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The Visual Product Identification for Blind Peoples Using Android

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Abstract - *This project is developed to create the lifetime of blind people straightforward. This is a system to scan the barcode behind the image and read the description of the merchandise with the assistance of Id stored within the barcode. This can be so helpful in case of sorting out the details of grocery to the blind folks and therefore helping them when deciding to buy a product or not particularly, that are prepacked. Here we offer an alternative choice for finding out description of foodstuff that's voice search. This feature is extremely user-friendly. Once a visually handicapped person use this voice search option they are doing not face any difficulties. This project will be helpful in any shopping center, food market, Bookstores, Medical stores etc.*

Key Words: Barcode, Camera, Phone, Scanner.

1. INTRODUCTION

According to the Globe Health Organization, there are around 253 million folks live with vision impairment, 36 million are blind and 217 million have moderate to severe vision impairment. There'll be a number of possibilities of cheating. To make them freelance and that they should personally understand the all product purchased by them we are planning to develop these project. This is so helpful just in case of finding out details of foodstuff to the blind folks and therefore helping them when deciding to buy a product. So these project is extremely helpful for blind folks in addition as normal folks. So as to use this method, all the user has to do is to capture the image on the merchandise within the smartphone which then resolves the barcode which implies, it scans the image to seek out the Id stored in it. Therefore this application very benefits blind and visually impaired folks and therefore creating their work of distinguishing merchandise simple. In this android application we tend to providing them two choice. The barcode scanner and an alternative choice for the visually handicapped person is voice search. In barcode scanning choice just in case the person facing difficulties to scan the barcode or might he's unable to find out the wherever is truly the barcode on product. Here we tend to use the beep sound option. Means that once the person making an attempt to scan the barcode then when obtaining the barcode mechanically beep sound is generate.

2. LITERATURE REVIEW

In the fields of Speech Recognition and Barcode Scanning loads of exploration is being performed. Researchers have tried to develop a lot of and a lot of versatile, compact and reliable Speech Recognition system for visually impaired individuals within the several fields. However, all of them used numerous strategies to create these Speech Recognition systems prospering and reliable for daily use. Recognizer is associate automaton application by Google referred to as Voice Search. It's an excellent helpful application that's alleged to observe the speech through mike that was antecedence has been written by users. The appliance is delivered to assist visually impaired user to acknowledge their voice.

Secondly, the Barcode could be a visual illustration of knowledge within the type of bars and areas on a surface. The bars and areas are designed with completely different widths and include numbers, characters and symbols like dot, colon completely different mixtures of those character set characters are accustomed represent data. There are numerous sorts of barcodes in use these days e.g. Code 128, Code 39, EAN etc. The prospering of barcode technology has been perpetually rising so as to accommodate a lot of data within the minimum doable house. These days barcodes are wide used on books and at retail stores so as to stay track of the product obtainable and simple checkout of the product. The barcodes are ordinarily browse exploitation scanners exploitation optical device beams or cameras. But, the limitation of the barcode scanner tool is that, if barcode weren't in scan-able condition, the system won't be work properly may be a disadvantage. Cause on every occasion the blind user needs to be captivated with the barcode scanner for its dependability.

3. SYTEM DESIGN

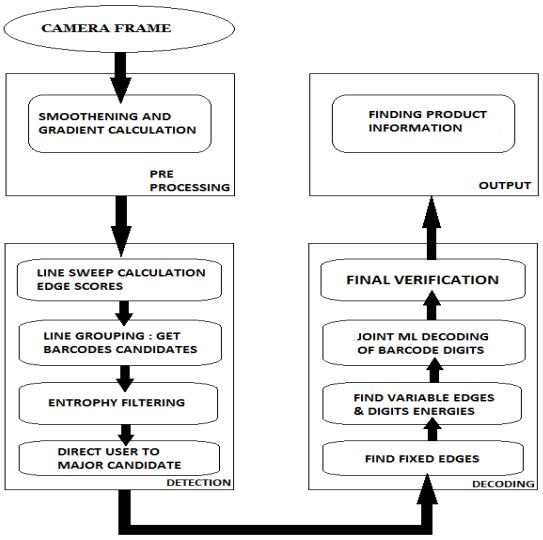

FIGURE.1 (BARCODE SCANNER)

