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AI based Surrounding Detection Goggles for Visually Impaired Person

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Abstract—Technologies are evolving rapidly in the area of artificial intelligence, geotargeting, robotics automation etc. Artificial intelligences are becoming smarter day by day and we are living in a changing world. Technology has changed the way humans live, whether it's transportation communication or education we interact with technological devices everyday every moment. But there is nothing that can help permanently blind people. According to WHO report on Visual impairment 2015 39 million people are completely blind all around the globe. About 90% of the people facing complete blindness come from poor or low income family 72% of which are aged 50+. Most of the times they need help of another person to do simple tasks like picking up a glass of water. In this paper we will be discussing about Smart Detection Goggles for Visually impaired persons. Our Smart Goggles comes with an inbuilt camera with IR Sensor, Wi-Fi unit, Headphone as an Output Unit. When the camera is turned on, with the help of the AI Sensor it will start recognizing the surrounding and will send the information to the Open-Source Software installed in our phone and connected to the Wi-Fi unit. The Software then transmits the data to the headphone which is attached with the Goggles and will act as the Output Device. These Smart Goggles will be able to help the blind people for doing basic tasks so that they don't have to rely on other people.

Keywords—Artificial Intelligence; Open Source Software; Surrounding Recognition.

I. INTRODUCTION

With the Advancement of Technology, We Humans are able to work efficiently and faster. From communication to transportation , every moment we interact with the technological devices. But what about the Blind People? Most of the times they require help of another person to do the simple tasks like Picking up an object. According to WHO report on Visual impairment 2015, 39 million people are completely blind all around the globe. About 90% of the people facing complete blindness come from poor or low income family 72% of which are aged 50+. So in this Paper we are proposing a Surrounding Detection Goggles which will be very useful to these Blind People.

II. BACKGROUND OF THE INVENTION

The goggles will be working with the help of Artificial Intelligence and it can be controlled with a Smartphone. For this we would need a 3MM Spectacles (Normal Black Glasses). An Axure 135 Camera will be installed on the right hand side of the Spectacle. It will be connected to a 10W Battery Unit Attached to the Right Handle of the spectacle. On the left hand Side there will be a headphone which will be an output device. When Turned ON, The Axure camera connects with an app which is needed to be installed in the user device(Smartphone). This Camera is much more developed than the Camera present in the Smartphones. Then the app in the phone with the help of Artificial intelligence will recognize what the glass camera sees and instantly forward the information which is decoded with a Text-to-Speech Software which further transmits the data to the headphone attached with the glass. User can listen to what is in front of them. We will use an Open Source Software (Known as Magic Recognition by Airleap) for the Process.
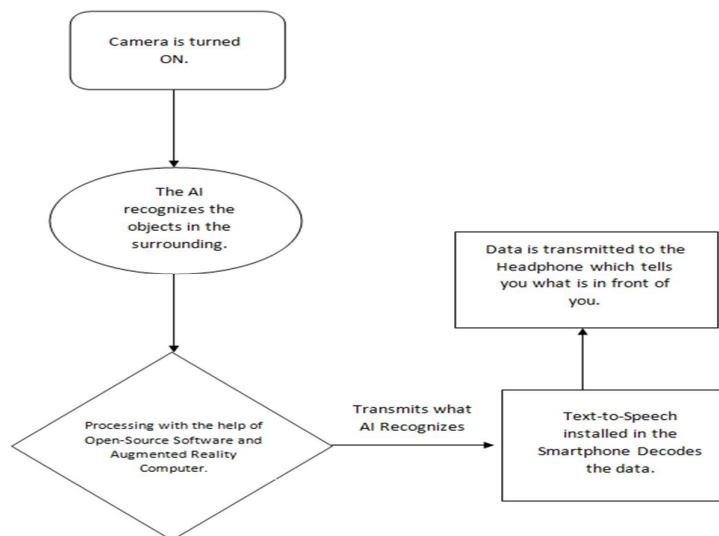
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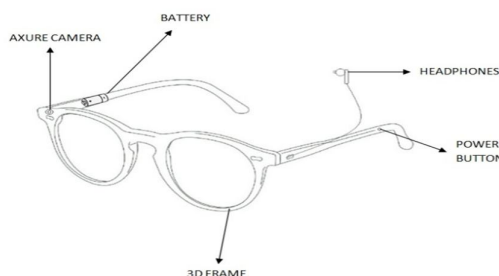
Figure 1-Flow Chart for the Process

Figure2- Structure of the Goggles

III. ADVANTAGES OF THE INVENTION

These Goggles will be very useful to the blind people. The range of this Glass will be 10 Meters (by default) but it can be changed through the app.

The cost for manufacturing is approximately ₹1500 so the budget is moderate to buy. The Camera Present in the goggles will be much more developed than the cameras present in Smart phones. The Time for Processing the whole thing will be in few seconds so the person don't have to wait for a while to do something.

IV. CONCLUSION

While making a Device like the AI BASED SURROUNDING DETECTION GOGGLES it is really important to look at the pros and cons of the device that is present right now. Only adding support of Artificial Intelligence is not sufficient, solving the problem that the people having complete blindness face everyday is really important. Currently there is no device present in the market which is solving the three major problems:

A. Navigating Around the Places

AI BASED SURROUNDING DETECTION GOGGLES main focus is in solving this pain point, to help blind people navigate without any help from anyone and without getting disturbed by the obstacles.

B. Handling Money

Taking money out of an ATM or buying something is a very tough job for person with eyesight difficulties, blind people often gets cheated while buying things, AI BASED SURROUNDING DETECTION GOGGLES can capture a count how much money is in hand by just looking at it using simple calculator program that is inbuilt in most modern smart phones.

C. Taking Medicines

It can be very dangerous for people with bad or no eyesight to deal with medicines of any kind, AI BASED SURROUNDING DETECTION GOGGLE Can read the name of the medicine by just looking at it, with internet connectivity it can also search the internet to gather more info and then share the output with user using the headphone inbuilt with the goggles.

These are some of the major problems that this device can solve the possibilities are endless and the more development there can be many more things that it will be able to do.

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