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A Review on Design and Development of Object Detection System for Visually Impaired People

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ABSTARCT: Visual disability and visual impairment brought about by different infections has been colossally diminished, however there are many individuals who are at danger of age-related visual hindrance. Visual data is the reason for most navigational assignments, so outwardly disabled individuals are at impediment since vital data about the encompassing environment is not accessible. In this context we propose a system, named Smart Vision, whose objective is to give blind users the ability to move around in unfamiliar environment, whether indoor or outdoor, through a user friendly interface. This paper is focused mainly in the development of the computer vision module of the Smart Vision system. The android application that detect the object on the specific distance and capture the image with the help of Smartphone camera and then give the audio as the notification to the particular user.

KEYWORDS: Obstacle detection , Blind people , Camera, Voice circuit

I. INTRODUCTION

Eyes assume a key part in our life. Every one of us have seen the blind people and know the issues that they confront in their life. Keeping in mind the end goal to identification the hindrances blind people utilize stick when they are strolling however this instrument simply can offer assistance them discover protests on the ground. Obstruction discovery is a field of exertion that has prompted to tremendous advance in essential security frameworks and in primary–secondary security frameworks association. To identify snags at a medium to long separate, either static or versatile, diverse advancements have been utilized, similar to laser scanners Solutions in light of the tactile combination of lasers canner, radar and PC vision have been utilized with the motivation behind acquiring extra data for a superior translation of nature, as well with respect to relieving the insufficiencies of every sensor . In this framework there is no compelling reason to perceive all the deterrents however we simply require those that are in a particular remove from the cameras.

II. EXISTING SYSTEM

The work they present in this system is based on the use of new technologies to improve visually impair people mobility. Our research is on obstacle detection in order to reduce navigation difficulties for visually impaired people. Moving through an unknown environment becomes a real challenge when we can't rely on our own eyes. Since dynamic obstacles usually produce

noise while moving, blind people develop the ability of hearing to localize them. However they are reduced to their sense of touch when the matter is to determine where an inanimate object The common way for navigating of visionless person is using a walking stick cane or walking cane. The walking cane is a simple and mechanical device dedicated to detect static obstacles on the ground, uneven surfaces, holes via simple tactile-force feedback. This device is light, portable, but range limited and it is not usable for the protection from obstacles near to head area. Another option that provides the best travel aid for the blind is the guide dogs. Based on the symbiosis between the disabled owner and his dog, the training and the relationship to the animal are the keys to success for this method. The dog is able to detect and analyze

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complex situations: cross walks, stairs, potential danger, know paths and more . Most of the information is pass through tactile feedback by the handle fixed on the animal.

DESCRIPTION OF EXISTING SYSTEM

Ordinarily, a visually impaired individual uses stick as a guide of him to shield him from impediments. The vast majority of region of encompassing is secured by the stick, particularly the region close to his legs like stairs and so forth Yet, certain zones, for example, close to his head, particularly when he is entering or leaving the entryway which is short in tallness. This framework is uniquely intended to secure the territory close to his head. The item is intended to give full route to client into the earth. It controls the client about hindrances and in addition likewise gives data about fitting or impediment free way. We are utilizing ringer and vibrator, two yield modes to client.

Logical structure:

The logical structure of our system is shown in following figure. The can be divided into three main parts: the user control, sensor control, and the output to the user.

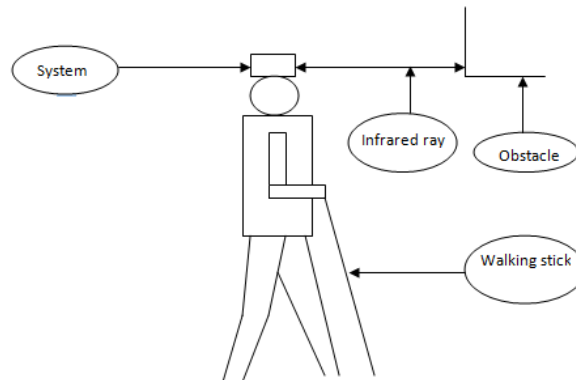


Figure . Logical Structure

The user control includes the switches that allow the user to choose project's mode of operation. There are basically two modes of operation, Buzzer mode and Vibration mode. These modes are provided to user for taking output on his portability. Sometimes, he is not comfortable in getting the output in one mode. Vibration mode always not comfortable, can irritate him. Similarly, when there is a lot of noise in environment the buzzer mode is not portable. Another switch is controlled by the user, called initializing switch. The initializing switch is pressed when the user wants to stop the system. Sensor control determines when to tell the sensor to take a measurement and receives the output from the sensor and normalizes it to control value for the sensors. Basically, we are designing a

