



J COMPONENT

ULTRASONIC GLASSES

GROUP – 3

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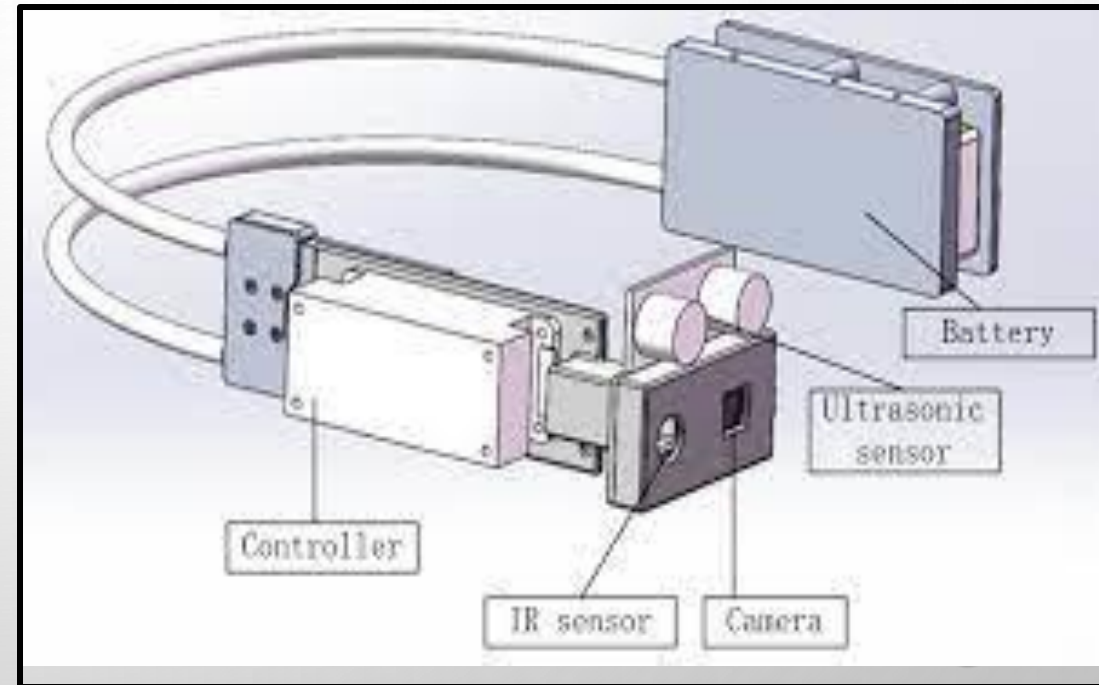
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