Bus Identification Device for the Blind People

Md. Abdul Khader[1], M.Naresh[2], Harshit Rao[3], Dr. Pk. Pradhan[4]
[1,2,3] *B.Tech. Student, ECE Dept., JB Institute of Engineering and Technology, Hyderabad*
[4]*Professor, ECE Dept., JB Institute of Engineering and Technology, Hyderabad*

***Abstract*— The main aim of this project is to develop a system which can help find the bus at bus stop for blind people. The purpose of the project is to provide a bus detection system for blind people by assigning different tag to different bus with the help of RFID (Radio Frequency Identification) technology. Generally, journey in a bus is a safe and comfort factor, but due to increase in number of busses and passenger its going be tougher now a days and it will be more difficult for blind people to travel in bus so with this project, we can make a system which can help blind people to find the bus at the bus stop as they cannot able to see which bus is coming on the bus stop. By providing a device which can help them to know which bus is coming on bus stop. In this project we have microcontroller, RFID reader and voice IC for voice announcement with speaker as basic blocks. Whenever the bus come to stop the RFID reader will be reading the tag (which is given to every bus for particular route) and depending upon the tag it will give voice intimation by using speaker the blind person can know the bus number.**

1. INTRODUCTION

Out the 6.7 billion people that populate the world, 161 million are visually impaired. Each visually impaired individual faces different challenges based on their specific level of vision. With the rise of various support-based organizations, more visually impaired people have been given the opportunity to education and many other means. But still the issues of navigation for the blind are very complex and troublesome especially when they walked down in street and also navigate to distant places by public transport system. For a visually impaired person, doing things such as reading traffic signals and street signs can be extremely challenging, if not it is impossible to do. In order to overcome these challenges, a visually impaired person might use waking cane, guide dog, and sighted guide. These alternatives also called as assistive devices can be helpful to the blind but not so effective. The sighted guide can be immensely effective, as well provide social comfort, but it restricts the independence of the blind individual. Guide dogs and walking canes allow for a more independent means of travelling, but they are limited in unfamiliar environments. RFID is feasible and cost effective but it is more suitable for indoor communication only. Also it provides only one way communication and a very short range of identification. A system with an augmented walking cane, a pair of augmented glasses and identifiable items tagged with semacode/data matrix tags is used for outdoor navigation of blind people.

2. LITERATURE SURVEY

Rathi et al. [1] A framework for perceiving a dynamic hand words motion of Indian signs and change of perceived signal into text and voice and vice versa. Eigenvectors and Eigen esteem method has utilized for highlight extraction. Eigenvalue worth weighted Euclidean Distance based for the most part classifier has utilized.

Hamid A. Jalab and Herman .K. Omer [2] a hand motion interface for prevailing media player misuse neural system. The anticipated standard recognizes a gathering of 4 explicit hand signals, to be specific: Play, Stop, Forward, and Reverse. Our standard is predicated on four stages, Image procurement, Hand division, alternatives extraction, and Classification.

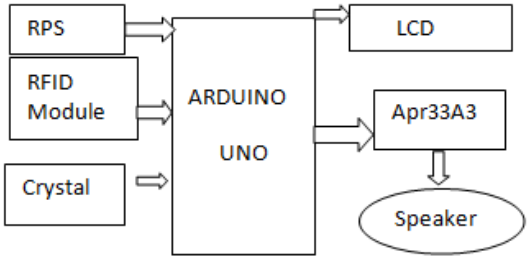
EXISTING SYSTEM

In existing system, there is no circuit is used to announce their thoughts of physically challenged peoples. In existing method is sign language, it couldn't understand all people for communication. There after a circuit is used to design predetermined postures are captured and matching the captured image with deaf & dump peoples sign language.

PROPOSED SYSTEM

In this project we have microcontroller, RFID reader and voice IC for voice announcement with speaker as basic blocks. Whenever the bus come to stop the RFID reader will be reading the tag (which is given to every bus for particular route) and depending upon the tag it will give voice intimation by using speaker the blind person can know the bus number

Block diagram



3. IMPLEMENTATION

The work of this paper start from movement of hand gloves where the sensors are attached, and the value of sensor changes when its experiences the bending. The wire sensor is another type of potentiometer are attach to the fingers when we bend the figure the value of the sensor get changes. The changing value of the sensor is depend upon the resistance and applied angle of the bending when we bend the sensor at some particular angle we can see the value of the resistance is increase and accordingly the output get reduced . On the other way we can say that its like a inversely proportional when the resistance of the sensor is increase at that instant the value of output decrease and accordingly we can make paper by getting the advantage of this process.

The Atmega328 Microcontroller is used in the arduino board and it contains on board power supply and USB port to communicate with PC. In this circuit diagram the LCD is connected in digital IO ports of 4 to 7 for displays what action is going or expressing and the wire sensors are connected to analog inputs. The sensor is fixed with glows which are wearing to disabilities of partial disabilities. The actions are pre-defined and it is already fixed in microcontroller. When the action is implemented by the people the voice play back will activate and announce the pre-recorded action sequence. We can change the action voice through voice recorder using microphone in the voice playback board. The sign language action determines the need of disabilities to express what they though and what they need or what necessary things they need. The action expression will change through microcontroller coding and we can add more expression action by increasing more sensors.

