Group 12

Audio Augmented Glasses

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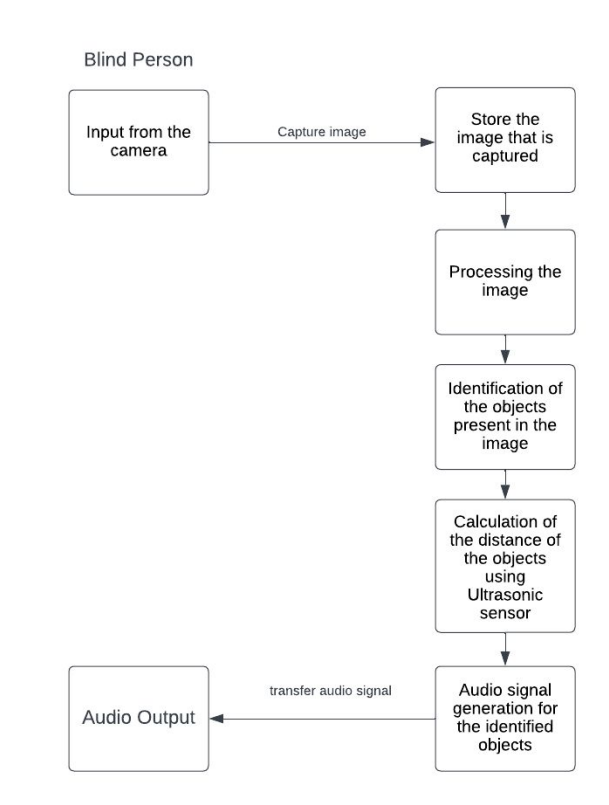
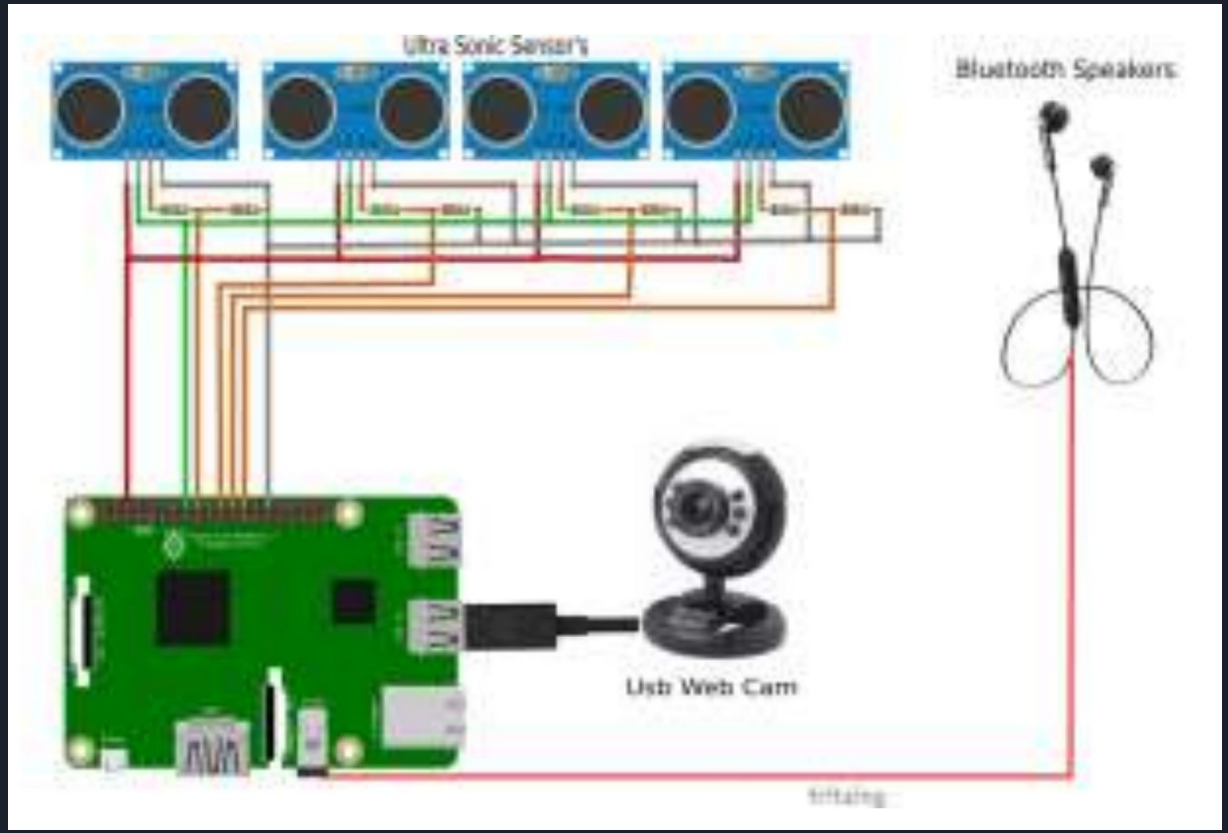
Synopsis

- The main aim is to develop the project is to help the visually impaired people and to detect the obstacles.
- Sensors identify objects it send the data to the audio module and get converted into audio clip
- Aim of to guide the blind people through the output of processor or controller to navigate them

Block Diagram



Design



Algorithm

- The web camera and the ultrasonic sensors which are connected to the Raspberry PI are activated.
- The system asks the user to tell the object needed by the user. When the user tells the object, it is processed and if the object told by the user is in the trained list in the camera's range then a frame is formed around the objects.
- The distance of the object which is asked by the user is calculated with the help of an ultrasonic distance sensor and Google API.
- The response to the object's location is given to the user.

Hardware Requirements

- Raspberry Pi 4
- Power source for the Raspberry Pi can be a power bank, in which the power input for the Raspberry Pi 4 is 5 V.
- Headphone
- Webcam
- Ultrasonic distance sensor

Software Requirements

- Python modules-Snowboy, GPIO Module
- TensorFlow Lite
- OpenCV
- COCO Object Detection Model

Final Demonstration

We will make **Audio Augmented Glasses** **which will detect and recognize the name of the object. It will also calculate the distance using ultrasonic sensor and will generate an audio file which blind person can hear.**