SMARTWARE FOR THE BLIND

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Abstract—**Detecting and recognizing objects and human-object interactions have great importance in many application areas, such as surveillance, robotics, and health monitoring. Thus, in this paper, we use the smart glass to propose a new method for recognizing human-object interactions, which entails identifying an object, object interactions, and object users.**

I. INTRODUCTION

Smart glasses are wearable devices that have various sensors, an integrated processor and a display screen for visualization and interaction which leads to providing a view of both the physical world and virtual world (AR, VR). This extends the reach of smart glasses to sectors like medicine, gaming, corporate, sports, entertainment and many others which are focused more on engaging users.Over the past few years, many methods have been introduced for activity and object recognition with the help of image and video processing techniques.Ubiquitous sensing based on wearable sensors (i.e.,ultrasonic sensors and vibrators) provides a viable solution to the challenges faced by blind people.

II. Features

We have a smart sunglass embedded with the feature of sensing object near to the sunglass. The sunglass contains ultrasonic sound sensor which helps to sense the element.

We use a vibrator which is connected to the aurdino board which will start to vibrate and when we move close to the object the vibrators intensity is increased and it will caution the person that they are moving near to the object.

Vibration motor is a DC motor in a compact size that is used to inform the users by vibrating on receiving signals. It has no sound.

We have also included camera to detect the image which is opposite to the person and specify what is the image detected and the object which is opposite.

We have included the GPS system to specify the direction of the way the person is moving and give them instructions to move without any obstacles. It also give directions to move to places when the destination is specified.

III Hardware and Software Details

Ultrasonic sensor:

There are two main parts of the ultrasonic detector. First one is emitter that produce a 40kHz sound wave. Second one is detector that helps to detect 40kHz sound wave. This signal is then sent back to microcontroller. In this system the ultrasonic module is interfaced to the microcontroller of 8051 family. Signal is transmitted whenever an object approaches near the ultrasonic module, which then transmits a signal which is reflected by the object and thus is received by the module itself. The ultrasonic receiver sends back the signal to the microcontroller which actuates the output to take the necessary action.

Vibrator

Vibration motor is a DC motor in a compact size that is used to inform the users by vibrating on receiving signals. It has no sound.

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Battery

We use a 9V battery to power the Aurdino Uno, with the help of a snap-in connector with a DC barrel jack.

Aurdino Uno

It is a open-source hardware with single board microcontrollers and controllers. The boards are equipped with sets of digital and analog input/output pins that may be interfaced with various expansions or bread board.

Camera

The camera are just 29mm*29mm*42mm in size, and they combine this compact housing with a Gigabit Ethernet interface,power over Ethernet, USB 3.0/3.1, Coax press interface. The cameras are available in monochrome, colour and integrated with all attest CMOS sensor. They consume only 2.5watts, which result in low camera temperatures and which can be even used in small and enclosed enclosed environment.

Reference:

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Conclusion

This project can be used for security purpose for the safety of human by detecting object interference in a given range of distance. Finally, the project has been effectively instigated and the desire of the project is accomplished without any discrepancy. Since this project has many security values, the future scope for this project is high. For many applications, this can be used as the base material. It can also be technologically advanced or reformed affording to the increasing necessities and future demands.