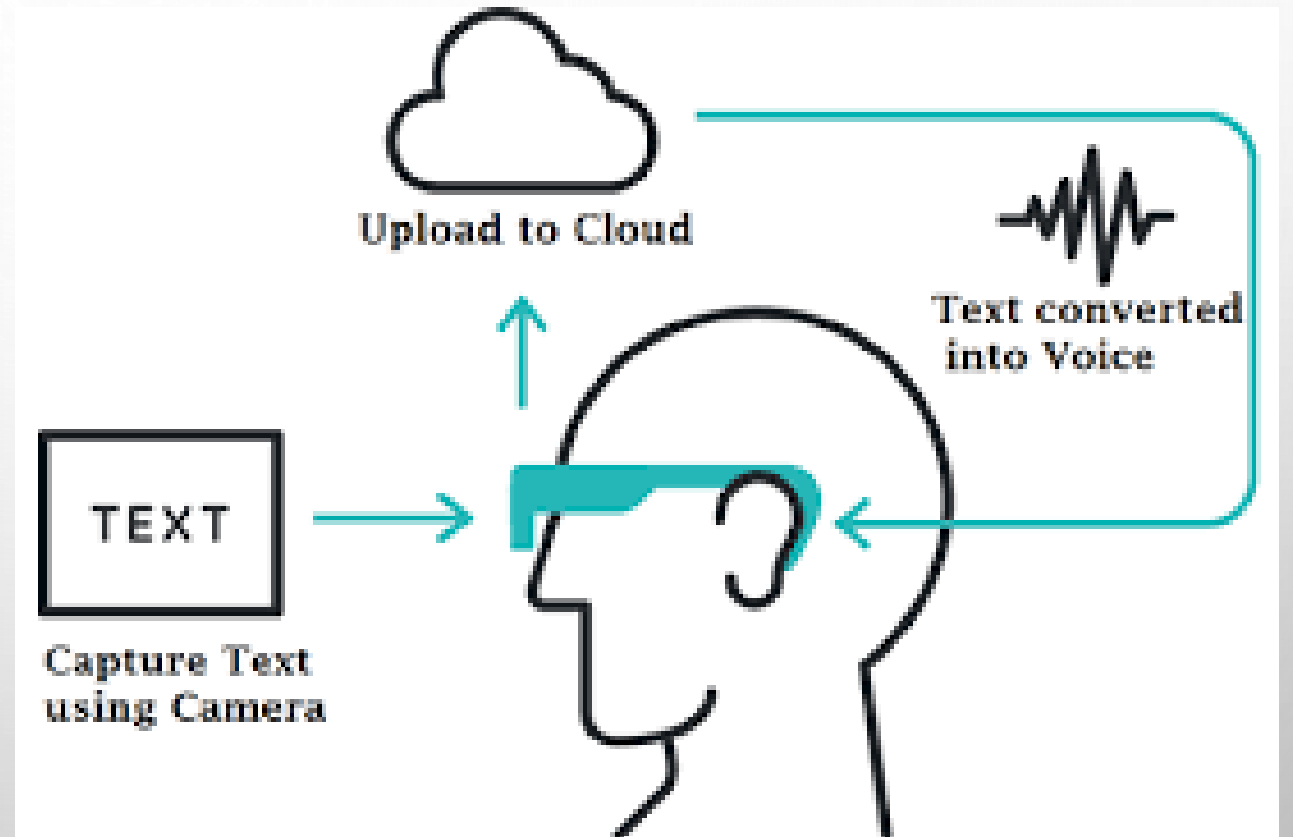
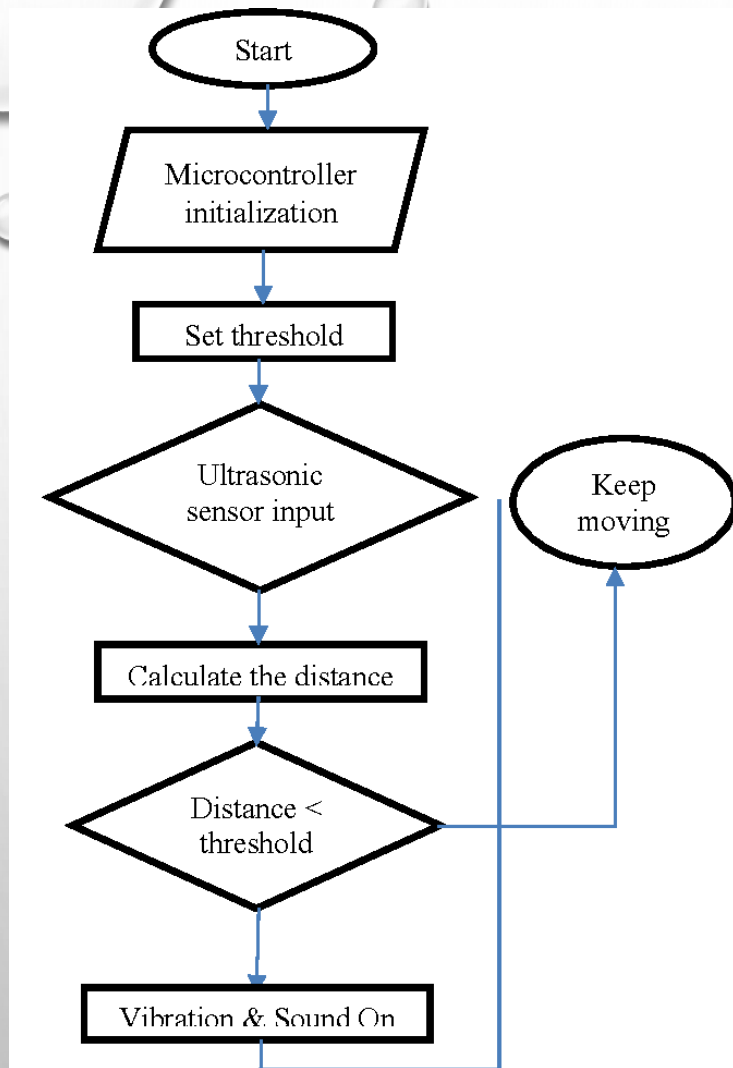
Facial Recognition Ultrasonic Glasses for the Visually impaired.

