Voice Navigation Helping Blind People

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Abstract In this project we will be making blind stick that has Ultrasonic sensor, voice module, which will help the blind people in their daily life while walking in and around the streets. As Various technology device are making it easier for blind and visually impaired people to find their way around. As the technology is advancing, the human machine interaction has become very must in our day to day life. The primary objective of the work is to permit blind to explore the outside environment with any risk. Now a days a stick is used with some feature but in our project, we are using voice module

I. INTRODUCTION

As we all know that globally 36 million people who are blind. For those people moving there and here independently is not possible. So, in this paper we have come together with an idea of voice navigation assistance for visually impaired. It refers to system that are able to assist or guide people with vision loss, from partially to totally blind by means of Sound Command. The development of navigation device is capable of guiding the blind through the blind through indoor and outdoor scenario. In this voice navigation system, it includes Arduino Uno, Ultrasonic Sensor, ISD 1820 voice recording play and back module and headphones

II. THE PROBLEM

Under problem identification the problem and difficulty faced in development of technologies like interfacing of difference sensors. The problems that we faced are as follows: Component available, Designing- of circuit, Choosing -of right component at the right place, Programming of each sensor after Placing a component in a stick in such a way so that the one who is using the stick doesn't get uncomfortable while using it.

III. IMPLETATION

The proposed work has the scope of widespread in indoor and outdoor application. It can also be used to analyze the surrounding of person without any human Intervention. The stick which we have used in this project is very easy to use by those who are visually impaired. The proposed work has the scope of widespread in indoor and outdoor application. It can also be used to analyze the surrounding of person without any human Intervention. The stick which we have used in this project is very easy to use by those who are visually impaired.
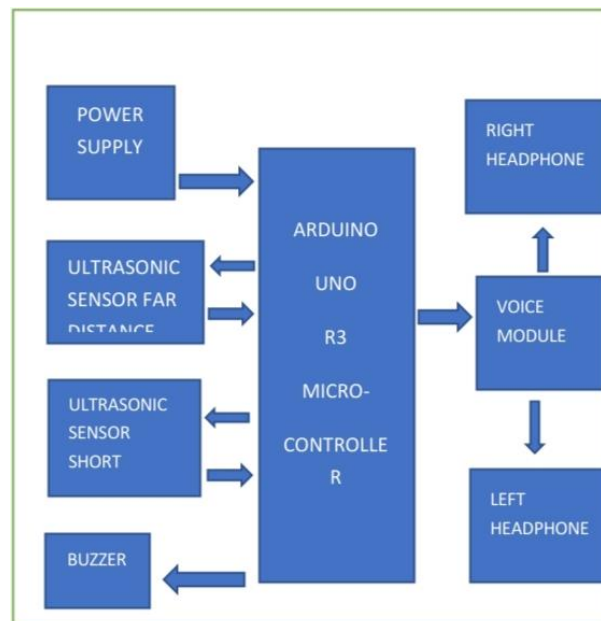
IV. BLOCK DIAGRAM

Fig.no-1

V. BLOCK DESCRIPTION:

v. 1: ARDUINO: It is a 28-pin microcontroller IC. It has 14 digital input/output pins of which 6 can be used as PWM (pulse width modulation) it is used to convert digital signal into an analogy pulse.6 analog inputs, 2 crystal pin and remaining pin for power, ground, and analog power and ground.

v. 2: ULTRASONIC SENSOR: 3 Here we connected the Trigger pin and Echo to Power supply to the ultrasonic sensor can be given from the 5v and GND of the ARDIUNO UNO. There are 4 outputs in the Ultrasonic Sensor module:2 for the power supply and remaining 2 are Trigger and Echo: Trigger: As the name indicates it will trigger the transmitter of the module for certain time Intervals.
Echo pin will receive the reflected sound wave and give it to the controller (here ARDIUNO UNO R3 in this case)

v.3: VOICEMODULE: Voice recognition module is a compact easy control speaking recognition board .it is a speaker dependent module and support up to 80 voice commands. any sound could be trained as a command user need to train the module first before recognizing only voice command.

