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Voice Operated Elevator

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Abstract:- This project presents the look and construction of voice operated elevator with emergency indicator. This device acts as a human-machine communication system Speech recognition is that the method of recognizing the spoken words to require the mandatory actions in line with the commands. Speech Recognition could be a system that functions to convert auditory communication into the computer file. The system input is human speech. The main purpose of coming up with this method is to control the Elevator by mistreatment voice commands by the user. It aims at serving to unfit, short height folks and physically challenged persons. This projected system is incredibly abundant convenient throughout COVID-19 pandemic.

Keywords:- *Speech Recognition, Arduino, IR Sensor, AMR_Voice Application.*

I. INTRODUCTION

Elevators is taken into account Associate in Nursing inescapable a part of our society. But Elevators primarily based on it needs humans physical interaction for its movement .So considering completely different aspects of automatic technology we have a tendency to came up with a concept of planning the elevator that may be automatic which can perform all the task mistreatment voice commands of users as input rather than physical input with simply giving a voice command the user can reach the destined floor.

Manual work which might give an ease to the user to achieve their destined floor throughout peak hours and can conjointly provides a ease to physically-challenged individuals. Elevators are controller devices that use switch mechanism for operation. Either the person wishes to travel in down or upward direction, uses the computer keyboard or perhaps for Associate in emergency stop or to open & shut the elevator door.

In today's life we will notice a colossal kind of housing complexes packed in procurable location with multi storage building capability. This project higher fits for blind, unfit and physically challenged people. trying towards current scenario of COVID-19.Manually operated elevate encompasses a high rate of spreading the virus. The essential explanation for planning this method is to perform elevator operation via voice directions. Speech recognition systems ar the crucial a part of the project. The speech recognition of the elevator system permits the communication mechanism between the user and also the Arduino primarily based mechanism.

A. PROBLEM DEFINITION

Looking towards the current situation of COVID-19, manually operated lift has high rate of spreading the virus as contact of each other while manually operating it. Also for the handicapped person manually operating the lift will not be possible. So to overcome this major drawback, Voice controlled elevator can be a very good option.

B. SCOPE

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 Arduino based lift control mechanism. This system acts as a human-machine communication system. Speech recognition model is the method by which the elevator can be controlled.

Speech recognition is the process of recognizing the spoken words to take the necessary actions accordingly. 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 .

During Covid pandemic its better to take safety measures, our proposed system can overcome most of the manual systems drawbacks.

C. SUGGESTED SYSTEM

The main goal of the proposed system is to design and implement a speech operated elevator system. To reduce physical requirements and increase safety measures during COVID-19 pandemic. The voice operated system is the main part of this project. Voice to text convertor software is a communication mechanism between the user and Microcontroller.

Speech is the best and ideal method to control the elevator. The system input is human speech. The system will identify spoken words to input data for control equipment. The project makes use of a DC geared motor for the moving of lift. Microcontroller is programmed, with the help of embedded C programming. The microcontroller is capable of communicating with all input and output modules of an elevator. The Bluetooth module is used for the wireless connection between the user and controller.

