Third Eye App for Visually Challenged People

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Abstract: Outwardly Impaired are those individuals who have vision misfortune or vision impedance. Issues looked by outwardly disabled in implementing day by day exercises are in incredibly large. They likewise facing more challenges in money related exchanges. They can't perceive the paper currency forms because of similitude of paper surface and size between various classes. Our application causes outwardly debilitated patients to perceive and identify cash. Utilizing this application blind individuals can talk and provide order to open camera of an advanced mobile phone and camera will click image of the note and tell the client by discourse how a lot of the cash note is. For money recognition, this application utilizes Azure custom vision API utilizing Machine learning arrangement procedure to recognize cash dependent on pictures or paper utilizing mobile camera.

Keywords: Currency Detection, Image Processing, Microsoft custom vision API, Android Studio.

I.INTRODUCTION

Major difficulty faced by blind people is the inability to recognize the paper currencies because of the similarity of paper texture and length between the different categories. These humans face a whole lot of trouble in blind transactions. This application can help visually impaired to apprehend cash. In this software blind human beings can communicate and give command to open camera and digital camera will click the photograph of note and inform the consumer by means of speech medium how a great deal rupee observe it is. This machine uses speech to text to convert command given by using blind human beings; Speech recognition is the interdisciplinary subfield of computational linguistics that develops methodologies and technologies that enables the popularity and translation of spoken language into textual content. For the end result purpose this gadget has textual content to speech idea which facilitates to read the cost of word and then it converts the text value into speech. Android allows converting your text into voice. Not best you may convert it but it additionally permits you to speak text in range of various languages.

II. RELATED WORK

Baiqing Sun [1], this paper presents the overview of paper money recognition gadget. It is carried out in numerous subject including transactions, automatic selling of factors in banks. The popularity system includes especially 3 ranges. F. Takeda and T. Nishikage [2], the image of interest is first pre-processed by reducing dimensionality and extracting the characteristic by way of applying image processing toolbox of MATLAB, known as function extraction. The 2nd element is currency recognition, in which classifier inclusive of neural network is used. And finally the result is displayed. Recognition ability depends on the currency word traits of particular United States of America.

H. Hassanpour, A. Yaseri, G. Ardeshiri [3]. Proposes a new technique for paper foreign money recognition. In this approach, 3 characteristics of paper currencies which include size, coloration and texture are used in the reputation. By using picture histogram, plenitude of different colorations in a paper currency is computed and compared with the one within the reference paper foreign money. Nadim Jahangir, Ahsan Raja Chowdhury [4], the Markov chain concept has been employed to model texture of the paper currencies as a random manner. The technique proposed on this paper can be used for spotting paper currencies from unique nations. In this technique, using most effective one intact example of paper currency from each denomination is sufficient for training the gadget. H. Hassanpour, A. Yaseri, G[5], they examined this technique on extra than one hundred denominations from special international locations, and the machine became able to apprehend 95% of data successfully.

III. PROPOSED METHOD

Considering the extreme in the current framework computerization of the entire action is being proposed after introductory investigation. Proposed framework is gotten to by one substance to be specific USER. The android application is created utilizing android studio with JAVA as a programming language. Client can perform undertaking, for example, dazzle individuals can talk and provide order to open camera and camera will tap the image of note and tell the client by discourse medium how much rupee note it is. This framework utilizes discourse to content to change over order given by daze individuals, Speech acknowledgment is the interdisciplinary subfield of computational

