

Using Speech Recognition Create Smart Elevator Controlling

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Abstract - The study of the model controlled by voice and sensor control board. The model is built by utilizing normal fueled controller; it has voice acknowledgment, programmable terminal and coherent elevator program, which interface every one of them. The model can be effectively reconstructed keeping in mind the end goal to have different working administrations and consequently is suitable for preparing understudies with the expansive computerization specialization. Displayed framework could be utilized as a part of the elegant house ventures and, particularly for disabled people. The change of the surely understood DTW (Dynamic Time Warping) calculation was utilized. The arrangement of voice charges comprised of eight Lithuanian words (floor number, go, stop) and two expressions (welcoming and farewell).

In this project we implement speech recognition system and we hardware like Micro controller, stepper motor and regulator power supply. The speech recognition system is main part of this project. Speech recognition system provides the communication mechanism between the user and the microcontroller based control mechanism of elevator.

Key Words: Controller, driver, voice command, speech recognition

1. INTRODUCTION

Elevator is turned into the fundamental piece of our everyday life. Elevator is turned into a vehicle gadget that is exceptionally regular to us now days. We utilize it consistently to move products or people groups vertically in a high building, for example, mall, working office, inn and numerous more things. Elevator is an exceptionally helpful gadget that moves individuals in the briefest time to desire floor. Elevator is the imperative piece of everybody's life living in huge structures, and also it is the essential thing in huge structures or any huge development having number of floors to move starting with one story then onto the next. In present situation it is getting to be important thing for the shopping centres, shopping markets, schools, healing facilities, inns. So we are attempting to make it more programmed through our task. Speech recognition model is the technique by which the elevator can be controlled and by Speech acknowledgment model we will inspire information to controlling the elevator. At whatever point we are managing voice control, the primary term come in our

awareness is Speech Recognition i.e. framework ought to know or comprehend human voice as information to the discourse acknowledgment model. Discourse acknowledgment is an innovation in which the framework will comprehend the words however not its importance of the words given by the speech of any individual to discourse acknowledgment module. Speech is a best and perfect strategy to controlling the elevator. In this task we are likewise going to offer sign to the security in crisis circumstance. In emergency circumstance implies if there should be an occurrence of elevator disappointment. It might be the issue in light of force disappointment or might more reasons of force disappointment. In crisis condition it will demonstrate to the security individual and that time ringer will ringing on. To design and build a voice operated elevator control system. This system acts as human-machine communication system. The spoken words to take the necessary actions accordingly Speech recognition are the process of recognizing. User can also control the electrical devices like fan, door etc with the help of voice recognition system. For loss of motion, short stature individuals and physically tested persons this gadget is exceptionally useful. The discourse acknowledgment framework gives the correspondence instrument between the client and the microcontroller based elevator control component. This task makes utilization of a stepper engine for moving the elevator in view of the voice/discourse summons given by the client and voice acknowledgment chip is utilized for acknowledgment of the voice orders. With the assistance of inserted C guidelines microcontroller is customized. The microcontroller is equipped for speaking with all data and yield modules. The voice acknowledgment framework which is the info module to the microcontroller takes the voice directions given by the client as information and the controller judges whether the guideline is to elevator upwards or to the downwards, and as indicated by the clients voice the exchanging component controls the elevator. The similar voice based commands also used to turn on/off the fan inside the elevator. Also, LCD display is available for visual information of operations being performed. Speech is one of the most important medium by which a communication can take place. With the invention and widespread use of mobiles, telephones, data storage devices etc. has provided a major help in setting up of speech communication and its analyzing.

2 RELATED WORK

In this paper P.Cernys, V.Kubilius describes the analysis of the elevator model controlled by voice and sensor control panel. The model is constructed by using average powered controller; it has voice recognition, programmable terminal and logical elevator program, which connect them all. The modification of the well-known DTW (Dynamic Time Warping) algorithm was used [1].

