Product Label Reading Based On Portable Camera-Based for Blind Individuals

POLUBOINA VENKATESWARLU
M.Tech Student, Dept of ECE, Akshaya Bharathi Institute Of Technology, Siddavatam , Kadapa, India

P. GANGADHAR
Assistant Professor, Dept of ECE, Akshaya Bharathi Institute Of Technology, Siddavatam , Kadapa, India

Abstract: **We propose a camera-based helpful text browsing framework to assist blind persons to read text labels from hand-held objects in their day to day lives. During this paper Camera acts as main vision to capture the image of product packaging and hand-held objects. To isolate the article from complicated backgrounds, we tend to initial propose an efficient motion-based technique to outline a district of interest (DOI) within the image. Within the extracted ROI, text localization and recognition are conducted to amass text data. Then text characters are recognized by ready-to-wear optical character recognition (OCR) computer code. Victimization text to speech converter the extracted texts are output in audio output.**

Keywords: **Optical Character Recognition(OCR); District Of Interest (DOI);**

I. INTRODUCTION

In worldwide there square measure 314 million visually impaired people and blind, out of that forty-five million square measure visual impairment that was discharged by "World Health Organization" in ten facts concerning cecity. The valuation of The National Health Interview Survey twenty-five.2 million adult Americans square measure blind or visually impaired. The valuation of The National Census of Asian country their square measure 21.9 Million disabled folks within the country, out of that more than fifteen million folks square measure blind[1][2]. Reading is clearly necessary for today's society. Printed text seems all over within the variety of receipts, bank statements, reports, edifice menus, room notes, product labels, directions on drugs bottles, etc. Optical aids, screen readers, and video magnifiers will help blind users and people with low vision to access documents, there square measure few devices which give sensible access to common hand-held objects like productlabels, and objects written with text like prescription medication bottles. the power of individuals World Health Organization are blind or people who have important visual impairments to browse written labels and products packages will enhance their freelance living and foster economic and physical independence so here we tend to square measure aiming to propose a system that it helps to blind folks.

Fig.1.1. Examples of printed text from hand-held objects with multiple colors, complex backgrounds, or nonflat surfaces.

II. PREVIOUS STUDY

Today, there square measure already some systems that have some promise for transportable use, however, they can't handle product labeling. for instance, transportable code readers designed that helps blind individuals to spot totally different product in associate extensive product information will change users World Health Organization square measure blind to access data regarding this product. But a big limitation is that it's terribly laborious for the visually handicapped person to seek out the position of the code and to properly purpose the code reader at the code. Some reading systems like pen scanners, mobile readers could be utilized in these similar things. OCR software system is integrated with these systems to supply scanning and recognition perform of text; also some systems have integrated voice output. However, these systems perform best with document pictures with simple backgrounds, a tiny low vary of font size, standard fonts, and well-organized characters instead of hand-held product packages with multiple ornamental patterns. Most of the OCR software system cannot directly handle scene pictures with advanced backgrounds.

A number of transportable reading systems are designed specifically for the visually impaired "K-Reader Mobile" runs on a cellular phone that permits the visually impaired person to browse mail, receipts, fliers, and plenty of alternatives documents [3]. however, these documents should be flat, placed on a clear, dark surface. additionally, "K-Reader Mobile" accurately reads black print on a white background. However, it's issued in recognizing color text or text with the color background. through a variety of reading assistance systems have been designed specifically for the visually handicapped person, however still no existing browsing assistant will read text from the advanced backgrounds found on several everyday

industrial products. Fig.1. shows totally different samples of written text from hand-held objects with multiple colors, complex backgrounds, or non flat surfaces.

III. PRELIMINERIES

To overcome downsides|the issues} outlined in problem definitions and additionally to help blind persons to scan text from those sorts of difficult patterns and backgrounds found on several everyday business products of Hand-held objects, then have to be compelled to planned of a camera-based helpful text reading framework to trace the thing of interest inside the camera read and extract print text data from the object. projected algorithmic rule utilized in this technique will effectively handle complicated background and multiple patterns, and extract text data from each hand-held objects and near assemblage. To overcome the matter is helpful reading systems for blind persons, in existing system terribly challenging for users to position the thing of interest within the middle of the camera's read. As of now, there are still no acceptable solutions. This drawback approached in stages [4][5]. The hand-held object ought to seem within the camera read, this thesis uses a camera with a sufficiently wide angle to accommodate users with solely approximate aim. this might typically end in alternative text objects showing in the camera's read (for example, whereas looking at a supermarket). To extract the object from the camera image, this technique reaching to develop a motion-based method to get a district of interest (ROI) of the thing. Then, perform text recognition solely that ROI [6]. It is a difficult drawback to mechanically localize objects and text ROIs from captured pictures with complex backgrounds, as a result of text in captured pictures is most likely encircled by numerous background outlier "noise," and text characters typically seen in multiple scales, fonts, and colors. For the text orientations, this thesis assumes that text strings in scene pictures keep approximately horizontal alignment. several algorithms have been developed for localization of text regions in the scene images. we will divide them into 2 categories: RuleBased and Learning-Based. In finding the task at hand, to extract text information from complicated backgrounds with multiple and variable text patterns, here propose a text localization the algorithm that mixes rule-based layout analysis and learning-based text classifier coaching, that outline novel feature maps supported stroke orientations and edge distributions. These, in turn, generate representative and discriminative text options to differentiate text characters from background outliers.