This project presents a new design of assistive smart glasses for visually impaired persons. We will be making a prototype of a smart eyeglass that helps blind and visually impaired people to detect and recognize the office tools around them, which they see through a small camera, the camera is fixed on the glasses. The proposed system includes a depth camera for acquiring the depth information of the surroundings XD, an ultrasonic rangefinder consisting of an ultrasonic sensor, an embedded CPU (Central Processing Unit) board acting as main processing module, which does such operations as depth image processing, data fusion, AR rendering, guiding sound synthesis, etc., a pair of AR glasses to display the visual enhancement information and an earphone to play the guiding sound.



Problem Statement

- People with visual impairment face various problems in their daily life as the modern assistive devices are often not meeting the consumer requirements in term of price and level of assistance. The proposed method for the blind aims at expanding possibilities to people with vision loss to achieve their full potential. The main object of the project is to design and implement a real time object recognition using blind glass. Our aim is to create an intelligent system, imitating the human eye, which transfers different scenes and images to the brain. The brain in turn analyzes the images or scenes, and based on previously stored information, the surrounding objects are identified. This project will have an in-built sensor in it which spreads ultrasonic waves in the direction the person is going and scans the persons or obstacles around them within a given range and a message is sent to the blind about the person in front of them. Our project aims to implement a real time object recognition using blind glass and solve some of major problems of blind persons that are still existing



LITERATURE REVIEW

- Voscal vision for visually impaired [The International Journal Of Issn: 2319 – 1813 Isbn: 2319 – 1805 Engineering And Science(Ijes)-01-07 | | 2013 by Shrilekha Banger , Preetam Narkhede Rajashree Parajape.] - This project is a vision substitute system designed to assist blind people for autonomous navigation.
- Microsoft COCO Common Objects in Context- A project by Tsung-Yi Lin, Michael Maire, Serge Belongie, Lubomir Bourdev, Ross Girshick, James Hays, Pietro Perona, Deva Ramanan, C. Lawrence Zitnick, Piotr Dollár which was submitted on 1 May 2014 (v1) and last revised 21 Feb 2015 (this version, v3) : They present a new dataset with the goal of advancing the stateof-the-art in object recognition
- A Japanese company (Keisuke Shimakage) designed the Oton Glass-These smart glasses are designed to help dyslexic to read. The camera will capture pictures of words that the user wants to read and reads the words for the user via the earpiece.

LITERATURE REVIEW

- ANUSHREE HARSUR IN HER STUDY SHE HAD MENTIONED ABOUT THE USE OF ULTRASONIC SENSOR TO HELP THE BLIND PEOPLE TO KNOW THE OBSTACLES BEFORE THEM.
- BHARATHI HAS DONE A RESEARCH BASED ON OBSTACLE AVOIDANCE SYSTEM IN WHICH A ULTRASONIC SENSOR IS PLACED IN CANE WHICH DETECTS THE OBSTACLE IN THE GROUND LEVEL. IN EYEGLOSS METHOD, AN ULTRASONIC SENSOR IS USED WHICH DETECTS OBSTACLE ABOVE THE HEAD UP TO CERTAIN ANGLE.
- SHARMA IN HIS STUDY HE HAD MENTIONED A LEAD OF IDEA OF SETTING THE ULTRASONIC SENSOR AT 30-DEGREE ANGLE ON A SUITABLE BLIND STICK TO SENSE IF THERE IS A HOLE OR STAIRCASE IN FRONT OF THE BLIND AT ABOUT 30 CM DISTANCE TO AVOID A PERSON FROM FALLING
- MOHAMED FEZARI IN HIS STUDY HE HAD MENTIONED ABOUT A NAVIGATION AID FOR BLIND AND VISUALLY IMPAIRED PEOPLE WHICH IS BASED ON A MICROCONTROLLER WITH SYNTHETIC SPEECH OUTPUT THAT IS PORTABLE AND GIVES INFORMATION TO THE USER ABOUT URBAN WALKING ROUTES.

