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Smart Stick for Blind People Using Arduino

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Abstract *–The project describes ultrasonic blind walking stick with the use of Arduino UNO. According to World Health Organization (WHO), 30 million people are permanently blind and 2.85 million people with low vision. If you notice them, you can very well know about them. They have to face more struggles in their daily life. Using this blind stick, a person can walk more confidently. This stick detects the object in front of the person and gives response to the user by signal to the buzzer so, the person can walk without any fear. This device will be best solution to overcome their difficulties in this project we have used Arduino UNO, ultrasonic sensor which detects the obstacles, to help the blind people to find obstacle free path. When the object is detected near to the blinds' stick it alerts them with the help of buzzer. For the improvement and safety of the blind people, a variety of electronic tools and different technologies have been used.*

Keywords- ultrasonic sensor, arduino uno, battery, buzzer

INTRODUCTION

Blind peoples have many problem in their daily life, such as finding their way on the streets. On the streets, there are so many vehicles and obstacles that may cause injury to them. So we understand their problem and developed a Smart blind stick that scans the obstacles in front of it with the help of an ultrasonic sensor**.** Blindness is very common disability among the peoplesthought the world. According to WHO 285 million people visually impaired worldwide **[1].**The main problem of blind people is how to find their way as they want to go outside. Such peoples have need to depend on another who has good eyesight [2].Nowadays many techniques has been develop to improve the mobility of blind people that are depend on sensor technology[3].

LITERATURE REVIEW

M Narendran, SarmisthaPadhi, Aashita Tiwari, "the third eye for the blind using Arduino and ultrasonic sensor". Department of Computer Science & Engineering, SRM Institute of Science & Technology Ramapuram, Chennai, Tamil Nadu, India ,National Journal of Multidisciplinary Research and Development ISSN: 2455-9040 Volume 3; Issue 1; January 2018; Page No. 752-756. This was a wearable technology for the blinds. One of the main feature of this device is thatit will

Dada Emmanuel, Gbenga, Arhyel, Ibrahim Shani, Adebimpe Lateef, Adekunle. "Smart walking stick for visually impaired people using ultrasonic sensor and Arduino" be affordable. The Arduino Pro Mini 328-15/16 MHz board is worn like a device. This was equipped with ultrasonic sensors, consisting of module. Using the sensor, visually impaired can detect the objects around them and can travel easily. When the sensor detects any object it will notify the user by beep or vibration. Arduino, wearable band, buzzer, blind, people, ultrasonic.

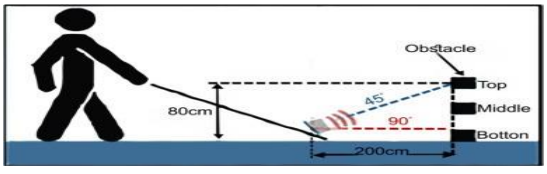
Smart walking stick - An electronic approach to assist visually disabled persons by Mohammad Hazzaz Mahmud, RanaSaha, and Sayemul Islam in this paper are the sensor based circuitry consisting of sensors
,Ultrasonic Sensor is used to detect obstacles

METHODOLOGY

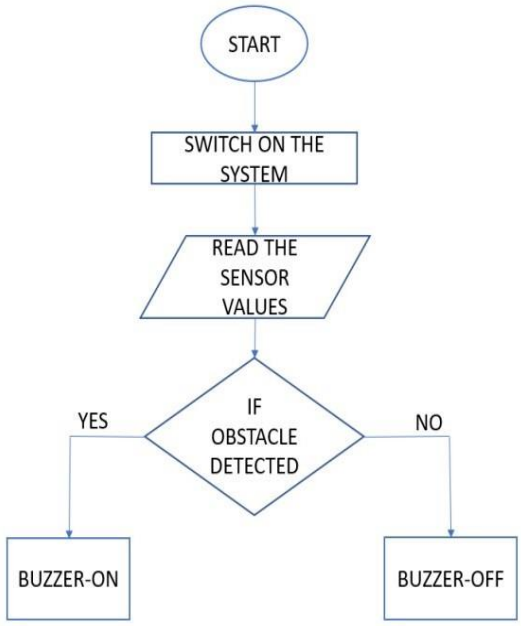
The working on this blind stick is that it is used for special purpose as a sensing device for the blind people. The circuit provides power supply for the circuit and maintains its output of the power supply at constant level. It is used widely to detect objects using ultrasonic sensor. If any object is present, the ultrasonic sensor detects the object by measuring the distance between the object and the user and sends the data to the Arduino Nano.

