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Blind navigation System using Hurdle Recognition

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ABSTRACT

Conventionally, visually impaired people use white cane or guide dog for travelling to desired destination. However, they could not identify their surrounding easily. In this paper we describe the development of navigation system which is applied to guide visually impaired people both indoor and outdoor environment. To provide an efficient navigation the navigation system is developed by using passive radio frequency identification (RFID) for indoor and object identification using Image Processing for outdoor environment. The navigation system is designed with voice commands which helps the visually impaired to have better experience, safer and comfortable travel. It also include a panic switch to alert the care taker if the individual is lost.

Keywords: RFID, Image Processing, Object identification, Panic switch.

1.INTRODUCTION

First understand what blindness means to a person. Blindness can mean different for different blind people because few people are blind from birth and few loose their vision due to some diseases gradually at a later stage. A person who is blind from birth can see nothing not even black because they do not know what black is. All they see is abyss becausethey have not seen anything ever to have a knowledge of what anything is. Approximately there are about 38 millions of people around the world in developing countries who are blind and visually impaired, among

them over 15 million are from India. Blind people feel they are an outcast from the rest of the society, Because of this inferior feeling blind people are takenback from societal activities and their participation in sports academics is also very limited. As a result the percentage of blind people who are unemployed is around two thirds of working-age visually impaired folks according to 2006 statistics.[2].

This project describes the event of navigation system that is applied to guide the visually impaired individuals at an interior and out of doors surroundings. to produce associate economical and easy navigation tools, a navigation device is developed by exploitation passive frequency Identification (RFID) transponders that square measure mounted on the ground like on tactile paving to make like RFID Networks .The developed navigation system is provided with a digital compass to facilitate the visually impaired individuals to steer properly at right direction particularly once turning method. This project is useful to visually impaired individuals as a result of the navigation device designed with voice commands can help them to possess a much better expertise, safer and cozy travel. Object sensors square measure enclosed during this project to find any object that is on the

means whereas navigating. the thing sleuthing unit is provided with the assistance of MATLAB for deciding the thing with the assistance of image process thought.

2. MOTIVATION

Traditionally the helpful systems offered for visually impaired were long cane, white cane, short cane, kiddie cane, guide cane, identification cane and support cane. None of those provided data concerning the obstacle till the user encountered them physically[2]. The drawbacks of those aids area unit vary of motion and really very little data sent. With the speedy advances of contemporary technology, each in hardware and software system front have brought potential to supply intelligent navigation capabilities. outside navigation is turning into a tougher task for blind and visually impaired individuals within the more and more complicated urban world. Technology for outside navigation of blind isn't sufficiently accessible, some devices believe heavily on infrastructural necessities.[4] So this comes is actuated to assist the blind individuals to navigate the setting around them and move freely while not betting on others, and to assist the blind individuals to not feel helpless on their incapacity.

3. ARCHITECTURE

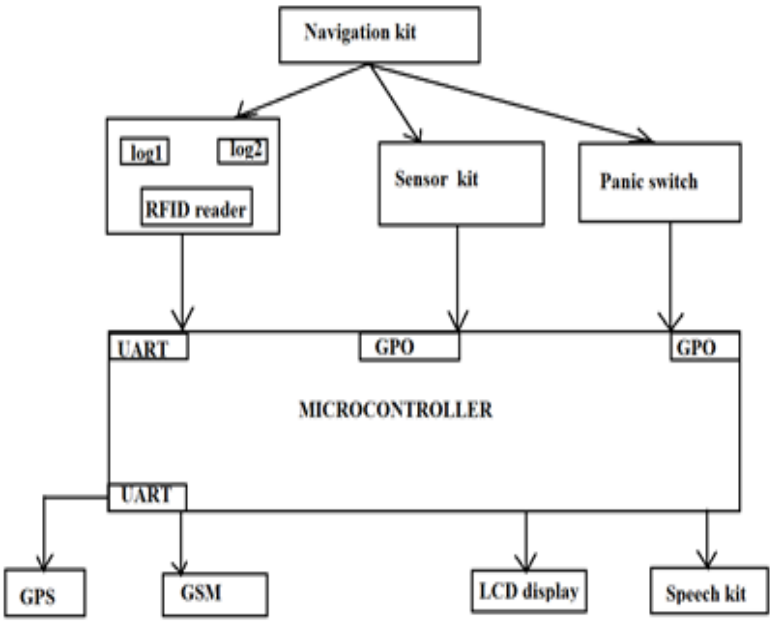

Fig.1: architecture of blind navigation

4. RESULTS

The overall intention for people with visual impairments is to allow them to experience their surroundings and turn out to be as unbiased as possible. Therefore, we are designing the blind navigation

system that is portable and capable to assist them pass the roads and avoid accidents of their outdoor tours. For that, we have studied hardware required i.e., GSM module, interfacing of keypad and liquid crystal display with LPC2148 and Matlab that's used for image processing.

5. CONCLUSION

Outdoor navigation is turning into a more durable task for the visually impaired individuals within the progressively complicated urban world. The projected system helps the visually impaired to maneuver severally and safely. It is employed in any public places because it may be a voice based mostly system, the user will give the destination simply. To produce associate degree economical and easy navigation tools, a navigation device uses passive frequency identification (RFID) transponders that are mounted on the ground like on tactile paving to create like RFID networks. The navigation system is provided with a digital compass to facilitate the visually impaired individuals to steer properly at right direction particularly once turning method. the concept of positioning and localization with the digital compass and direction guiding through voice commands is enforced during this system. Panic switch is enclosed to alert if the individual is lost. This project facilitate to visually impaired individuals as a result of the navigation device involves voice commands can help them to possess a more robust expertise, safer and cozy travel.

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