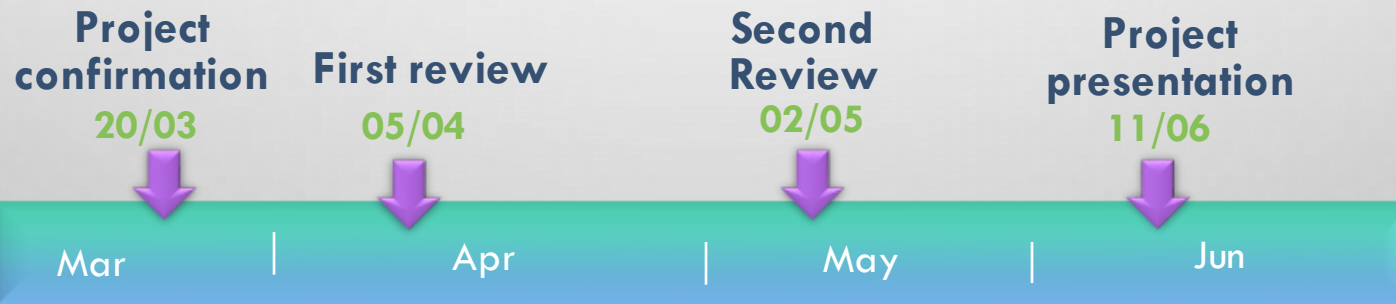
LITERATURE REVIEW

- STUDENTS OF UNIVERSITY OF MESSINA HAD DONE A RESEARCH ON ELECTROMAGNETIC SENSOR TO ASSIST THE AUTONOMOUS WALKING OF VISUALLY IMPAIRED AND BLIND. THEIR IDEA CONSISTS IN APPLYING A MICROWAVE RADAR ON THE TRADITIONAL WHITE CANE MAKING AWARE THE USER ABOUT THE PRESENCE OF AN OBSTACLE IN A WIDER AND SAFER RANGE. COMPARED TO THE ALREADY EXISTING ELECTRONIC TRAVEL AIDS DEVICES, THE PROPOSED SYSTEM EXHIBITS BETTER PERFORMANCE, NOISE TOLERANCE, AND REDUCED DIMENSIONS.
- STUDENTS OF BEIHANG UNIVERSITY HAD DONE A RESEARCH TO HELP THE BLIND PEOPLE SENSE THE OBSTACLE IN A INDOOR ENVIRONMENT THEY HAVE USED A A PAIR OF WEARABLE OPTICAL SEE-THROUGH GLASSES FOR THE EASE OF USE OF BLIND PEOPLE'S DAILY WALKS .

FUTURE SCOPES

- COULD ADD GPS IN THE GLASSES WHICH WILL TELL DIRECTIONS TO VISUALLY IMPAIRED PEOPLE.
- COULD MAKE THE GLASS COMPACT AND LIGHTWEIGHT.
- ADD WARNING MESSAGES SUCH AS HOW MUCH DISTANCE APART THE OBJECT AND VEHICLE IS COMING TOWARDS YOU FROM FORWARD.
- COULD MAKE THE GLASSES READ TEXTS AND READ IT TO ITS USER.
- THIS MAKES IT EASY FOR VISUALLY IMPAIRED STUDENTS IN THEIR STUDIES.
- COULD IMPLEMENT AN AI LIKE ALEXA WHICH GIVES ANSWER TO THE USER.

Timeline





THANK YOU.