

Shoe for Blind People

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Abstract: *Eyes play important role in our day to day lives and are perhaps the most valuable gift we have. This world is visible to us because we are blessed with eyesight. But there are some people who lag this ability of visualizing these things. Due to this, they will undergo a lot of troubles o move comfortably in public places. Hence, wearable device should design for such visual impaired people. A smart shoe is wearable system design to provide directional information to visually impaired people. To provide smart and sensible navigation guidance to visually impaired people, the system has great potential especially when integrated with visual processing units.*

Keywords: Blind People

I. INTRODUCTION

Blind people need some aid to feel safe while moving. Smart Shoes comes as a proposed solution to improve the mobility of both blind and visually impaired people. Shoes solution use different technologies like ultrasonic, infrared and laser. The software concept together of the structure of the respective application has been presented in detail. This application is for assisting blind and partially sighted people for smartphone use. It is equipped with a lot of predefined voice commands many activities can be performed including making calls, sending and receiving text messages, using the “phone book” with ease, determining the user’s position, obtaining information about present time, and controlling the battery level. Full assistance for forgotten commands and charging connect or disconnect will be provided for blind peoples in this App. The Blind Shoes of the blind user will also be included in the system. The blind Shoes will be equipped with sensors and will detect the obstacle in the user’s path. It will calculate the distance of obstacle from user and convert it into footsteps. The user will be given a voice message that the obstacle is certain footstep ahead.

II. MODULE IDENTIFICATION

This shoe contains three ultrasonic sensors, one Arduino, one recordable chip and vibrator/motor. Where the ultrasonic sensor range is 3m wide if there is any obstacles/material present in 3m range sensor will provide an signal to the person in the form of vibration or audio signal.

This was designed to detect the obstacles around them and give them the tactile feedback so they can get rid of the obstacles and choose the right path to move on. The shoe battery life is 5 hours.

The shoes were use to guide the blind people, which is fitted with array of ultrasonic sensor around the sole. Arduino microcontroller keeps polling the ultrasonic sensor and provide the feedback via vibrator, This information is processed and fed to the user via one of his other working senses – here it has used the sense of touch.

They’ve used the Arduino Mega for processing. The reason of using microcontroller is because the microcontroller has the ability to store and run unique programs make it extremely versatile.

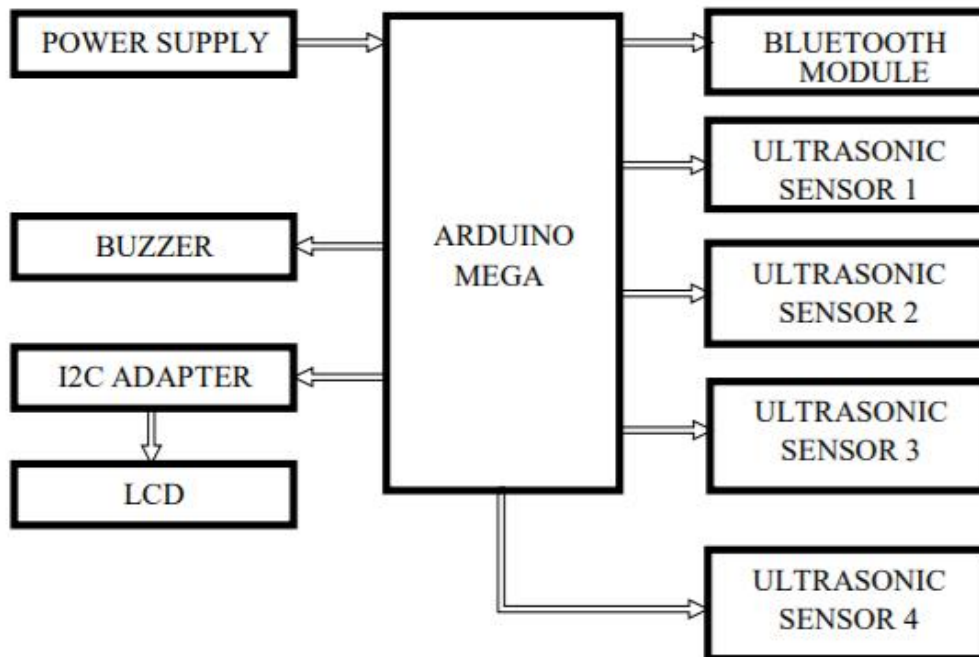
III. LITERATURER SURVEY

Reference paper [1]: S.Gangwar (2013) designed a smart Shoes for blind which can give early warning of an obstacle using Infrared (IR) sensors. After identifying the obstacles, the Shoes alerts the visually impaired people using vibration signals. However the smart Shoes focused only for obstacle detection but it is not assisting for emergency purposes needed by the blind. And also the IR sensors are not really efficient enough because it can detect only the nearest obstacle in short distance.

Reference paper [2]: S.Chew (2012) proposed the smart white cane, called Blind spot that combines GPS technology, social networking and ultra-sonic sensors to help visually impaired people to navigate public spaces. The GPS detects the location of the obstacle and alerts the blind to avoid them hitting the obstacle using ultra-sonic sensors. But GPS did not show the efficiency in tracing the location of the obstacles since ultra-sonic tells the distance of the obstacle.

Reference paper [3]: Benjamin et al (2014) had developed a smart Shoes using laser sensors to detect the obstacles and down curbs. Obstacle detection was signaled by a high pitch “BEEP” using a microphone. The design of the laser cane is very simple and intuitive. The Shoes can only detect obstacle, but cannot provide cognitive and psychological support. There exists only beep sound that triggers any obstacle and there is no any assistance to direct them

IV. ARCHITECTURE DIAGRAM



V. ADVANTAGES

1. Auto Detection.
2. Having feature to give the indicate right path.
3. Simple to use.
4. Less accidents will be accrued form the blind people.
5. This system is applicable for both the indoor and outdoor environment.
6. Automatic rerouting and alerts.
7. A reliable technology providing a voice feedback as per the surrounding.
8. The GPS tracker which will send the coordinate of the blind person position on mobile, the coordinate can be then used the track the position of google map.
9. User friendly system.
10. Navigation Assistance while travelling.

VI. DISADVANTAGES

1. Less mechanical strength.
2. In water circuit will be damaged.

VII. CONCLUSION

The main focus of this paper is the various smart shoes for blind technologies and their techniques. The smart shoes uses the most reliable source, light, to communicate data to the visually impaired. In future work will be focused on the enhancing the better performance of the system and reducing the load on the users.

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