https://doi.org/10.46335/IJIES.2023.8.5.6 **e-ISSN: 2456-3463**
Vol. 8, No. 5, 2023, PP. 29-31

International Journal of Innovations in Engineering and Science, www.ijies.net

Smart Assistant for Blind Person

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***Received on**: 03April,2023* ***Revised on**: 28 April,2023* ***Published on**: 30April,2023*

Abstract* -*This paper represents about smart walking stick that alerts blind people over obstacle like vibration of stick and image processing part that detect object through camera and give message to blind person through Bluetooth headset.

***Keywords*-** *Node MCU, Bluetooth Headset, Camera, Ultrasonic sensor, Aurduino,buzzer.*

I- INTRODUCTION

Smart Assistant for blind people is a portable device. This device will make blind and visually impaired people's lives much easier, as it will help them in recognizing object.

There are two main parts of our project image processing and smart stick.

In image processing part we can detect the object in front of blind person through camera like car, tree, bench, table, person and it will give message to blind person through Bluetooth headset.

We use deep learning technique using tensor flow to train the model. In smart stick we use ultrasonic sensor to detect object like stone, wall after detecting object it will gives us reverse signal in the form of vibration using vibrator motor.

Table 1: Literature Review

Sr no	Author name	Research Paper Title	Abstract or Conclusion	Publish Date and year
1	XUYONG LI ,HAIYANG LIU,MINGLI ZHOU AND KEXIN ZHU	IGBS:A Wearable smart system to Assist Visually Challenged	In this study,an intelligent blind guide system.it cooperate with varios functional module to realize traffic light recognition,obstacle avoidance	21 July 2022
2	Nivedita K,Pooja B (Computer science and Engg)	Virtual Eye for Blind using IOT	In this paper present a smart stick assistive navigation system to help blind and visually impaired people with indoor and outdoor travel.	2020
3	Tomas Larrain,John Bernhard, Domingo merry	Face Recognition Using Sparse Fingerprint classification Algorithm	This paper Addres problem by proposing a New approach called SparseFingerprint classification Algorithm	June 2017

II -LITERATURE REVIEW

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METHOLOGY

Block Diagram:

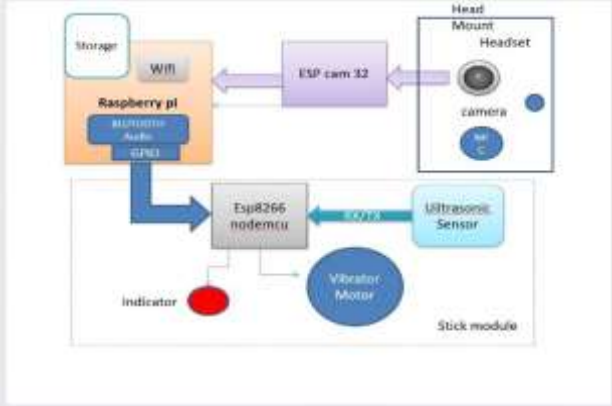

Fig 1 : Block Diagram

Algorithm

- Start
- Create dataset of surrounding image
- Capture image with web cam
- Real time image prediction with AI
- Classification of the image
- Compare capture image with dataset
- If image matched then
- Display Audio signal through Bluetooth
- If image is not matched
- Again capture next image

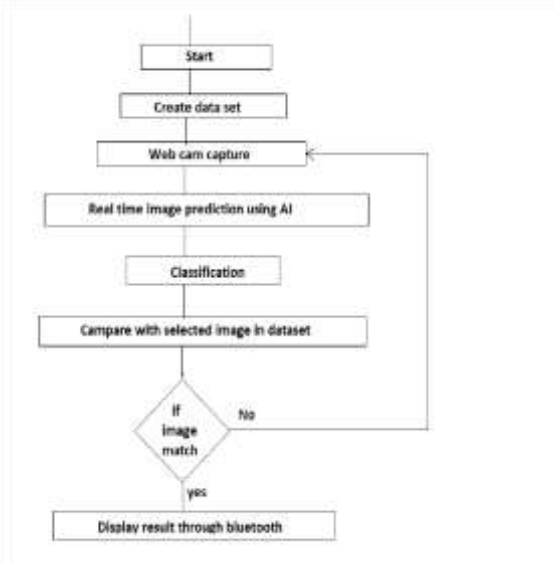

Fig 2 : Flowchart

System Flow Diagram

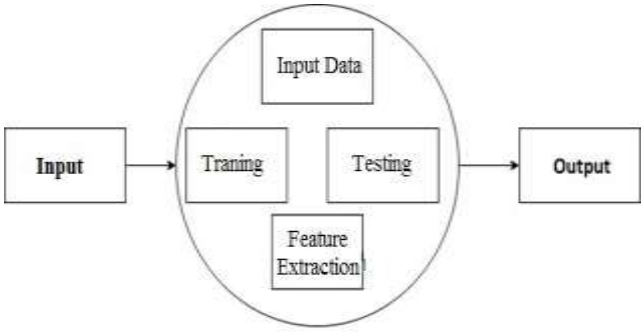

Fig 3: System Flow Diagram

Hardware detail

1.Raspberry pi 4:

Fig 4: Raspberry pi 4

We use raspberry pi 4 in our project because it has several advantages like image processing, object detection and data storage. An object detection is main part of our project

2.ESP Camera:

Fig 4: ESP Camera

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ESP 32 is small size camera module with wifi support it also have Bluetooth camera with flash 4G for data storage support of wifi image upload etc.

3.Ultrasonic Sensor:

Fig 5 :Ultrasonic Sensor

Ultrasonic sensor is basically used to detect object in specific range and give signal after detecting object.it has range upto 5m. it has two parts transmitter and receiver.

4.Bluetooth Headset:

Fig 6 : Bluetooth Headset

Bluetooth headset is wireless headphone used to received audio signal.it has built in rechargeable battery

RESULT & DISCUSSION

There are two main parts of our project image processing and smart stick.In image processing part we can detect the object in front of blind person through camera like car, tree, bench, table, person and it will give message to blind person through Bluetooth headset.

CONCLUSION

It helps to good result in detecting obstacles in the blinds person way over a specific distance .This model provides a low cost and portable, less power consumption. Another feature of our project is it is wireless model.

REFERENCES

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[2] *Niveditha k,Pooja B,Niveditha p from the department of Computer Science Engg published a device "Virtual Eye For Blind Using IOT" in 2020*

[3] *Tomas Larrain,John Bernhard, Domingo mery published a paper Face Recognition Using Sparse Fingerprint classification Algorithm in June 2017.*