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ENHANCED BRAILEE DISPLAY USE OF OCR AND SOLENOID TO IMPROVE TEST TO BRAILEE CONVERSION

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Abstract - *In this project, we tend to supply them with a tool which could assist them in their everyday activities by help them in studies to enhance reading and learning contents by converting visual texts into audio signals. And also, it helps them by detecting objects that present in their surroundings and generate voice signals to inform them about those objects. This device captures image when pointed by the user and locates the text present within the image. The text is then extracted from the image and is further converted into audio to give the user with a clarified outcome. This project helps us identify various difficulties in detecting and recognizing text in real time by a mean visually impaired person and are available with solutions to assist them. In our approach we have used OCR (Optical Character Recognition) for text level predictions and therefore we obtain the boxed geometry output of all the texts within the images. Then for the aim of recognition the text we pass it on to tesseract OCR to get the extracted text, then we convert the text to speech for the final outcome. The main motivation behind our project is to assist the visually challenged person to better recognize all the texts and objects in front of them and help them live their day to day life just like any other normal person.*

Key Words :OCR(Optical character recognition)

1.INTRODUCTION

Visually impaired person with learning disabilities or low literacy skills. These individuals may enjoy the utilization of varied reading technologies and methods. A reading system that uses optical character recognition technology to form an electronic copy of a document and then use text to speech technology to read the knowledge to the user and addition to thus the power to navigate from place to put is a significant a part of lifestyle, citizenry process the planet around them mostly via the sense of sound and vision. It's

general belief that vision plays a critical role, but many would have great difficulty in identifying the visual information they use, or when they use it. This is possible mostly due to memory. The built application can detect objects in the user's environment. It will alert the user about potential obstacles in his route, allowing him to travel from one location to another without tripping. It would also eliminate the need for a special gadget to be kept on hand.

2.RELATED WORK

One solution is to use a reading system that uses optical character recognition technology to form an electronic copy of a document and then use text to speech technology to read the knowledge to the user. For text reading technology to work, three elements are needed. They're searching, translating, and recognising text. Initially, a camera scans a printed text. After that, OCR transforms pictures into characters that can be identified. The recognised text is then spoken aloud. OCR transforms the pixel representation of a letter obtained by scanning a text or document into its corresponding character representation. Modern version of OCR appeared within in the middle of 1940's with the development of digital computers. Since several character recognition systems Has been proposed. First patent for an OCR machine was filed by a German named Gustav Tauscher in 1929. There are varieties of software-based solutions Available for OCR. However, there is little work done in the area of hardware implementation of OCR. A text-to-speech system converts normal language text into speech. Text to speech conversion systems have an enormous range of applications. Their first real use was in reading systems for the blind, where a system would read some text from a book and convert it into speech. Because of its use in image retrieval, video indexing, mobile robotics, and intelligent transportation systems, to name a few main applications, automatic text recognition from images has recently piqued interest. Methods for reading text encountered in natural scenes have been created in particular, with the aim of assisting visually disabled people [or detecting text inside road signs from natural scene video]. However, the authors acknowledge that the current findings are insufficient for practical use. A camera-equipped cell phone-based way finding system as

well as a wearable camera system that automatically identifies and tracks text regions in surrounding scenes, as well as the application built to detect the objects in the user's surroundings in an indoor environment, are two other approaches of interest. It will alert the user about potential obstacles in his route, allowing him to travel from one location to another without tripping. It would also eliminate the need for a special gadget to be kept on hand.

3.EXISTING SYSTEM

This existing system presents a a system for processing images and aims to present an adaptable digital image processing approach for character recognition using techniques such as image reconstruction, image enhancements, and feature extraction only in digital images. In this existing system we recognition the characters only.

There is no any voice conversion to blind person to understand the text.

4.METHODOLOGY

Optical character Recognition (OCR) is a technique for extracting information from natural images and converting it into machine-readable text (words, symbols, and numbers). Edge detection is an image processing technique for detecting object boundaries within images. Canny edge detector is an edge detection operator that detects a large range of edges using a multi-stage algorithm in images Detecting and reading text from images is a complex task with a multitude of factors that is needed to take into account, it can be something like detecting handwritten text on a piece of paper to detect subtitles in a movie

5. FLOW DIAGRAM

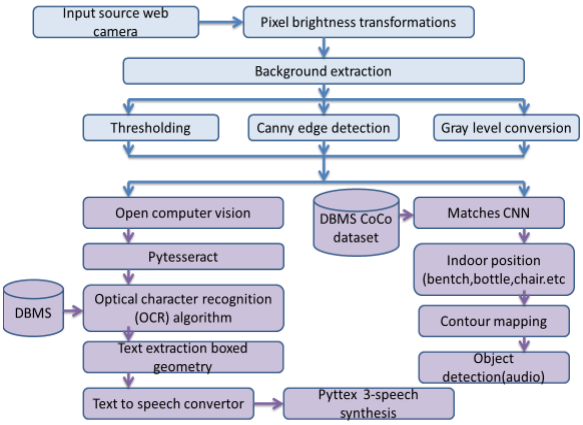

Fig- 1: Flow diagram

6.ALGORITHM

Thonny is an integrated development environment for Python that is designed for beginners. It supports different ways of stepping through the code, step-by-step expression evaluation, detailed visualization of the call stack and a mode for explaining the concepts of references and heap.