Barcode within the image, a direction system that guides the user to a barcode if one is found, a decryption step that decodes the particular UPC-A code from the barcode once all the perimeters are seen, and therefore the finish that matches the UPC-A code to a product descriptions and outputs this data. Below is an outline of those steps:

1. Detection:

(a) Lines in four totally different orientations swept to work out to see of edge points with alternating polarities.

(b) Line scores tallied in direction perpendicular to brush direction to induce two dimensional illustration of possible barcode areas.

(c) Orientation entropy used to eliminate false positives (e.g. dense text).

1. Direction:

(a) A greatest bounding box to surround the detected barcode is calculated.

(b) The user is directed to the barcode by voice commands till enough edges are seen.

2. Decoding:

(a) Slices with most variety of edges are found and edges localized with sub-pixel accuracy.

(b) Most probability (ML) estimation of the basic dimension and fixed edges.

(c) Ml estimation of the barcode digits using the parity bit.

(d) Detection tried each right side up and upside down.

3. Output:

(a) Product data retrieved from information and read out.

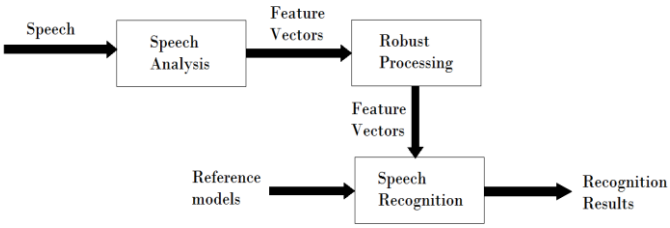

FIGURE.2 (VOICE SEARCH)

1. Speech analysis: Speech analysis is the method of analyzing the speech signal to get relevant data of the signal in an exceedingly in a compact kind than the speech signal itself. This section presents a review of however these parameters are estimated from a speech recording and the way necessary they're for voice biome-try.

2. Robust Processing: Speech processing is the study of speech signals and the processing methods of signals. The signals are usually processed in a digital illustration, so speech process can be considered a special case of digital signal processing, applied to speech signals.

3. Future Vectors: Feature vector sequence is taken into account as a speech pattern. The speech recognition is to classify the speech patterns and to spot the spoken words similar to the speech patterns.

4. Speech Recognition: Speech recognition, or speech -to-text, is that the ability for a machine or program to spot words spoken aloud and convert them into clear read-able text. Rudimentary speech recognition software contains a restricted vocabulary of words and phrases, and it should solely determine these if they're spoken very clearly.

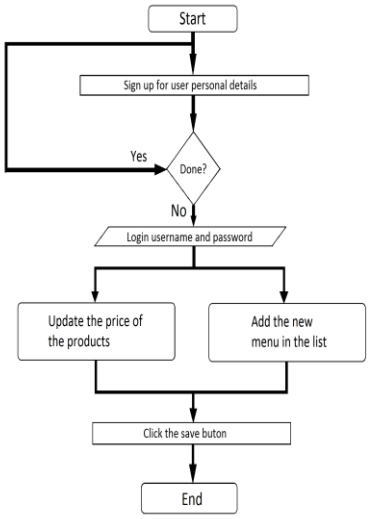

FIGURE.3 (ADMIN)

The admin part is responsible for to add or update product details. By clicking on product name the admin can update or delete the product details.

