Smart Android Application for blind people based on object Detection

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Abstract: We are detecting an object using the mobile camera and giving voice instructions about the direction of an object. User must have to train the system first regarding the object information. We are then doing feature extraction to search for objects in the camera view. We are taking help of angle where object is placed to give direction about the object. An Android application that warns the smartphone user from obstacles way. The camera of the phone is enough and no special hardware, ensuring that it requires minimal effort from the user to use the application during everyday life.

Keywords : image processing, object detection, speech synthesizer, android
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I.   INTRODUCTION

The Current system in android there is not any mechanism for voice command on android events like phone Call, Message reading, Unlock System. Current users are use the Services for looking the Phones features So the Motivation is that to implement the android system for blind people who can't handle the android phone effectively. The Blind people wants to allow the android phones services like calling, reading messages using voice commands. Object detection is a wide area of development.

Detecting objects using image processing can be used in multiple industrial as well as social application. This project is proposing to use object detection for blind people and give them audio/ vocal information about it. We are detecting an object using the mobile camera and giving voice instructions about the direction of an object.User must have to   train the system first about the object information.We are then doing feature extraction to search for objects in the camera view. We are taking help of angle where object is placed to give direction about the object.

II.   SYSTEM ARCHITECTURE

- As per our propose application blind person taking video of the path were he was walking the application convert that video into the number of frames. Those frame get converted into RGB to Gray scale with the help of HSV.

- After the conversion of grey scale we are detecting the edges of object by using the Blob algorithm. Now the main object matching technique is done by the ORB algorithm with some additional changes.

- The object get detected by the key matching technique which are used in the ORB algorithm. And match those object with the database images to confirm the obstacle that comes into the way. When object is matched with database objects the application gives the voice instruction by using the Speech synthesizer. So, Blind user gets the direction from the application
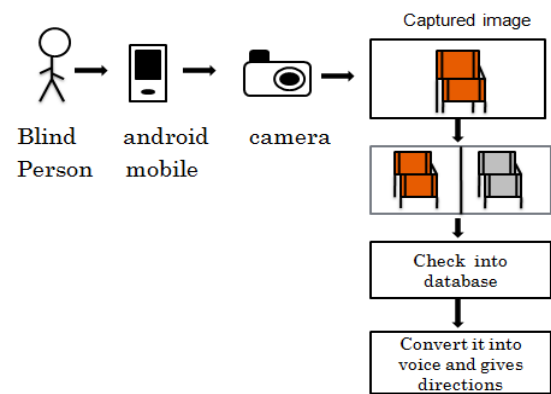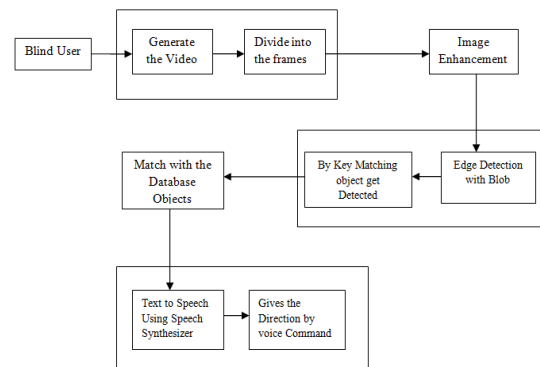

Fig.1.1 System Architecture

Fig.1.2 System Block Diagram

III.   MERITS AND DMERITS

1. Reliable: -
         This type of technology Provides good video quality . Difference between various object like chair and table etc. can be easily differentiated and exact path can will be detected for visually impaired people.

2. Scalable
 This application can be run on various operating system. object will not be stationary so it will captured the ongoing video and process all the developing steps for detection and placement of object. This feature highlights the merit.

3. Efficient cost:

      The cost will be depend on the smart phones.

4. Memory:

Memory is one of the key constraint of any android application and this important feature is embedded in our project .Memory is required only for storing the application which is usually less.

5. Speed:

Object will be detected by ORB algorithm so speed is quiet fast. Most important thing is object will be detected and movements and their location can be identified with ease and vocal commands will be given according to object.

6. Open Source:

 Android application is an open source utility command which is linux based and released under apache software. It has many versions with extending features and properties.(e.g. lolipop, jellybean, kitkat etc.)

The coloured part of android is play store where the developer can upload their project and the users who wished to use this application can easily download it only the need is internet.

IV.   CONCLUSION

     Here we have successfully modeled the Object Detection using ORB algorithm. The tests will went smoothly and had no problems. This report introduced two environmentally-friendly designs for a blind people. We presented information about the Blind people application. This application will be more effective for blind people. It is important to develop this application for the future. The system is used by Blind peoples but the normal people also can use. In future we are going to detect the potholes which are coming across the camera video

V.   ACKNOWLEDGEMENT

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