

LIFE ASSISTANT FOR VISUALLY IMPAIRED PEOPLE USING AI

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ABSTRACT

The rapid development of technologies like artificial intelligence and mobile computation brings the convenient daily life to the people who has the visual problem. This paper presents a application of a voice assistant specially designed for them for convenience of their daily life. The system contains the services like safety care, accessibility of mobile phone, falling detection and daily information to make easy life for them. Natural Language Understanding, Voice Recognition have been integrated so the user can operate most of mobile phone's functions easily. The built-in falling detection algorithm based on gyroscope and object detection algorithm based on Tensorflow can inform user and at the same time it will consider the safety of users.

Keyword : - Image Processing, Natural Language Understanding, Object Detection, Voice Recognition.

1. INTRODUCTION

Blindness is the inability to see. The leading causes of chronic blindness include cataract, glaucoma, age-related macular degeneration, corneal opacities, diabetic retinopathy, trachoma, and eye conditions in children (e.g. caused by vitamin A deficiency). India has the largest blind population of the 37 million people were visually impaired across the globe among which 15 million people are from India. The World Health Organization (WHO) estimates that there are 285 million inhabitants with severe and incorrect vision issues, 39 million of which are legally blind. While medicine cannot restore the sight of all people suffering from vision loss, assistive technologies can help them with their everyday tasks and improve their quality of life. In this system user can access the services of mobile phone with their voice command. In this system, we are presenting an system launched on Android phone to provide functions for visually impaired people. It has functions including call, message, read note, object detection, map navigation etc. We are integrating those discrete function into a unified system with a voice interface provided to the blind. With our system, we hope to greatly improve their life.

2. LITRATURE SURVEY

A natural language service released by Microsoft is LUIS, which is able to extract the intent and the entities from the sentence. Rasa NLU is an open-source project provide support to the LUIS. The system is designed for Chinese language Rasa NLU need to be modified to understand the Chinese text. A system for falling detection has provide a solution for detecting the movement of people's movement. There is a risk warning service, the system can be used for blind and visually impaired persons and inform their family when abnormal event happens. [1]

The system is based on the automated smart cane (e-cane) for visually blind. The system is based on the robotics by using object detection by Ultrasonic sensors.

A high frequency sound wave is produced and the reflected sound wave is received by the ultrasonic sensor. Piezoelectric beeper gives alarm when object comes Infront of user. The system also inform the user how far and from which direction object is coming.[2]

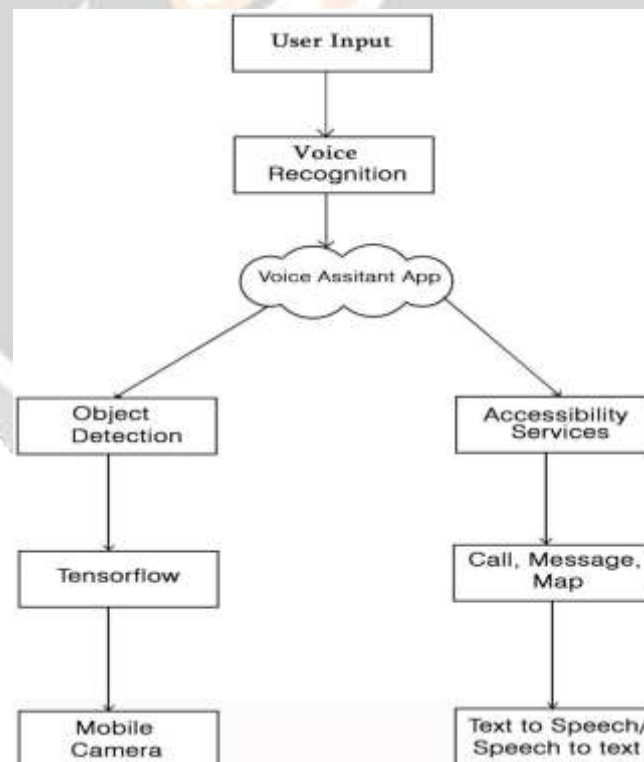
The information of location for indoor is limited. The Radio Frequency Identification tags can be effective for the indoor location information. The system is RFID based for the navigation of visually impaired people. The system work on the voice command the source can be obtained by the current location and and destination by the voice command. The system use the text to speech and speech to text for operate the application like entering destination it will use speech to text. For object detection system used the ultra sonic for avoiding the collision. The system use the Raspberry Pi. [3]

The system is implemented on the microcontroller based smart assistive for visually blind person. The system also include the haptic and audio feedback option for user selection. The smartphone can be operated using the voice commands and Bluetooth connectivity. The object detection and distance measurements, between the user performed using ultrasonic echolocation.[4]

3. PROPOSED SYSTEM

The stability of natural language understanding and voice recognition have developed so well, that blind person can also has the chance to use the smart phone so conveniently. Understanding the intention of user and exact key information in the sentences spoken, natural language understanding technology should classify the intent and it's content so as to extract the entities from the raw sentence. The object detection technology can help the visually impaired people to know about the things appears in front of their while walking direction.

4. SYSTEM ARCHITECTURE



The system get the input through the voice command. The android application is operated on the voice command the input and output through that application is voice command. The system will perform either object detection or it

will access the services like call, message, map, internet access and note using the text to speech and speech to text. The object detection will performed by the tensorflow using the mobile camera. The output of system will get to know through the voice command.

5. CONCLUSIONS

This paper will design a application of a voice assistant to provide convenience daily life service to blind and visually impaired people's. The system can help blind person using mobile information functionality easily and try to keep the security and safety of users. The dream to help blind people's walk and use the technology without anyone's help can achieved by this system. More algorithm can be tested to have better performance and the accuracy to provide the best function of sysytem.

6. REFERENCES

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