sensor module. We are using proximity IR sensor for detection and it is mounted on a stepper motor. Stepper motor rotates continuously with an angle of 90 degree. The 90 degree angle is divided into three 30 degree portions. Two 30 degree areas are for indicating left direction or right direction obstacles, and third 30 degree area is for indication front obstacles. The main thing is our system is based on protecting the near head area because walking cane does not protect this area. Output to the user includes the indication of obstacles to user. Basically we are using two output modes, vibration mode and buzzer mode. User can select any of the two modes in accordance to his convenience. Sometimes



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vibration mode is portable for him, especially when there is a lot of noise into the environment. Buzzer mode is generally used when the environmental noise is low and sometimes vibration can create irritation to the user.

Advantages:

- Accurate detection of obstacles of left, right and front side.
- Very convenient for the users.
- Detection of ground level to head level.
- Low cost.
- Very low power consumption

III. PROPOSED SYSTEM

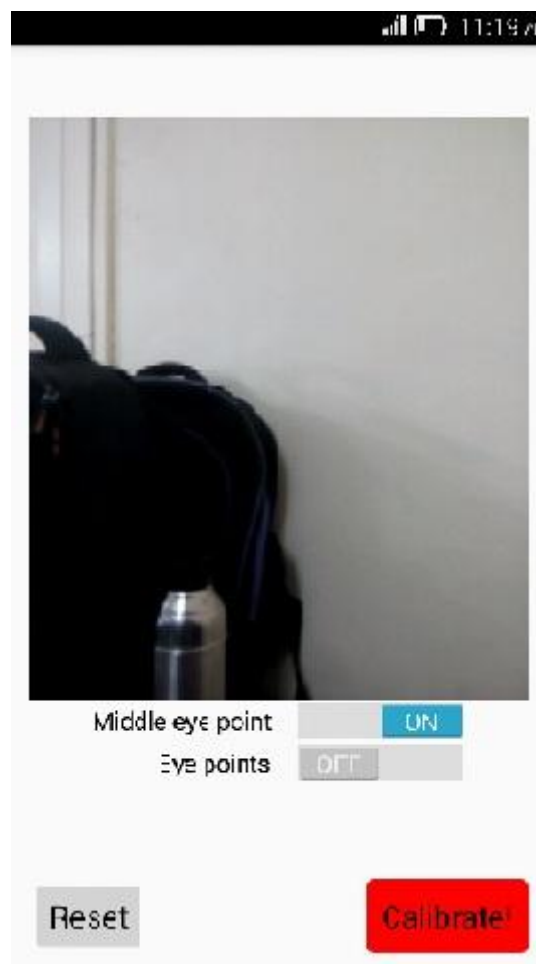


Fig. System Application



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As per our propose application blind person taking video of the path were he was walking the application will give voice message to that blind person and it will help to that person for identifying he's path .

The object gets detected by the key matching technique which are used in the algorithm. Our application have the own camera that detect the object from nearby area and then it generate the audio notification to that specific object .

MERITS AND DMERITS

- **Reliable:** - This type of technology Provides good video quality it can be easily differentiated and exact path can will be detected for visually impaired people.
- **Scalable:-** This application can be run on various operating system. object will not be stationary so it will captured the ongoing video and process all the developing steps for detection and placement of object. This feature highlights the merit.
- **Efficient cost:** The cost will be depend on the smart phones.
- **Open Source:** Android application is an open source utility command which is linux based and released under apache software. It has many versions with extending features and properties.(e.g. lolipop, jellybean, kitkat etc.)
- This application is mostly useful for blind person.

IV. CONCLUSION

Here we have successfully modeled the Object Detection. The tests will went smoothly and had no problems. This report introduced two environmentally-friendly designs for a blind people. We presented information about the Blind people application. This application will be more effective for blind people. It is important to develop this application for the future. The system is used by Blind peoples but the normal people also can use. The application that detect the object with nearby area and then give the audio notification to particular user.

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