

# Narrative System For Visually Impaired Using Smart Cap

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## Abstract

This paper manages the system was created and exploring the visually impaired people is trying in the new indoor condition and furthermore testing to walk staying away from the snags in the open air condition. The system utilizes best in class profound taking in strategies from Microsoft Cognitive Services for picture grouping and labeling. The ear phone was connected with speaker for proper communication. The current system was very useful real time interaction with narrative to the visually impaired. First the narrative was arranged scenes for visually impaired people from the message which speaks about the obtained scenes. 'A social event of people playing a series of football', 'yellow trunk left near the vehicle' , 'a bowl of plate of blended greens kept on table'. For the fundamental model of the framework, one line nearby some watchword are played as a sound to the customers anyway in the later structures a point by point portrayal would be incorporated as the element.

**Keywords:** Raspberry Pi, PIR Sensor, Pi Camera, Microsoft Cognitive Services, blind people.

## I. INTRODUCTION

Various distinctive wireless technologies have been created for short separations. Bluetooth is one of them. It is a sort of radio communication used to transmit voice and information at high speeds utilizing radio waves. It is a wireless connectivity for short-go radio communication between a wide range of sorts of devices, including cell phones, PCs, theater setups and different hardware. It is an open standard for remote network with supporters for the most part from the PC and PDA ventures. Bluetooth systems (ordinarily alluded to as piconets) utilize an ace/slave model to control when and where gadgets can send information. In this model, a solitary ace device can be associated with up to seven diverse slave gadgets. Any slave gadget in the piconet must be associated with a solitary ace. The ace directions correspondence all through the piconet. It can send information to any of its slaves and solicitation

information from them also. Slaves are just permitted to transmit to and get from their lord. They can't converse with different slaves in the piconet. Of course, its essential market is for information and voice move between specialized gadgets and PCs. Thusly, it is comparable in reason to the IrDA convention. Bluetooth, in any case, is a radio recurrence (RF) innovation using the unlicensed 2.5 GHz modern, logical, and clinical (ISM) band. Target applications incorporate PC and fringe organizing, concealed figuring, and information synchronization, for example, for address books and schedules. Different applications could incorporate home systems administration and home machines of things to come, for example, savvy apparatuses, warming systems, and diversion devices.

## II. LITERATURE SURVEY

Numerous scientists have added to this field. Different blends of existing advances ave been utilized. Braille systems, screen magnifiers, and so on experienced a few advancements yet later confronted specialized issues. The combination of a few sensors is one of the procedures utilized for hindrance location [1], where mix of visual sensors, sonar and inertial estimation unit are utilized to identify the nearness of a deterrent and give sound just as material criticism to client. Another framework was to actualize OCR utilizing Raspberry Pi sensor for programmed acknowledgment of the ecological messages and by usage of TTS [2].

Android telephone controlled voice motion and touch screen worked wheelchair where voice and signal is perceived through android [5]. Designers likewise made a general voice control on android which is utilized to dispatch android application by means of voice orders [10]

### III. METHODOLOGY

The below diagram is the complete model of the system is connected by variable devices and software's for to work the system properly for the visually impaired people.

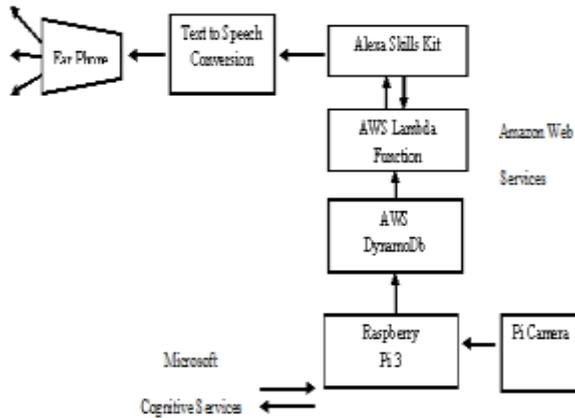


Fig 1. Assistant Navigation System

The visually impaired individual can have a system which is compact and simple to utilize. As the individual in question needs to convey the module with them for help. The segments utilized are as given with their depictions that are utilized for the set-up of the design.

**WEB CAM:** In the shrewd system the web cam is utilized to catch the continuous picture of scene around the visually impaired person, which is set on the top.