phonetics that creates approaches and advances that empowers the acknowledgment and interpretation of communicated in language into content. For the outcome reason this framework has content to discourse idea which assists with perusing the estimation of note and afterward it changes over the content an incentive into discourse. Android permits changing over your content into voice. You can change over it as well as permits you to talk message in wide range of dialects.
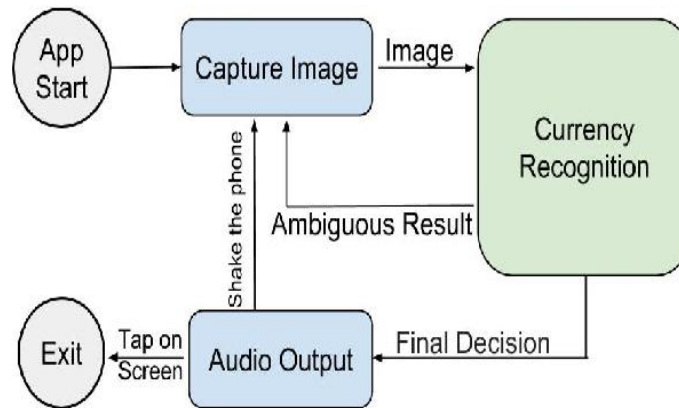

Figure-1 Conceptual Design

Feature detection:
Lines, edges, figures, shapes and angles in an image will be identified by the image detection process. Hence this feature extraction determines further decisions about the contents in the image. For feature detection, various specific modules are used from Android.

Image Classification: Image classification is a supervised learning which defines the set of target classes (objects to identify in images), and train a model to recognize them using labeled example photos.

Microsoft Custom Vision API:
Ms Custom Vision is a cognitive service that lets you build, deploy, and improve your own image classifiers. An image classifier is an AI service that a applies labels (which represent classes) to images, according to their visual characteristics.

Custom vision functionality **Image Classification** applies one or more labels to an image.
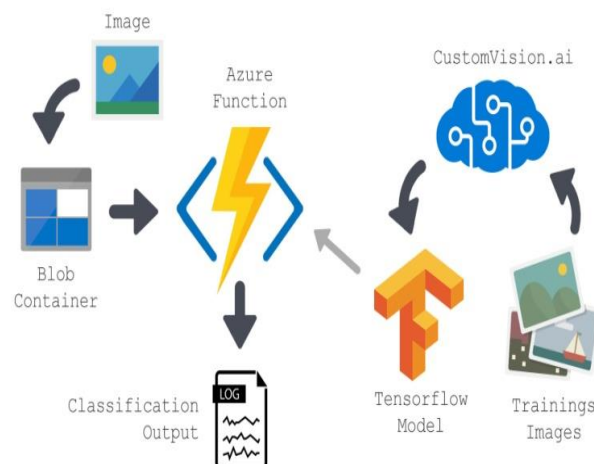

Figure-2 MS-CV Overview

IV. EXPERIMENT ANALYSIS

In this section, we discuss about the experiment procedure and results of the system.
Procedure:

The proposed system has been tested on many android devices. These phones are varying with the quality of camera and properties. Results are very good in different environmental factors such as illumination, scaling, and rotation. The proposed system does not rely on specific fixture or specific dimension to take snapshot of currency as specified in many systems to detect currency.

The mobile app needs to get the access to take pictures and record voice from the device during installation. After giving access configuration to application user simply needs to open and run the application through voice commands. The user gets the voice after opening the app in the form of say 1 to make a call or say 2 to detect currency. After giving the command app will pre-process the request as per the user requirements. The app will generate the output in the form of voice to the blind people.

The proposed system is implemented using the Microsoft custom vision api running on android platform. After taking the image, app will pre-process the image through image classification and it retrieve the data from the dataset through the label attached to image by API calling of custom vision. The generated result is based on the probability basis and the value of the note is displayed along with the probability.

