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VOICE RECOGNIZING ELEVATOR SYSTEM

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Abstract: The findings of this study will contribute to the development of elevators that can be of assistance to people with impairments, namely elevators that can be operated by voice. A person is considered to have a disability if they are missing a whole hand organ or if their hand organs do not work correctly, but they are still able to use their voice to operate the elevator. A system that recognizes spoken language and uses that information to create output data is called speech recognition. Speech from humans is what the system takes in. The operation of the elevator is the primary focus of this project, which is being designed so that voice instructions may be used instead. individuals with paralysis, individuals of small height, and people with other physical challenges may benefit tremendously from the use of this gadget.

1. INTRODUCTION

In our rapidly advancing technological world, where speech is beginning its reign of dominance to replace the touch displays on everything from smart phones to enormous computer systems, the incorporation of voice into day-to-day activities becomes more crucial. Elevators are one kind of such technology that is utilized in everyday life. They serve the objective of making future generations able to do things without using their hands, which is a great benefit for those who are crippled. The elevator algorithm serves as the foundation for the fundamental mechanism that underpins the operation of an elevator. According to this algorithm, an elevator will cease operating when one of two specific criteria are met. The first one is the direction, and the second one is depending on the difference between the present floor and the level you are going to. Rotors, cables, and pulleys are the primary components of the elevator regardless of whether the type is traction, ascending, or hydraulic. It is also possible to construct it such that it may be used for laboratory purposes by connecting the elevator system to a desktop computer or microprocessor so that it can take input speech. The possibility to control things with your voice is appealing for a few different reasons. Because the system may be utilized by anybody who is capable of constant and identifiable vocalization [7], it has the potential to be suitable for a vast number of people who use the elevator. Voice control also decreases the amount of physical effort required. On the other hand, the recognition accuracy of Automatic Speech Recognition (ASR) systems is a limitation in the implementation of many voice-controlled systems in real-world applications. A voice-controlled elevator system is presented in this article. The input instructions that users will use to activate the movement of the elevator system will be made as simple and uncomplicated as possible for the users. Voice input for floor operations, instructions, elevator car door operation, and a specific option to make a call of the speaker's choosing in case of any unforeseen occurrence that demands rapid response are all included in the orders. The following outline constitutes the paper's organization: A cursory overview of a selection of the previous works that are relevant is presented in Section II. In Section III, we discuss several aspects of speech recognition and detail the modifications that were made to Sphinx4 so that it could be used for this project. In

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Section IV, we will discuss the experimental design that was used to test the suggested model. In Section V, we analyze the experimental findings that were acquired by carrying out the experiments in a controlled environment in the laboratory.

2. LITRATURE SURVEY

[1]T. Q. Muhammad and A. A. Syed,"Voice controlled wheelchair Using DSK TMS320C6711

The processing of analog speech signals is the primary focus of this source of creativity. The concept is brought to life for those who use parallelization in the form of voice-activated wheelchairs by means of speech processing carried out on digital signal processors (DSP). The wheelchair has a connection made to it for the purpose of processing the speech signal using the Texas Instruments TMS320C6711 DSP starting kit (DSK). The DSK is responsible for calculating the spoken word's energy, zero crossing, and standard deviation. It also creates various required analog signals, which are then amplified and transformed into digital format according to the spoken words. The stepper motor is controlled by using these digital signals in order to function. There are five terms that are understood, and they are stop, forward, reverse, left, and right. The effectiveness of the system is shown by the outcomes obtained at the end.

[2] C. S. Richard and P. L. Simon, "Voice Control of a Powered Wheelchair

Within the scope of this article is an automated wheel chair that utilizes speech recognition. People who are physically challenged and are unable to manage their hand motions may find it easier to use a wheelchair that is controlled by speech. The motors in the motorized wheel chair allow for propulsion, while speech recognition allows the chair to be controlled. The component breakdown of this system includes an Arduino, an HM2007 Voice recognition module, and Motors. The speech recognition module is able to identify the instruction that was given by the user and then gives the Arduino Microcontroller with the matching coded data that was stored in memory. The movement is controlled by an Arduino Microcontroller in accordance with the situation. People who are physically impaired but still have the ability to move their hands may use the joystick that is built into the wheelchair.

