors that move in discrete steps. They would be having multiple coils that are organized in groups called "phases". By energizing each phase in sequence, the motor will rotate, one step at a time.
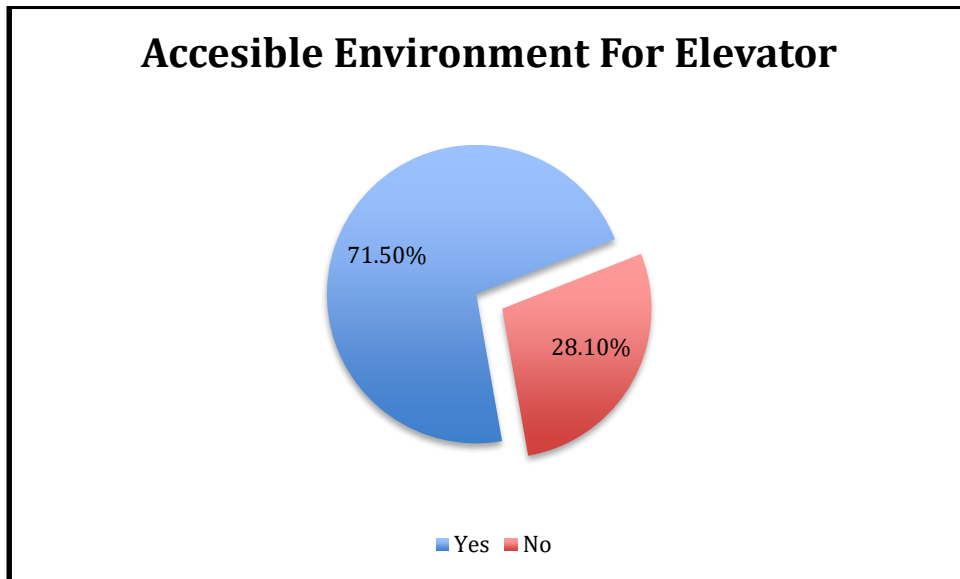
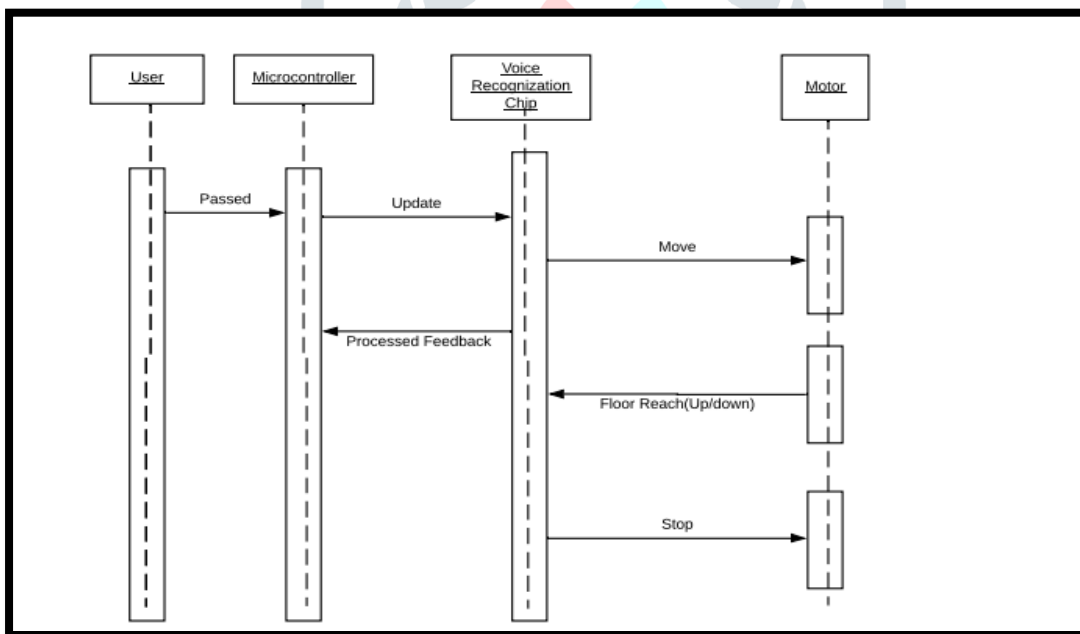## 5. Results:

Fig 4: Efficiency test

Fig 5: Mechanism flow

6. Conclusion:

Looking at the elevator system that already exists and the problems faced by people while using the system rather the problems which rendered them obsolete, encouraged us to make a system which would be easy to use and resourceful at the same time. This this implementation brings together all the features which can be needed to make sure that the services provided by it make the system independent.

Our paper describes a new way of implementing an elevator which can be operated without the use of switches only a voice command would be enough to reach to the desired destination. It will provide ease to the user for using the elevator service and would also provide great benefit to physically-impaired people thereby resolving their dependencies on other for using the elevator. It resolves the issue of pressing the switches all the time for moving up or down which becomes quite difficult in crowded hours. The problem of switches being damaged.

7. **References:**

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