**Raspberry Pi:** The core of the framework is Raspberry Pi which is on its own a smaller than expected PC, which forms the picture caught by the Pi camera.

**Microsoft cognitive services:** Microsoft Cognitive Services are utilized for feeling and video recognition, discourse and language understanding. Raspberry Pi module which contains the picture handling code stacked at that point goes to the Microsoft Cognitive help where the picture acknowledgment process is finished.

**AWS Dynamo DB:** After acknowledgment of picture, the picture is changed over into text utilizing AWS Dynamo DB is perfectly suitable in a completely oversaw NOSQL information base help that furnishes quick and unsurprising execution with consistent versatility.

**AWS Lambda Function:** Lambda is the Server less condition offered by AWS. The code transferred can be activated with occasions from versatile applications, HTTP endpoints and different AWS administrations. Text-to-speech(TTS) stage is a measured equipment structure for TTS applications. It gives stage which is completely coordinated module that changes over a surge of computerized text into speech. The content is changed over into voice and afterward it is gotten notification from the sound jack port through bone conduction plates.

**Alexa Skill Kit:** The Alexa ability unit generate Amazon Lambda capacity to take information base Dynamo DB. The utilization of Lambda works as triggers for Amazon Dynamo DB table.

### IV. EXPERIMENTAL RESULTS

Figures show the after effects of the Assistant Navigation System. Fig. 2,3,4 shows the order windows. Figs. 5,6,7 show Image caught by Pi camera. (e) Output/recreation result. The system utilizes key innovation of Amazon web administrations, for example, Alexa Skills pack, AWS dynamo DB, AWS Lambda work and the most significant

Microsoft Cognitive Services which are called Microsoft APIs and IOT. The system comprises of webcam which are constantly catching picture and picture acknowledgment process is done on the cloud and database made in dynamo DB. This procedure is done until the force is off. When the force is off you can reset your system for utilization. Equipment module of proposed system is finished with raspberry pi board.



Fig 2. A Dynamo DB Table Script Translation of Captured Image

In this order window, the main order sudo python camera\_image.py is utilized for catching pictures and second order sudo python ms\_vision.py is utilized for acknowledgment of picture and third order celebration - tts output.txt is utilized to change over instant message to discourse yield which is heard by the visually impaired people utilizing headphone or speaker.



Fig 3.A Python Script Classification of Captured Image

Fig.4 Shows the image captured by Pi camera and the exactly description of that image is given in the Fig. Description of that image is **‘I think it is a view of a computer monitor. And the keywords are indoor, furniture, table, curtain, room’**”.

Description of that image is **‘I think it is a desktop computer monitor sitting on top of a desk. And the keywords are computer, bag, light, clock, and leaf’**. The Pi camera which is utilized in this Assistant Navigation System is retrofitted on the Cap or Eye Glasses which are helpful for the Visually Impaired People for careful right vision.



Fig 4.Image of Computer

Trying to print I think it is a desk with a laptop computer sitting on top of a table. And the keywords are indoor, computer, desk, table, laptop



Fig 5. Image of a Chair

I think it is a blue chair. And the keywords are indoor, chair, blue, table, sitting



Fig. 6. Image of a bag

I think it is a piece of luggage sitting on top of a suitcase. And the keywords are indoor, luggage, sitting, black, suitcase



Fig 7.image of ceiling light

I think it is a close up of a ceiling light. And the keywords are indoor, ceiling, room, living, blue



Fig 8.Image of clock

Trying to print I think it is a large clock mounted to the side. And the keywords are clock, large, monitor, computer, room



Fig 9.image of a Bottle

Trying to print I think it is a vase sitting on a table. And the keywords are table, indoor, pink, sitting, cup



Fig 10.image of a plant

Sample Output of Image Recognition

TABLE 1.

Image source	Image metadata	keywords	Description	Request Id
Smart cap	Height: 490 Width: 680	Computer Chair Bag Clock Bottle plant	A man standing in a room	4fe73a036197-4daa-8ad9-fb6e9b468a4

V. CONCLUSION

A basic, direct, configurable, easy to manage Assistant Navigation System is proposed to give useful partner and backing to daze and visually impaired people.. The current system can work differently and it can end up being compelling answer for many Visually Impaired People around the world. The fundamental elements of this framework are portraying the scene. The complete system can also guide the blind people very effectively with high security and accuracy.

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