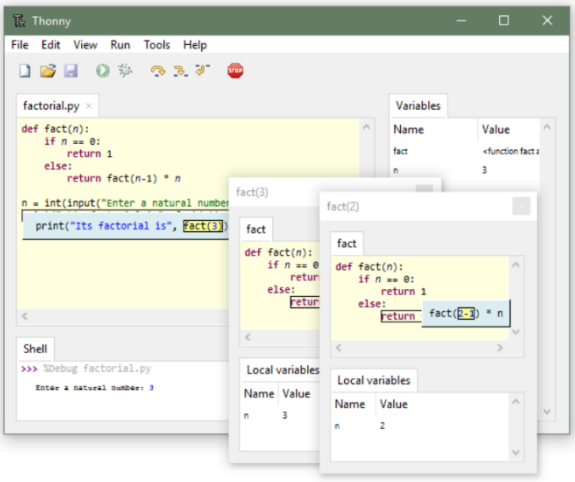

Fig-2: Algorithm

7.EXPERIMENTAL SETUP AND RESULTS

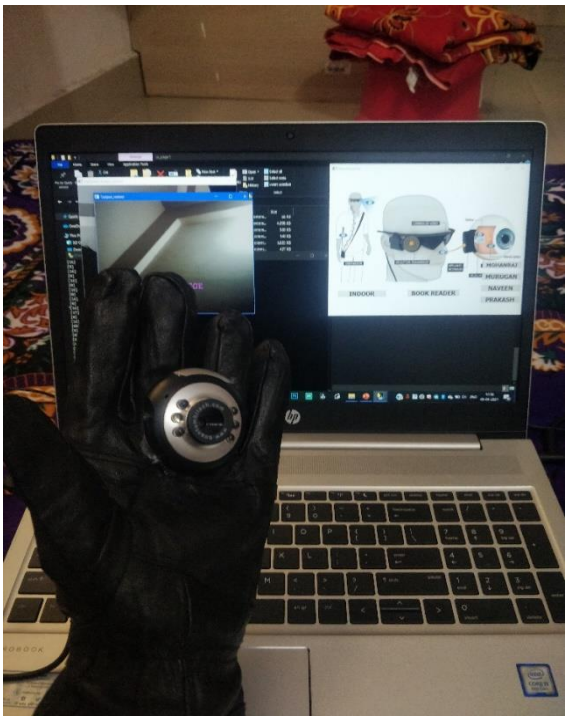

Fig -3 : Experimental Setup

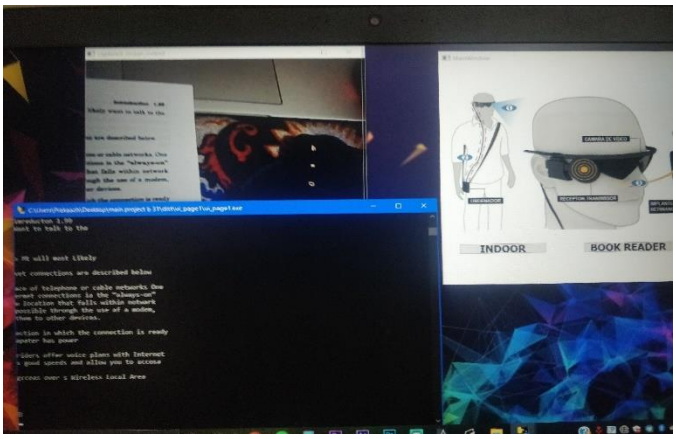

Fig - 4: Text book reading with audio output

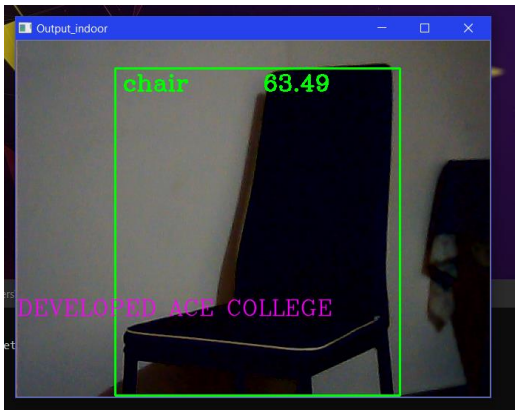

Fig -5: indoor objects detection output

8.CONCLUSION

The voice assisted text reading system for visually impaired is discussed. The output is shown for the varied input file set like only text inputs, text with images merged etc. Optical Character Recognition is used to predict the input text with pre-loaded database template. Both the characters are compared if it matches then using text to speech synthesizer, speech output is produced. The work is simulated using THONNY software and the speech output is produced. It can be easily commercialized and be made to benefit the visually impaired community. In our project has large database because of the pre-trained Convolution Neural Network model. From the experiments it was concluded that the system works extremely accurate in identifying objects in indoor environment.

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