

IDENTIFYING THE TEXT NAME AND PRODUCT LABEL DETECTION WITH SPEECH OUTPUT FOR BLIND PERSONS

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Abstract - *The camera-based assistive text reading framework to share the information for blind persons to read text name and product packaging from hand-held objects in their day-to-day resides is proposed. The work consists of three stages. First is image capturing -by using a mini camera, the text which the user want to read will get captured as an image and have to transfer to the image processing platform. Second is text recognition -by using text recognition algorithm, the text will get filtered from the image in the screen. Third is speech output - the filtered text will be shared into system to get an audio speech output. This work will be useful for blind persons in their daily life. The entire process is done with the help of MATLAB software.*

Keywords: *Character recognition, Image capturing, Text, Speech output, Matlab software.*

1. INTRODUCTION

Image processing is processing of images using mathematical operations in any form of signal processing for which the input is an image, such as a photograph or video frame. The output of image processing may be either an image or a set of characteristics or the parameters which is related to the image. Most image-processing techniques which involve treating the image as a two-dimensional signal and applying the standard signal-processing techniques to the input.

Image processing is usually refers to digital image processing, optical and analog image processing also are possible. The acquisition of images is referred to as imaging. The close related to image processing are computer graphics and computer vision. In computer graphics, images are manually made from physical models of objects, surrounding and lighting, instead of

being acquired from natural scenes, and also in most animated movies. Computer vision, on the other hand is often considered a high-level image processing. (e.g., videos or 3D full-body magnetic resonance scans). In modern sciences and technologies, images also get much broader scopes due to the ever growing importance of scientific visualization. The millions of visually impaired people in worldwide are still blind. Even in developed countries like united states the people lack the ability to see. Recently, in computer vision and portable computers are helped to to develop the vision technology with the help of optical character recognition (OCR). Reading is one of the basic necessity today, everything around us are in the form of receipts, statements, product packages, menus etc.

It Contain printed text and video magnifiers and screen readers will help the blind users and with lower vision help to facilitate text label reading. This can help the blind people identify the hand-held objects much as product packages and objects printed with text label. Processing this devices which are more portable and sophisticated can promote independent living and foster economic and social self-dependency.

Even some portable systems cannot handle the product reading, bar code readers are used to identify the various products to help the blind users to receive the information about products. Some difficulties are, the possession of bar code cannot found so sometimes pen scanner can execute the process. This system combined optical character recognition for scanning the text in image and give as voice audio output. But sometimes OCR does not handle the images with complicated background image. The novel text localization algorithm that combines rule based

analysis and learning based text are used to read the text in the image.

The proposed algorithm are efficient and it handle all the drawbacks of existing models and it extract the text from hand-held product and it captured through the camera or mobile phone. The most important part in reading system for blind person is positioning of object of interest within camera view. The text from the background is also included. To extract the text name from the hand-held object from the image the motion based method algorithm is used to isolate the region of interest and also text recognition is done only the area of interest.

2. PROPOSED SYSTEM:

In proposed work, a prototype system is used to read printed text on hand-held objects for blind persons. In order to solve this problem for blind users, a motion-based method to detect the object of interest. This method can effectively distinguish the object of interest from background or other objects. To extract the text regions from complex backgrounds, a novel text localization algorithm based on stroke orientation and edge distributions in the process. The corresponding features will estimate the global structural feature of text at every pixel in the image. Adjacent character grouping is used to calculate the candidates of text patches prepared for text classification. An ANN (Artificial Neural Network) model is used to localize text in camera-based images. Off-the-shelf OCR is used to perform word recognition on the localized text regions and transform into audio output for blind users.

This prototype system is used for assistive text reading and image processing. The three process which include is screen capturing, data processing and audio output. The screen capture components which captures the scene by motion based object-deduction using a camera attached to a pair of sun glasses or image taken from the internet and it will calculate the foreground object at the each frame in the image. The object of interest is localized by the means of foreground.

The proposed algorithms that include object of interest and text localization the image region containing text and that is converted as text into

readable codes. Here laptops are used as the processing device in the current prototype.

The audio output components read the correct text code. The Bluetooth ear piece or any mini speaker is used for speech output. The main drawback in this systems is complex and heavy device and the blind people found its difficult to carry it along with them.

BLOCK DIAGRAM

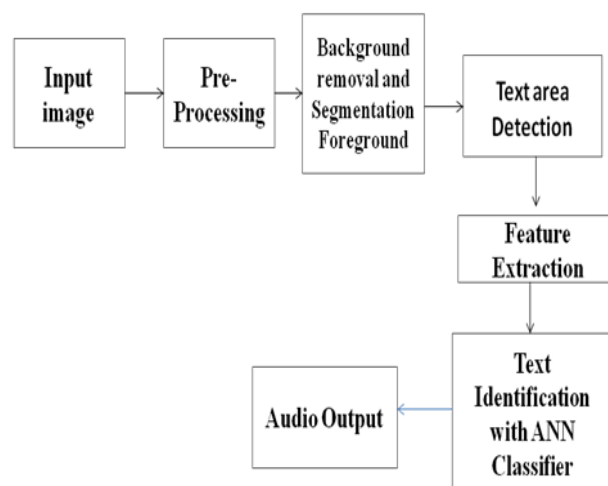


Fig – 1: Block Diagram for proposed system.

3. CONCLUSION:

The proposed image to text as well as speech conversion system provides the solution to the problems faced by blind people. In proposed system we have applied a simple and fast method which works suitably to recognize image and convert it into text as well as speech. It is low time-consumption approach, so that the real time recognition ratio is achieved easily.

In the proposed system Canny edge detection algorithm is used which will recognize the input image by detecting the edges of objects in the image. It is capable of handling the different input images and translates them into text and speech. The proposed

system is trained on predefined dataset. The future work we are trying to work in advanced technology such as video conferencing, and try to make android application.

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