v.4 BUZZER: Buzzer is a kind of voice device that converts audio model into sound signal it is mainly used to prompt or alarm According to different design and application .it can produce music sound. electric bell and other different sounds

V .5 HEADPHONE: Enabled navigating headset provides direction and live travelling information, and paints the picture world through.
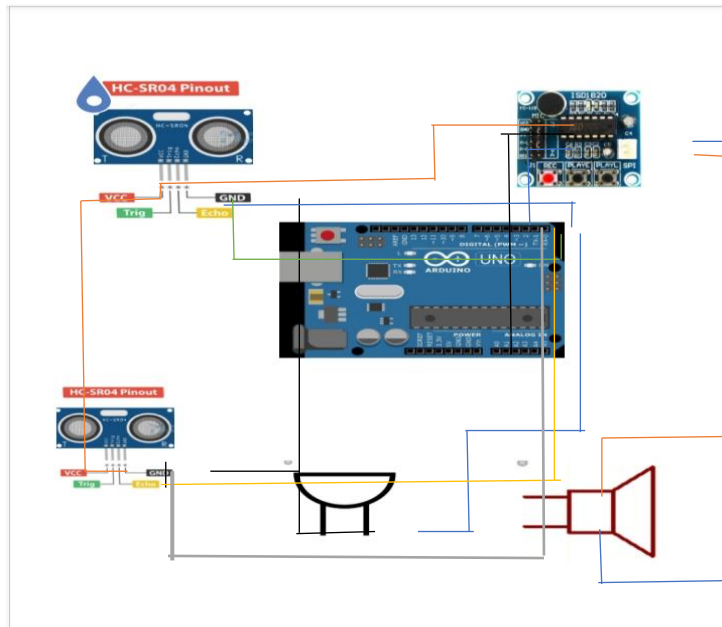
VI. CIRCUIT DIAGRAM

Fig.no-2

VII. PIN DISCRIPTION:

V11.1 ARDUINO UNO R3: Arduino UNO is a microcontroller board based on the ATmega328p. it has 14 digital pin / output pins (of which 6 can be used as PWM outputs). 6 analog. the pin 3and 4 is connected to the ultrasonic sensor which detects the obstacles near to the blind person and the pin 5and 6 is connected to the ultrasonic sensor which detects the far obstacles.

V11.2 ULTRASONIC SENSOR 1: Ultrasonic sensor the pin trig and echo are connected to the pin no 3and 4 respectively. Vcc is connected to the Arduino Uno and the ground also. This sensor detects the near distance obstacles so and the buzzer also buzz.

V11.3 ULTRASONIC SENSOR 2: The hc-sr04 ultrasonic distance sensor its trig and echo pin are connected to the pin no 5and 6 of the Arduino Uno. The Vcc and the ground are to connected to the 5volt Vcc of the Arduino.

V11.4 VOICE MODULE: ISD1820 is a small voice recorder and play back module that can do the multi-segment recording. the user an archiver high quality of recording (for 8 to 20 secs). Vcc of the voice module is connected to the Vcc of the Arduino board as the ground. The PE pin of ISD1820 is connected to the pin no 7 of the Arduino Uno.

BREADBOARD MODLE

Fig.no-3

VIII.   CONCLUSION

This is my idea of doing something to blind people. If you have any suggestions or idea make a comment, it could be a great impact to the life of the blind people. The people who don't have the raspberry pi can try these with their computer and Arduino or simply with the computer just by executing the software simulator which will produce the voice for the press of the key. I have designed so that you can visualize the output of this.

IX. FUTURE SCOPE

Easily detect and control. overall the project has been a success with the entire project requirement. The future scope for this project is to improve the capabilities by this system by incorporating landmark as saved destination. We would like find a more accurate cost-effective ultrasonic sensor. We would also like develop an algorithm for position and velocity so that other methods of navigation such as dead reckoning can be implemented accurately.

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