

A Survey On Assistance Glove for Visually Impaired

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Abstract: It is quite well known how important our sense of vision is on the course of our daily lives. And as for people who are visually impaired must resort to some kind of counter measures such as a cane or a walking stick to cope with their daily activities. But such solutions are not accurate let alone be perfect. In this paper there are various presentations which are sophisticated yet simple contraption which exactly meets the above-mentioned needs, which is accuracy, using an ultrasonic sensor latched up on a glove and functioning with the help of a microcontroller. Upon receiving input from the microcontroller, the vibrator and buzzer notify the person wearing the glove if an obstacle has been detected with the help of the glove.

Keywords: Indoor navigation, visually impaired, ultrasonic, glove.

1. Introduction

As of 2020 there about 7.83 billion people in the world and according to visual impairment data collected by WHO, the total number of visually impaired people are 285 million, and out of which 39 million people are blind.

Also, globally there are 1 billion individuals who have short sightedness or long sightedness that might have not been tended to. These 1 billion people include those with moderate or serious short sightedness disability or blindness due to untreated refractive mistake.

The hardest test for a visually impaired individual is to navigate around places. Clearly, daze individuals meander effectively around their home with no assistance since they know the situation of everything in the house. Individuals living with and visiting blind people must make a point not to move things around without illuminating or asking the visually impaired individual. Business spots can be made easily accessible for the blinds with material tiles. This isn't done in the majority of the spots. This makes a major issue for daze individuals who should visit the spot.

Populace development and maturing are primary reasons to build the danger that more individuals obtain vision weakness. So, it is basic to make strides on the two fronts, the counteraction and the arrangement, our exploration basically centres around giving a substantially more exact arrangement than what is been accessible to the mases, for example, a mobile stick. For a plan to work in a superior device, it is important to

understand which sensors a visually impaired individual will utilize in his day-to-day life.

The Assistance Glove which is referred in this paper performs and productively and helps the visually impaired with assistance of the vibrating sensors and buzzer in their grasp, moreover it works on solar energy making it more efficient and easier to use.

2. Block Diagram

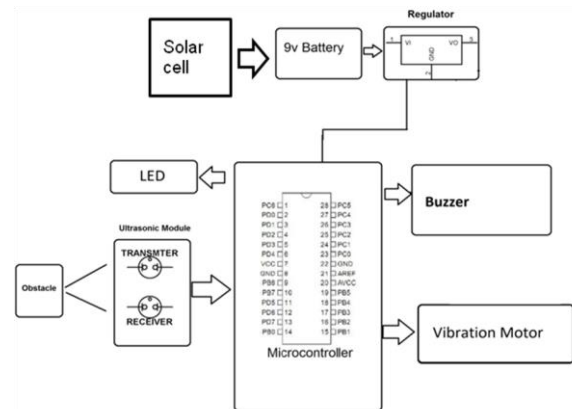


Fig. 1. Block diagram

The proposed assistance system uses Atmega microcontroller, which is a high performance RISC based microcontroller.

It has flash memory which can perform many operations such as reading while writing. It also has general purpose registers and 3 timers. The ultrasonic module here consists of a transmitter and a receiver. When the ultrasonic module detects an object, it sends signals to the microcontroller. In turn the microcontroller is programmed in such a way that upon receiving signals from the ultrasonic module it processes that information and if there is an object that has been detected then the microcontroller will send signals to turn on the vibration motors and the buzzer, both situated in the glove which notifies the person wearing the glove about the object. And depending on the distance between the glove and the object, the volume of the buzzer ringing may vary. Closer the distance, louder the

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4. Future Scope

There are many possibilities as to how this can be upgraded and integrated in the modern society, one such being the boom of 5g we can utilise the blazing fast internet speed in our favour to notify the blind of multiple obstacles as one with minimal number of sensors, it could very well act as an artificial eye notifying the person not just of the obstacles but his entire field of view as well.

5. Conclusion

The assistance Glove for the visually impaired, is intended to assist the visually impaired with conquering the absence of visual sense, by utilizing different senses like sound and contact. As the distance of the glove and obstacle reduces, both sound and vibration signals increase. Its primary objective is to aid the visually impaired people in navigating from one place to another. But the question arises on efficiency when its used outdoors as it can only detect obstacles to certain range and it is well suited for finding your way in a closely packed environment. Another hurdle is the affordability. What's more, to supplement the navigation a GUI should be actualized to have the option to recognize and learn regular ways taken by the individual. At last, a total plan of the handy glove which is deficient in all the previous referenced papers which requires vibration sensors at the individual's hand and position of ultrasonic sensor at an appropriate spot for more prominent usability. So as to overcome all of the above-mentioned flaws in an earlier attempt to aid the visually impaired in navigating this glove is an eco-friendly option which relies on solar energy.

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