Li Deng explained automatic Speech Recognition (ASR) has historically been a driving force behind many machine learning (ML) techniques, including the ubiquitously used hidden Markov model, discriminative learning, structured sequence learning, Bayesian learning, and adaptive learning. This overview article provides readers with an overview of modern ML techniques as utilized in the current and as relevant to future ASR research and systems. These learning paradigms were motivated and discussed in the context of ASR technology and applications [2].

This paper Richard V. Cox said brief overviews of these technologies, discusses some of the unique properties of wireless, plain old telephone service, and Internet protocol networks that make voice communication and control problematic, and describes the types of voice services available in the past and today, and those that they fore see becoming available over the next several years [3].

This paper Roger K. Moore described these issues and presents a novel architecture for speech-based human-machine interaction inspired by recent findings in the neurobiology of living systems. Called PRESENCE—“Predictive sensor motor Control and Emulation” this new architecture blurs the distinction between the core components of a traditional spoken language dialogue system and instead focuses on were cursive hierarchical feedback control structure [4].

3. Proposed Work

The speech recognition system is main part of this project speech recognition system provides the communication mechanism between the user and the microcontroller based control mechanism of elevator. This project makes use of a stepper motor for moving the elevator based on the voice/speech commands given by the user and voice recognition chip is used for recognition of the voice commands which will given by the user. Microcontroller is programmed, with the help of embedded C programming. The microcontroller is capable of communicating with all

input and output modules of elevator. 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 elevator upwards or to the downwards , and according to the users voice the switching mechanism controls the elevator. The similar voice based commands also used to turn on/off the fan inside the elevator. Also, LCD display is available for visual information of operations being performed for the person in the elevator and the same indication given to the person on LCD display who will be present in the security cabin.

4. Block Diagram

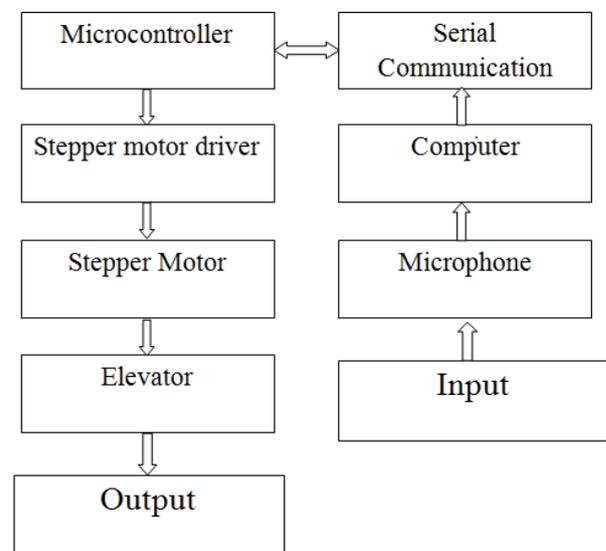


Fig 1 Block Diagram

After power on microcontroller initialised the LCD, serial communication for 9600 baud, switch off the stepper motor. When it receives the command from the PC it moves the left to desired floor. It uses a stepper motor drive for this. A 1 Kg-cm stepper motor is used for the motion of the elevator. A MATLAB 7.0 Software used to accept voice command through microphone. MATLAB receives command from microcontroller and after processing it sends it to the serial port. The microcontroller accepts the commands and moves the elevator.

This is AT89S52 is a low-power, high-performance CMOS 8-bit microcontroller with 4 Kbytes of flash programmable and Erasable Read only Memory .The device is manufactured using Atmel’s high density non volatile memory technology and is compatible with the industry standard MCS-510instruction set and pin out. The on chip flash allows the program memory to be reprogrammed in-system or be a