4. ARDUINO

Overview:

Arduino Uno is a microcontroller board subject to the ATmega328P (datasheet). It has 14 pushed information/yield pins (of which 6 can be utilized as PWM yields), 6 essential information sources, a 16 MHz completed resonator (CSTCE16M0V53-R0), a USB alliance, a force jack, an ICSP header, and a reset button. It contains all that ordinary to help the microcontroller; on a crucial level interface it to a PC with a USB association or force it with an AC-to-DC connector or battery to begin. You can intrude with your Uno without anguishing essentially overachieving something mistakenly, most central outcome possible you can trade the chip for two or three dollars and start once more. "Uno" suggests one in Italian and was picked to stamp the presence of Arduino Software (IDE) 1.0. The Uno board and structure 1.0 of Arduino Software (IDE) were the reference sorts of Arduino, direct made to unendingly current deliveries. The Uno board is the first in the headway of USB Arduino sheets and the reference model for the Arduino stage; for a sweeping once-over of current, past, or old sheets see the Arduino report of sheets.

5. LCD

LCD (Liquid Crystal Display) is such a level board show which utilizes fluid noteworthy stones in its major sort of development. LEDs have a gigantic and moving methodology of usage cases for clients and

connections, as they can be customarily found in telephones, TVs, PC screens, and instrument sheets.

6. APR 9600 VOICE IC

The APR9600 device offers true single-chip voice recording, non-volatile storage, and playback capability for 40 to 60 seconds. The IC is 28 pin device used to record & playback of maximum of 8 messages. The device supports both random and sequential access of multiple messages. Sample rates are user-selectable, allowing designers to customize their design for unique quality and storage time needs. The device is ideal for use in portable voice recorders, toys, and many other consumer and industrial applications.

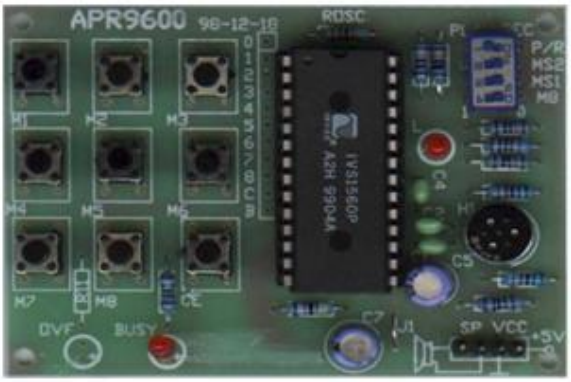


Fig: APR9600 Experimental board

7. SOFTWARE TOOLS

Arduino IDE (Integrated Development Environment)
The Arduino progress condition contains a word processor for including code, a message zone, a book maintains, a toolbar with gets for crucial cutoff regular environmental factors, and an improvement of menus. It interfaces with the Arduino contraption to move activities and talk with them.

Making Sketches

Programming made using Arduino is called follows. These depictions are written in the substance boss. Depictions are saved with the record progress .ino. It has featured for cutting/staying and for looking/dislodging content. The message a region gives input while saving and passing on what's more shows abuses. NB: Versions of the IDE before 1.0 saved draws with the expansion pde It is possible to open these records with understanding 1.0, you will be begun to save the sketch with the .ino progression on save.
The Arduino condition uses the opportunity of a sketchbook: a standard spot to store your undertakings (or depicts). The depictions in your sketchbook can be opened from the File Sketchbook menu or the Open catch on the toolbar.

Tabs, Multiple Files, and Compilation
Connects with you to figure out draws with more than one record (all of which appear in its own astounding tab). These can be typical Arduino code records (no new unexpected new development), C reports (.c speeding up), C++ records (.cpp), or header records (.h).

ADVANTAGES

- A RFID based circuit is used for speechless patient & physically challenged people.
- It is requires fewer components so its cost is low
- Small in size; due to small size we can place its hardware easily
- Light weight
- Flexible to users
- Easy to operate; anyone can operate it easily

DISADVANTAGES

- Accuracy and processing of system may be slow
- We may have some difficulty in operating with the buses

APPLICATIONS

- Useful for Physically challenged peoples
- Conveying information related operations
- Provides easy communication between the speech impaired people and the natural people
- Used for disabilities
- Handicaps

8. CONCLUSION

The project "BUS IDENTIFICATION DEVICE FOR THE BLIND PEOPLE" been successfully designed and tested. It has been developed by integrating features of all the hardware components used. Presence of every module has been reasoned out and placed carefully thus contributing to the best working of the unit. The results are obtained by testing the factors such as whether the communication quality is good, and whether the correct bus identified by the visually impaired person. This system is very useful for the blind in order to take the public bus for ensuring their safer motion from one place to other Secondly, using highly advanced IC's and with the help of growing technology the project has been successfully implemented.

Future Aspects:

This prototype to assist the Visionless people while boarding the bus has wide applications other than just helping the blind people inform their presence to the bus driver. In further stages of development this project can be used to enhance the safety and comfort of a larger section of society

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