The whole currency is not stored in the dataset as there are many redundant features in different currencies as they reduce the accuracy of the system and increase the time to get the result.
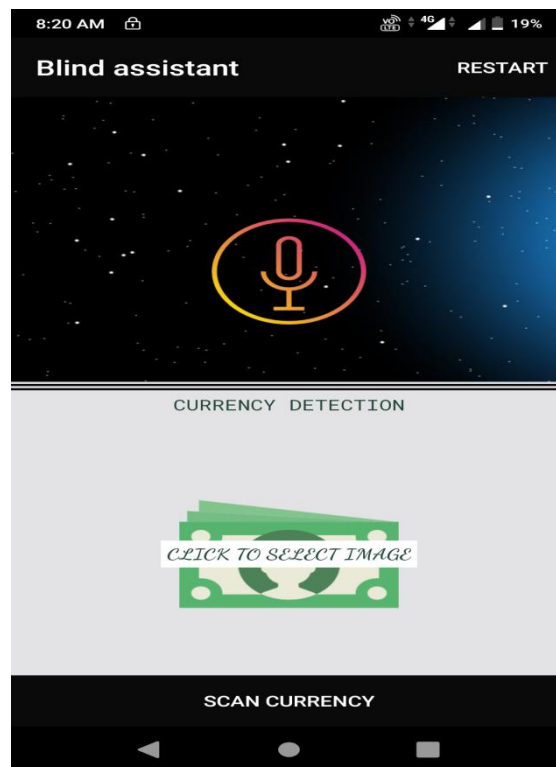
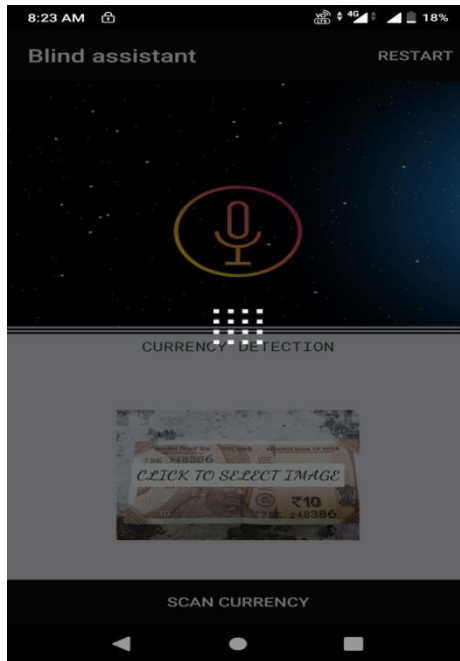Results & Output Screens:

Figure-3 Home Page
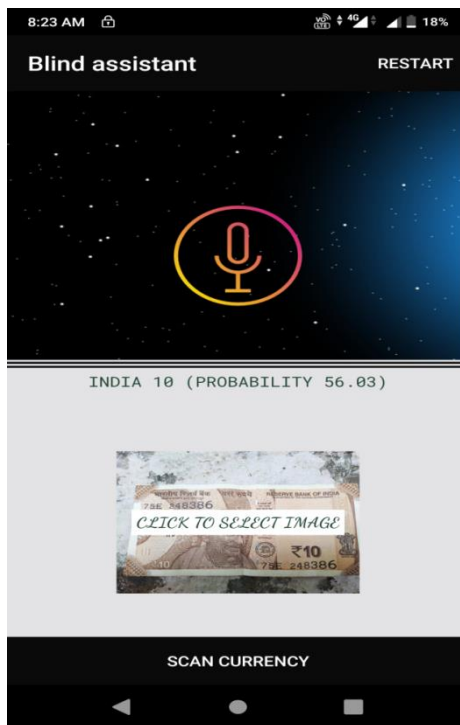
Figure-4 Pre-processing currency

Figure-5 Results

V. CONCLUSION

In this paper we discuss the System Design about "**Currency Detection**" developed in Android application based on Java programming language. It is based on the image classification using ml to detect currency. We retrieve the data from the dataset through Ms-Cv API calling. The generated value of currency is displayed along with probability.

VI. FUTURE ENHANCEMENTS

In our Third Eye for visually impaired people, at present we are providing two features to make life easy for visually challenged people one is currency detection through voice command and another one is calling through voice. In future we are going to integrate the blind stick (which is an IOT application to detect the objects in our path while walking) and also we are going to integrate complete voice based UI for mailing system for blind people.

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