WORKING PRINCIPLE

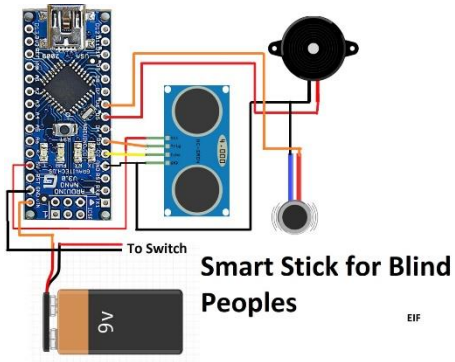
The system is useful for blind peoples to realize carefree navigation in surrounding. This device is simple and easy to use. This device is helps to detect the obstacles infront of them. It gives response by buzzer. We use ultrasonic sensors for detecting obstacles. Ultrasonic sensor use single transducer to send the pulse and toreceive the echo.



BLOCK DIAGRAM

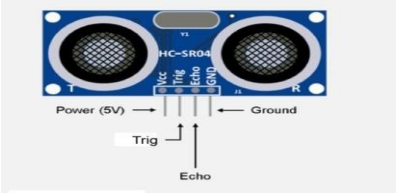


CIRCUIT DIAGRAM



COMPONENTS REQUIRED

Ultrasonic Sensor: It is used to measure distance ordetect the object using ultrasonic wave.



Arduino Nano: It is open source electronic platform based on easy to use hardware and software it's intendedfor anyone making interactive projects.

Buzzer: It is an audio signaling device, which may be mechanical or electromechanical. It is also called as Beeper.

Jumper Wires: It is an electric wire that connects remote electric circuit used for printed circuit boards.

Batteries: It is used as power source or in other words we can say that a backup source.

USB Cable: It is short for Universal Serial Bus. Also, is a common type of cable used to connect electronic components to computers or other digital devices.

CONCLUSION

Our project developed a helpful tool, the smart stick, to aid blind individuals in navigating their surroundings safely. Using Arduino technology, our smart stick detects obstacles and provides feedback to the user through alerts. The Blind Walking Stick has been finally made into prototype which can be used to guide the blind. Its aims to solve the problems faced by the blind people in their daily life. The system also takes the measure to ensure their safety. Smart blind Stick will operate to help all the blind people in the world to make them easier to walk everywhere they want. It was done to help the blind to move in front very well. It is used to help the people with disabilities that are blind to facilitate the movement and increase safety.

REFERENCES

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[2] *Dada Emmanuel, Gbenga, Arhyel, Ibrahim Shani , Adebimpe Lateef, Adekunle . "Smart walking stick for visually impaired people using ultrasonic sensor and Arduino"be affordable. The Arduino Pro Mini 328- 15/16 MHz board is worn like a device.*

[3] *M Narendran, SarmisthaPadhi, Aashita Tiwari, "the thirdeye for the blind using Arduino and ultrasonic sensor".Department of Computer Science & Engineering, SRMInstitute of Science & Technology Ramapuram, Chennai,Tamil Nadu, India ,National Journal of MultidisciplinaryResearch and Development ISSN: 2455-9040 Volume 3; Issue 1; January 2018; Page No. 752-756.*

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