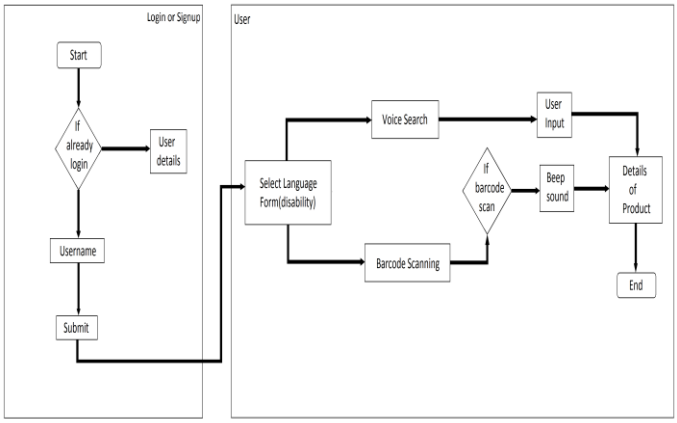

FIGURE.4 (USER)

The user will speak the product name and all details regarding that product will be audible by system according in the order as they are visible. In scanning the user will allow to scan the barcode of the product. Beep sound will be added for blind users to recognize that barcode is being scan. Then after scanning the system will show and speak up all the details of the product.

4. METHODOLOGY

1. Barcode Scanning:

A barcode scanner is associate degree optical scanner that will browse printed barcodes, decipher the information contained in the barcode and send the information to a pc. Sort of a flatbed scanner, it consists of a light-weight supply, a lens and a light-weight sensing element translating for optical impulses into electrical signals.

1.1 Barcode Recognition:

The barcode recognition module consists of 3 parts: bar detection, barcode detection, and a barcode comparison block. The bar detection block detects bars from the barcode feature signal. First, it tries to identify a black bar, if it's not there, then the primary bar has zero dimension. If there's a black bar, then it calculates the pixels of the black bar. For the white bars, it will identical. When the bar detections, the barcode detection begins with the start bars and calculates all the doable values of barcode values that will type a sound string with all the doable separators. This perform returns sequence of indices to barcode guard bars.

1.2 Barcode Validation:

In the barcode validation stage of the algorithmic program, the straightforward calculation is employed to work out whether or not the barcode is valid or not. It's calculated by taking the even components and multiplying them by 3. Then, add the total of the odd components with the total of the even components. Take ten mod the total and compute ten. If the solution is that the same because the check digit, that is that the last digit, then the barcode is valid. This validation beside a confidence level beyond the brink permits the barcode to be displayed on the screen.

2. Voice Search:

Voice search, conjointly referred to as voice-enabled, permits the user to use a voice command to search. Voice search is usually interactive, involving many rounds of interaction that enables a system to raise clarification. Voice search may be a kind of dialog system.

Voice search isn't a replacement for typewritten search. Rather the search terms, expertise and use cases will take issue heavily depending on the input kind. Voice looking may be a technique of search that permits users to search using spoken voice commands instead of typewriting. The search will be done on any device with a voice input.

5. SYSTEM CONFIGURATION

5.1 Hardware requirements:

Processor **:** Intel Processor IV and above

RAM : 4GB

Hard Disk : 40 GB

Monitor : Any branded monitor having resolution 1024*768

5.2 Software requirements:

Android studio 4.1

Database : SQLite

Coding language : JAVA

6. APPLICATION

- Medical stores
- Super Market
- Electronic Devices
- Book stores
- Shopping Malls

7. ADVANTAGES

- Very much useful for visually blind folks to understand a lot of regarding product details.
- The application is developed in android, that a conveyable device and might take and use it any place.
- Text to speech with the assistance of voice assistant to guide at every step.

8. DISADVANTAGES

- Application solely compatible with android devices.
- Active internet connection is needed.
- Application could give inaccurate results if details are entered incorrectly.

9. CONCLUSION

This system makes it simple for the folks to easy the elaborated info of varied product obtainable within the market and also regarding the product that are presently obtainable within the market. This application is extremely effective and helpful for the visually impaired folks. It overcomes the hesitation and giving confidence for buying their looking wants. This application helps the visually impaired folks to relish their looking expertise and to shop for the product they want to shop for.

10. REFERENCES

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