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CURRENCY PINPOINTING THROUGH MOBILE APPLICATION FOR VISUALLY IMPAIRED PEOPLE

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Abstract - *In this approach we introduce an application for blind people to recognize the currencies of various countries. It uses voice recognition to operate the camera, as the blind people are unable to touch the correct icon for camera. Once the camera is on, the currency should be shown in front of the camera by keeping it within hand. The camera will get adjust itself and capture the image of the currency. Then using image processing, the image of currency is compared with stored information. Later an audio output will be provided which gives the information about the currency present with them.*

Fig .1:Eye for visually impaired

***Key Words*: Android application, Open Cv, Currency, Visual studio 2.0,Andriod Mobile phones**.

1. INTRODUCTION

The blind people were able to recognize currency only by touching the currency. But they can able to remember only few of the currency's structure and pattern. It was a big problem to blind people to trust someone when new currencies are introduced in a country. Even after learning the structure and pattern of newly introduced currency, they can able to make some mistakes in counting the total amount. Another problem is whenever they go to new country, learning the structure and pattern of that country's currency becomes a necessary thing for them. To avoid this problem, here, a mobile application was introduced to recognize currencies of various countries.

The visually impaired people identify the currency by learning the structure and pattern of currency. The visually impaired people learn structure and pattern of currency by touching the currency and a human with good vision have to help them to learn it.

The ability to identify currency without human input is unfavorable for a number of applications. The most vital one is helping visually impaired individuals. Here the visually impaired people can able to use the application by their own. They are even not needed to touch the application's icon. Instead they can open the application through voice. Once the application is opened, they should show the currency in front of the camera. Then currency's image is compared with the already stored information. Then the details of the currency will be provided by the application through audio output. If the visually impaired people want to know the sum of amount in their hand, they have to show the currency in front of the camera one after other through shaking the mobile. The application adds up the sum of amount shown in front of camera at a time by shaking the mobile. The application also finds the damage in the currency. If any damaged currency is shown in front of the camera, then the application will provide an alert that the currency is damaged.

2. METHODOLOGY:

The images might be captured in a wide variety of environments, in terms of lighting condition and background while the bill in the image itself could be deformed. The system should be able to segment the foreground object correctly and quickly without any user interaction.

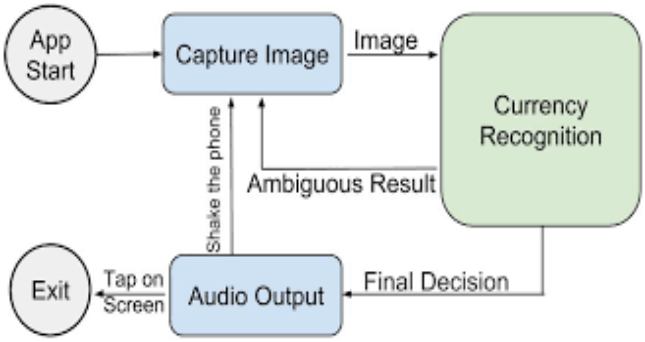

Fig2: Currency Recognition

For Visually Impaired People.

2.1 EXISTING SYSTEM:

Fig -2: By Touching currency structure and pattern

The visually impaired people were able to recognize currency only by touching the currency and know the structure and pattern. It is a big problem for the blind people to trust someone when new currencies are introduced in a country. Another problem whenever go new country is a big problem for them by counting the total sum amount.

2.2 PROPOSED SYSTEM:

Fig-3: Proposed system

The blind people were able to recognize currency only by touching the currency. But they can able to remember only few of the currency's structure and pattern. It was a big problem to blind people to trust someone when new currencies are introduced in a country. Even after learning the structure and pattern of newly introduced currency, they can able to make some mistakes in counting the total amount. Another problem is whenever they go to new country, learning the structure and pattern of that country's currency becomes a necessary thing for them. To avoid this problem, here, a mobile application was introduced to recognize currencies of various countries.

2.3 SYSTEM ARCHITECTURE:

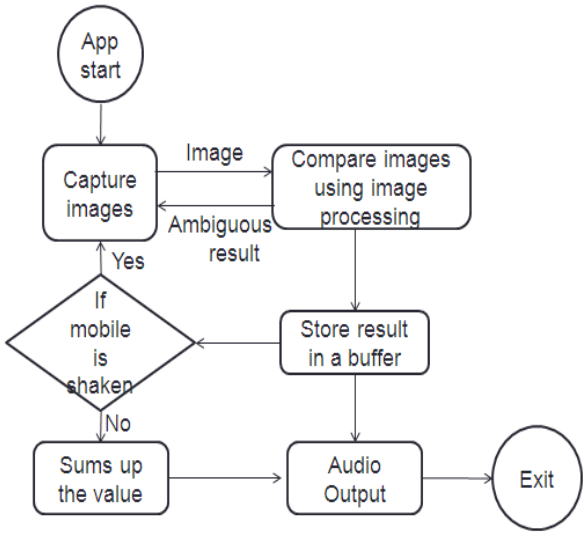

Fig 5: System Architecture

In the system architecture the application is opened it captures the image and compare with the stored information using image processing techniques. If an ambiguous results occured it retakes the image and store the results in a buffer. An audio output will be generated about the currencies details.

If we want to know about the sum of amount in our hands, then we have to capture the image one after another by shaking the mobile.

Currency Gathering:

Gather currencies of various countries in different conditions and capture the images of those currencies. The images are stored in the database. Split the image of each currency into various parts and store under common table in the database. If a damaged currency is given to blind people, they can able to know the accurate currency details and the damaged part of currency.

Operating Camera through Voice:

Mostly every smart phone in the world can be operated only by touching sense. The blind cannot use touch sense phone as they were unable to see the icon. Hence the blind people could not use the smart phones. In our application they can use the smart phone camera through voice instruction. Feed some voice based instructions in the database to operate the camera and connect those instructions with the camera.

Thus the blind people can operate the smart phone camera through voice. The currency should be shown in front of camera lens in a particular distance.

Implementing Application:

After the camera is switched on, it should be controlled by the application to capture the image of the currency. Then the foreground of the image should be isolated from the background images. The isolated image will be then compared with the stored information in the database. Once a currency's detail was provided, shake the smart phone to capture image of another currency. The total sum of currencies will be calculated by application regarding how much currencies were captured by camera through shaking the phone at a time.

Audio Output:

After comparison matches, then an audio output will be provided regarding the information of currency. The detail provided by the audio output includes currency value and its country and the damaged part of currency. The total sum amount of currencies also can be informed through audio.

Application Initiation:

The application starts when the camera is switched on by voice instruction. Here the camera is connected with the application and then the currency is shown in front of the camera.

Capturing Image:

The camera eliminates the background images. It isolates the foreground image. The foreground image will be the currency. This foreground image will be separately selected through the focusing mechanism of camera. Once a camera captures the single currency, the other currencies can be further captured by shaking the mobile.

Image Processing:

In this application image processing is used for analyzing and comparing the image of currency. The image of various part of same currency is stored under a common currency detail. The damaged part of currency can be identified. When the comparison of shown image is not available, then it recaptures the currency's image.

Exit:

The visually challenged people cannot able to touch the correct icon for exiting the application. Hence they can exit from the application by tapping on anywhere in the screen of application.

OUTPUT:

3. CONCLUSION

The application is used for the blind people to find the currencies details and also provide total sum amount present in our hands.An audio Output related to the currencies will be displayed.

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