[3]A. V. Nefian, L. Luhong, P. Xiaobo, X. Liu, C. Mao, and K. Murphy, "A coupled HMM for audio-visual speech

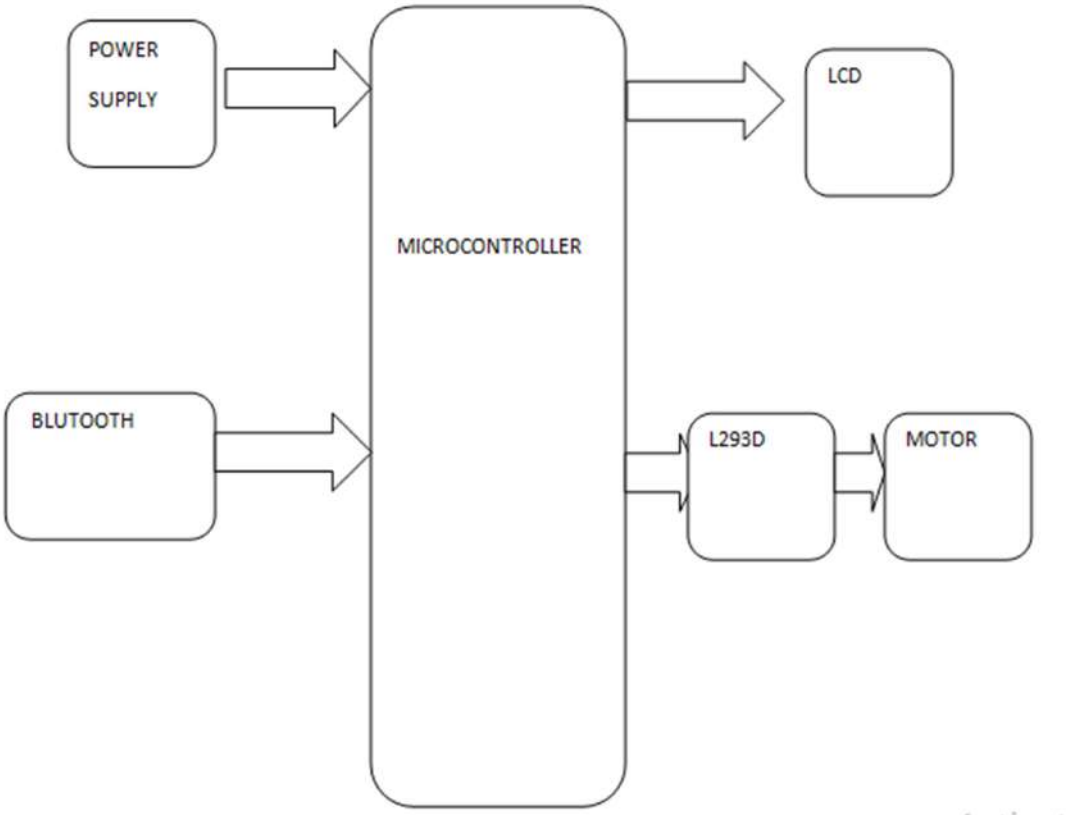
In recent years, various speech recognition systems that incorporate visual in addition to auditory information have shown considerable improvement in performance over the typical speech recognition systems. This improvement was shown across a number of different speech recognition systems. The inclusion of visual features is justified due to the bimodal nature of the speech synthesis process, as well as the need for characteristics that are not affected by the perturbations caused by acoustic noise. A new audio-visual fusion strategy that employs a linked hidden Markov model (HMM) is introduced in this study as part of an audio-visual speech recognition system that is discussed in the paper. We are able to describe the state asynchrony of the auditory and visual observation sequences with the help of the statistical features of the coupled-HMM, while at the same time maintaining the sequences' natural connection over the course of time. The findings of the experiments reveal that when it comes to audio visual speech recognition, the linked HMM performs better than the multistream HMM.

Automatic speech recognition for scientific

[4]**H. Thomas, E. H. Asmaa, N. W. Stuart, and W. Vincent Automatic speech recognition for scientific purposes – webASR**

We present 'webASR', an online interface to our state-of-the-art automatic speech recognition (ASR) systems. It aims to pro-vide the wider scientific research community with an interface to speech transcription for domains and applications where the generation of such transcripts was not previously feasible. The webASR interface allows the upload of audio files and, in turn,the download of automatically generated ASR transcripts. De-pending upon the specification given for an audio file, the sys-tem will transcribe using an appropriate speech recogniser chosen from one of the many available, such as a NIST RT evaluation system. The transcripts will be available for download after processing.

3. BLOCK DIAGRAM



4. ARDUINO SOFTWARE

Arduino IDE (Integrated Development Environment) is required to program the Arduino Uno board. Download it here.