conventional non-volatile memory programmer. By combining a versatile 8-bit CPU with flash on monolithic chip Product parameters: Driver chips: L298N dual H-bridge stepper motor driver chip, Driven part of the terminal supply area Vs: +5 V to +35 V; take power if required board, the supply area Vs: of +7 V ~ +35 V, Driven part of the peak current Io: 2A, The logical part of the terminal supply area Vss: +5 V to +7 V (can board to take power +5 V), Logical part of the operating current range: 0 ~ 36mA. A Stepper Motor or a step motor is a brushless, synchronous motor which divides a full rotation into a number of steps. Unlike a brushless DC motor which rotates continuously when a fixed DC voltage is applied to it, a step motor rotates in discrete step angles. The CP2102 is a highly-integrated USB-to-UART Bridge Controller providing a simple solution for updating RS-232 designs to USB using a minimum of components and PCB space. The CP2102 includes a USB 2.0 full speed function controller, USB transceiver, oscillator, EEPROM or EPROM, and asynchronous serial data bus (UART) with full modem control signals in a compact 5 x 5 mm QFN-28 package

5. Result

The result analysis shows the wave form of different speech. This result shows according to operating stepper motor, elevator start moving up and down.

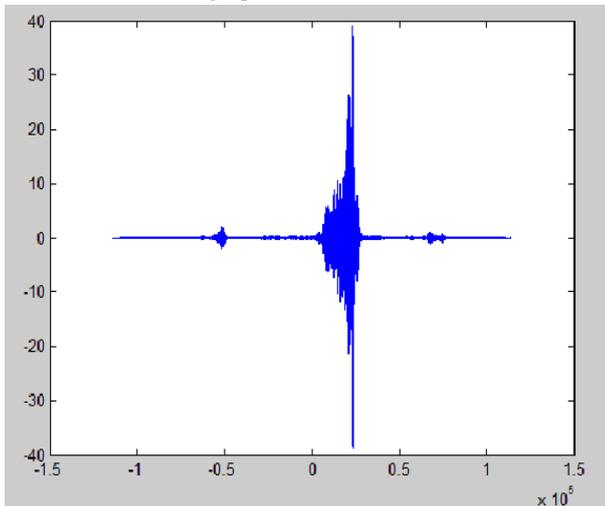


Fig 2. For one speech

CONCLUSIONS

The model of a voice-controlled elevator is widespread what's more, it empowers to acknowledge administrations of genuine working elevator by utilizing something like date means.

A voice acknowledgment project and its 'association with the controller can supply an adequate measure of charges fundamental for the elevator control. The model of a elevator is useful instrument for preparing understudies in specialization of computerization, voice signal acknowledgment and control advances as well with respect to experts' capability change in comparable specialization. Voice controlled frameworks are particularly helpful for handicapped individuals. Speaker subordinate projection based acknowledgment calculation guarantees adequately great acknowledgment precision of voice charges. It would be able to be enhanced by expanding the measure of references and by selecting acoustically diverse voice orders.

REFERENCES

[1]P.Cernys, V.Kubilius, V.Macerauskas, K.Ratkevicius, Intelligent Control of the Elevator Model, IEEE International Workshop on Intelligent Data Acquisition and Advanced Computing System: Technology and Applications 8-10 September 2013, Lviv, Ukraine.

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

[3] Richard V. Cox, Fellow IEEE, Candace A. Kamm, Senior member, IEEE, Lawrence R. Rabiner, Fellow, IEEE, Jürgen Schroeter, Senior member, IEEE, and Jay G. Wiplo, Fellow, IEEE, Speech and language processing for next-millennium communication services proceeding of the IEEE, VOL. 88, NO. 8, AUGUST 2000.

[4] 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.

[5] Punit Kumar Sharma, Dr. B.R. Lakshminantha and K. Shanmukha Sundar, Real Time Control of DC Motor Drive using Speech Recognition 978-1-4244-7882-8/11/\$26.00 ©2011 IEEE.

[6] D. Kornack and P. Rakic, "Cell Proliferation without Neurogenesis in Adult Primate Neocortex," Science, vol. 294, Dec. 2001, pp. 2127-2130, doi:10.1126/science.1065467.

[7] M. Young, The Technical Writer's Handbook. Mill Valley, CA: University Science, 1989.