

SYNOPSIS

SMART CAP FOR BLIND PERSON

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INTRODUCTION

According to the world health organization, 2.2 billion people globally have a vision impairment or blindness. Blindness can be two types: some are fully blind and some people are partially blind. A fully blind person needs a person who can help to provide the right direction and tell them about the object that comes in front of him/her.

This is a basic problem faced by a blind person. As per today's time, IOT(INTERNET OF THINGS ) technology helps to solve such kinds of problems.

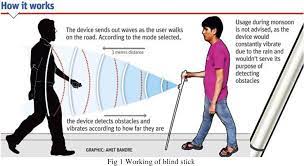
So, we made a Smart Cap which consists of a camera, ultrasonic sensors, microcontroller, speaker, GPS, etc. This cap helps blind people to know which object comes in front of him/them and the speaker tells how far an object is.

And GPS helps to send their location to their family members. For object detection, we will use the amazon image recognition API for image detection.

EXISTING SYSTEM

There are different systems are exist for blind people are:-

* Smart Cap: A Deep Learning and IoT Based Assistant for the Visually Impaired.
* Smart blind stick: It gives an alert by the buzzer if something is closer to the person.
* Blind Stick: It is a normal foldable Stick.
* Smart shoes: detect the person by ultrasonic sensor.



USE OF THE PROJECT

The Smart Cap aims to bring the world as a narrative to the visually impaired. This narrative is generated by converting the scenes in front of the person to text, which describes the important objects in the scene. This project helps a lot to blind people, having GPS technology in the cap, family members of the person can track their location which reduces the possibility of loss.

This cap gives an alert to blind people when a sudden object comes near him/her so this cap helps in multiple ways.

Ex. Suppose when a car is coming close to the person, the camera will detect the object and the system will alert the person that a car is approaching him from the particular side.

Functional Specification

In this project, we use a cap, a camera, a raspberry pie, ultrasonic sensors, a gsm module, a speaker, etc.

The camera is connected to the Raspberry Pie which detects the image and sends it to the raspberry pie for Image detection.

The ultrasonic sensor will detect the distance from the left-right and forward and send it to the raspberry pie for near object detection.

The gsm will act as a location tracker as well as provide Internet to the Raspberry Pie.

Raspberry pie will collect all data and With the help of amazon API’s the image will detection will be done which will be converted to audio speech and sent to the speaker. The person would be able to identify from where the object is coming.

Software Specification:

* Technology Implemented : Aws,IOT,Computer vision
* Language Used : embedded c,python
* Database : My Sql
* Web Browser : Chrome,Firefox

Hardware Requirements:

* Processor : intel i5
* Operating System : raspbian os,windows
* Ram : 4 gb
* Hardware Devices : computer system,raspberry pi,

Ultrasonic sensors,camera,gps

Module, cap

FUTURE SCOPE

For the physically impaired it is very difficult to survive in such situations, like while walking, so the most significant part of this project is to detect the obstacle around the user.

All about our research, we take care of one problem that is a visual disability. To make a solution we did this low-cost project. We believe that this project will spread all around society and convert the disabled to able. This is our hope, to consider this cap as a smart eye for visual impairments and also reduce the dependency on others.

This AI and IoT-based have a great scope in the future.