IV. TEXT RECOGNITION AND AUDIO OUTPUT

The audio output part is to tell the blind user of recognized text codes within the variety of speech or audio. A Bluetooth earphone with mini mike or earpiece is used for speech output. Text recognition is performed by ready-to-wear OCR before the output of informative words from the localized text region. The accommodations of characters within a text region area unit labels within the minimum rectangular space, that the border of the text region contacts the string boundary of the text character [7]. However, the experiments show that OCR generates higher performance if text regions area unit 1st appointed correct margin areas and diarized to phase text characters from background. Thus, every and each localized text region is enlarged by enhancing the peak and dimension by ten pixels, respectively, and then, Here Otsu's technique is employed to perform binarization of text regions, wherever margin areas are continuously thought of as background [8]. we tend to check each open and closed-source solutions that enable the ultimate stage of conversion to letter codes. The recognized text codes square measure recorded in script files. Then, use the Microsoft Speech code Development Kit to load these files and show the audio output of text data. Blind users will alter the rate of speech, volume, and tone in step with their preferences.

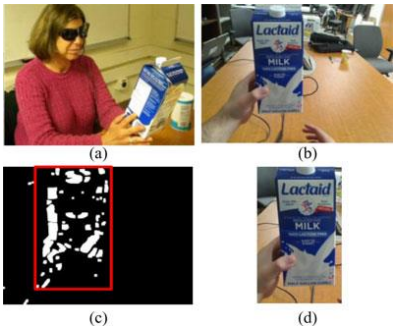

Fig.Localizing the image region of the hand-held object of interest. (a) Capturing images by a camera mounted on a pair of sunglasses. (b) Example of a captured image. (c) Detected moving areas in the image while the user shaking the object (region inside the bounding box). (d) Detected region of the hand-held object for further processing of text recognition.

V. CONCLUSION

In this paper, we've delineated a paradigm system browse written text on hand- control objects for aiding blind persons. so as to unravel the common problem for blind users, we have a tendency to projected a motion-based technique to discover the thing of interest, whereas the blind user merely shakes the thing for few seconds. This methodology can effectively distinguish the thing of interest from the background or alternative

objects within the camera vision. To extract text regions from advanced backgrounds, we have proposed a "Haar Cascade Classifier Algorithm" text localization rule the corresponding feature maps estimate the world structural feature of text at each pel. Block patterns project the projected feature maps of associate degree image patch into a feature vector. Adjacent character grouping is performed to calculate candidates of text patches ready for text classification. associate degree AdaBoost learning model is applied to localize text in camera-based images. ready-made OCR is employed to perform word recognition on the localized text regions and remodel into the audio output for blind users. Our future work can extend our localization algorithm to method text strings with characters fewer than three and style a lot of strong block patterns for text feature extraction. we'll conjointly extend our rule to handle on horizontal text strings. what is more, we will address the numerous human interface problems associated with reading text by blind users.

VI. REFERENCES

[1] A. Shahab, F. Shafait, and A. Dengel, "ICDAR 2011 sturdy reading competition: ICDAR sturdy Reading Competition Challenge 2: Reading text in scene pictures," in Proc. Int. Conf. Document Anal. Recognition, 2011, pp. 1491–1496.

[2] Advance knowledge Reports from the National Health Interview Survey (2008).[Online]. Available: http://www.cdc.gov/nchs/nhis/nhis_ad.htm.

[3] B. Epstein, E. Ofek, and Y. Wexler, "Detecting text in natural scenes with stroke dimension rework," in Proc. Comput. Vision Pattern Recognition, 2010, pp. 2963–2970.

[4] C. Yi and Y. Tian, "Assistive text reading from the advanced background for blind persons," in Proc. Int. Workshop Camera-Based Document Anal. Recognit., 2011, vol. LNCS-7139, pp. 15–28.

[5] C. Yi and Y. Tian, "Text string detection from natural scenes by structure primarily based partition and grouping," IEEE Trans. Image method., vol. 20, no. 9, pp. 2594–2605, Sep. 2011.

[6] International Workshop on Camera-Based Document Analysis and Recognition (CBDAR 2005, 2007, 2009, 2011). [Online]. Available: http://www.m.cs.osakafuu.ac.jp/cbdar2011/

[7] J. Zhang and R. Kasturi, "Extraction of text objects in video documents: recent progress," in Proc. IAPR Workshop Document Anal. Syst., 2008, pp. 5–17.57

[8] K. Kim, K. Jung, and J. Kim, "Texture-based approach for text detection in pictures victimization support vector machines and ceaselessly adaptive mean shift formula," IEEE Trans. Pattern Anal. Mach. Intel., vol. 25, no. 12, pp. 1631–1639, Dec. 2003.

AUTHOR's PROFILE

Poluboina Venkateswarlu, S/O:Venkateswarlu

10th:Santinikethan School, Inter: Sri Chaitanya Juniour College, Btech:Sri Krishna Devaraya Engineering College, Mtech:Abit Siddavatam Kadapa

P.Gangadhar is currently working as an Assistant professor in ECE Department, Akshaya Bharathi Institute Of Technology, Siddavatam ,Kadapa India. He received his M.Tech from Guntur Narsaraopeta Engineering college