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II. SYSTEM FLOW

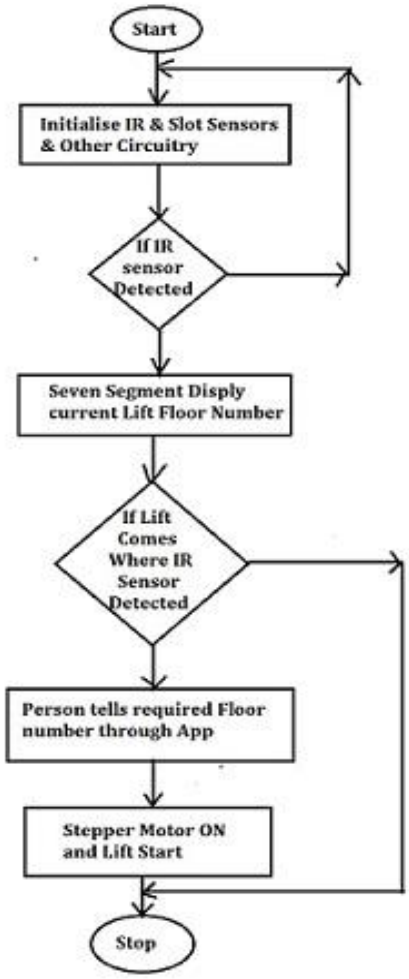

Fig 1: Flow diagram

III. WORKING EXPLANATION

- In this project we use Arduino Mega as the main Controller. Two LM2596 DC to DC converter is used to give supply to the all circuitry. One LM2596 is used to give supply to Arduino Mega , Wireless Bluetooth Module, Seven segment display ULN2803, LCD display and to the three Slot IR sensor.
- Second LM2596 is used to give supply to the DC motor driver L293D, to the buzzer & to three IR sensors. Now we see the working of this project. Here we make one elevator module with two floors.
- In each floor we connect one IR sensor and seven segment display. Here IR sensor is used to detect the person who comes in front of the elevator and seven segment display is used to display the actual location of the elevator i.e. it displays current floor of the elevator . So to get the elevators current position i.e. which floor the elevator is, this work is done by the slot IR sensor.

Fig -2: diagram showing IR slot sensor and IR sensors

- When the elevator goes up & down then one side edge of the elevator passes through the Slot IR sensor so arduino mega gets the signal that where the elevator is currently located.
- When someone wants to use the elevator then they will come in front of lift. IR sensor mounted on that particular floor gets detected and gives signal to the controller, so the controller checks by using slot sensor that the elevator is on which floor and displays on seven segment display.
- When actually elevator comes where the IR sensor is detected then the person has to tell the required floor number through the app. So this value is getting controlled through the Bluetooth Module.
- After this the DC motor gets ON and the elevator will reach the required floor and also display the floor number on a seven segment display.

IV. PROPOSED BLOCK DIAGRAM

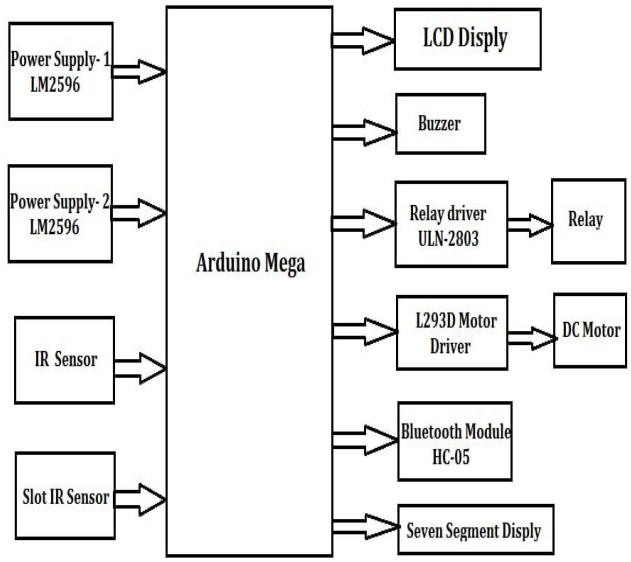

Fig.- Voice Operated Lift

Fig -3: Block diagram

V. HARDWARE DESCRIPTION

A. MICROCONTROLLER ATmega2560

The Arduino Mega is organized victimization the Arduino (IDE), which may run on numerous platforms. Here, IDE stands for Integrated Development atmosphere. The functioning of the Arduino Mega is comparable to alternative Arduino Boards.

B. HC-05 Bluetooth module

HC-05 Bluetooth Module provides change mode between master and slave mode which implies it's ready to use neither receiving nor transmission information.

C. LM2596 DC-DC Converter

A DC-to-DC convertor is associate degree electronic circuit or mechanical device that converts a supply of electricity (DC) from one voltage level to a different. it's a sort of electrical power converter.

Power levels range from very low (small batteries) to very high (high-voltage power transmission).This is an LM2596 DC-DC buck converter step-down power module with high-precision potentiometer, capable of driving a load up to 3A with high efficiency, which can work with Arduino UNO.

VI. APPLICATION USED

Android Meets Robots(AMR_Voice application): Voice Recognition.

It Uses android mobiles internal voice recognition to pass voice commands to your robot, Pairs with Bluetooth Serial Modules and sends in the recognized voice as a string

Example: if you say Hello the android phone will return a sting *Hello# to your Bluetooth module *and # indicate the start and stop bits. It Can Be used with any micro controller which can handle strings.

Examples Platforms : Arduino , ARM , PICAXE , MSP430 , 8051 based and many other processors and controllers
https://play.google.com/store/apps/details?id=robotspace.simplelabs.amr_voice

Bluetooth

Voice Recognition

For Arduino

VII. CONCLUSION

The voice-controlled elevator is of great use.This project tries to throw light on the voice recognition system which can be used to modify the conventional elevator and make it more efficient and usable for physically challenged people. This implementation brings together all the features which can be needed to make sure that the services provided by it make the system independent. 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.

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