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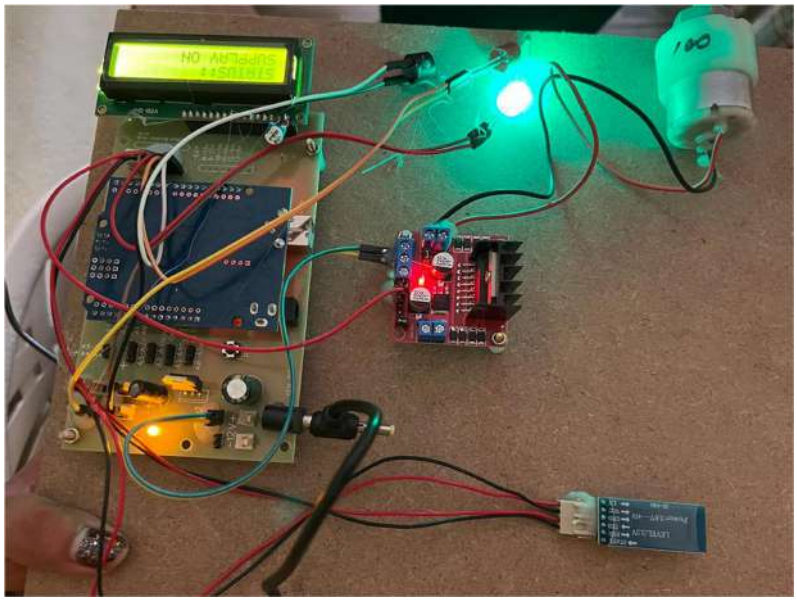
PROGRAMMING ARDUINO

After the Arduino Software Development Environment has been loaded on the computer, connect the board to the computer via the use of a USB cable. Now, launch the Arduino Integrated Development Environment (IDE), choose the appropriate board by going to Tools > Boards > Arduino / Arduino Uno, and then pick the appropriate port by going to Tools > Port. The Arduino programming language, which is based on Wiring, is used to write code for the Arduino Uno. Load the example code by choosing Files > Examples > Basics > Blink from the menu to get things going with the Arduino Uno board. This will cause the built-in LED to flash. Click the "upload" button that is located on the top bar after the sample code that is also displayed below has been loaded into your integrated development environment (IDE). After the upload has been successfully completed, the built-in LED on the Arduino should begin flashing. The following is an example of how to code blinking:

5. IMPLEMENTATION

In this project, Arduino is used for processing the command and incorporated components such as a speech recognition module in addition to a motor driver and an LCD display. The project also uses Arduino to show information. After the electricity was turned on, the LCD was initialized by the Arduino, and it then turned off the motor. The user issues a vocal command, and the speech recognition module listens for it and then processes it. The Voice recognition module listens for commands spoken aloud, processes those commands, and then sends them on to the Arduino. It does this by first analyzing the analogue signal, then comparing it with data that has been saved in the external RAM. After receiving the order from the speech recognition device, the Arduino will next determine whether the elevator should travel in the upward or downward direction. The motion of the elevator is achieved by the use of a motor. Based on the instruction, the Arduino determines which elevator is nearest to the user's position and then moves the elevator in accordance with this determination. The LCD display will tell you where you are on the floor.

6. RESULT



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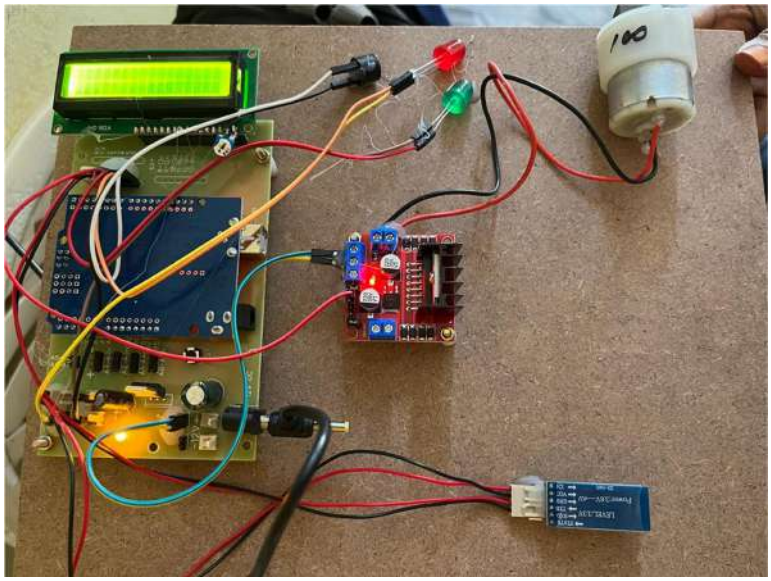

Working of Project Model

7. CONCLUSION

Through the use of a simulated elevator ride, this study elucidates how voice control may one day prove to be an asset in the performance of routine tasks in our daily lives. The study that has been suggested demonstrates that it would be possible to construct an elevator system that is controlled by speech. In the event that the user has to make an emergency call, it also comes equipped with a voice feedback system that assists them in determining whether or not the number they dialed is accurate. In the future, the scale of the experiment may be expanded in order to turn this model into a real-time system. The accuracy of recognition may also be increased by making the speech recognition system reliant on the speaker and by including the factor of resilience to noise.

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