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PORTABLE CAMERA BASED LABEL READER

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ABSTRACT

Abstract The main objective and purpose of this project is to help the visually impaired to understand the text and to make it cost effective. As it is impossible for the visually impaired to read the text. The OCR (optical character recognition) is used in computer vision and it is also a part of machine learning. The OCR is the method which converts the label to audio and it can also identify the image. This can be done by using Raspberry pi. The OCR can be done using several platforms. The platform which is use in this project is python and linux command. The main library function used i s tesseract and PIRGBArray. Tesseract library function helps in reading the text and converts it into audio. PIRGBArray library function is to capture the image by using the webcam and the image is passed to the tesseract library function. By using raspberry pi we will able to use web cam and also make it portable. The quality of the audio is determined the quality of the webcam and the pixel range. This project is more efficient in reading newspaper and other bold labels.

Keywords: Analysis, Investigation, Research.

I. INTRODUCTION

Optical Character Recognition is a tool which is used to covert the image into audio. OCR is used in different languages and it is efficient. By using OCR the web cam act as the vision and it is able to detect the label image of the product shown before the screen and it is converted into audio. The label identify and converted into audio by using tesseract. This library function can differentiate black and white text . Once the label is identify its displayed on the screen. The label is converted into audio which is heard on the headphone which is connected to raspberry pi.

II. METHODOLOGY

This projects main motive is to convert text into audio, the conversion is done in Praveesh. K,. The first method is done by recording the audio and converting it using the mat lab .The sample sound is taken and it is rated depending on the p i t c h . T h e s a m p l e s o u n d i s reconstructed to the desired value. This method is obtained by using various MATLAB tools. This method is consuming less memory space Problem statement 1. Braille method which helps the blind people to identify and to read text. This method it is very slow 2. The current OCR does not support audio which makes it less efficient 3. Reader is run on mobile and it cannot read labels which makes it less efficient. It can only read doc and pdf. PROPOSED SYSTEM In this project we have designed a model which is portable and which can read the paper text which is helpful to the assist blind people. The objective is to convert the label into audio. This project is more helpful to the people who are visually impaired. The photo which is taken in webcam can be converted into audio. The ROI detection will able to identify the text and the text location algorithm is able to differentiate white and black ratio. Several tests is taken in order to identify the text . By placing it in different angle and different web cam. This method is more efficient when the web cam quality is high and with more pixel range. In the future it will be more useful when it can be added as an application in the mobile phones which make it easy for everyone. This project is able to obtain clear audio and it is an easy to use method.

Problem statement

1. Braille method which helps the blind people to identify and to read text. This method it is very slow
2. The current OCR does not support audio which makes it less efficient
3. Reader is run on mobile and it cannot read labels which makes it less efficient . It can only read doc and pdf.

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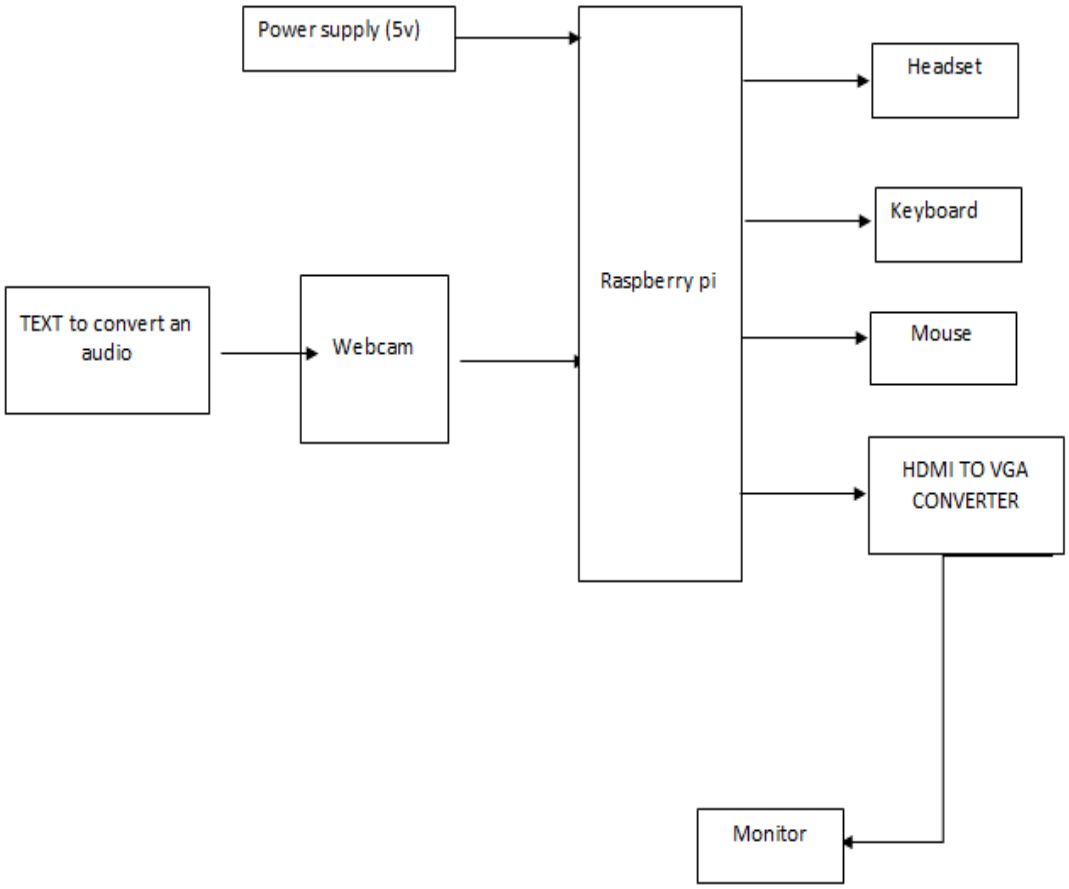
III. BLOCK DIAGRAM



IV. MODELING AND ANALYSIS

In this project we have designed a model which is portable and which can read the paper text which is helpful to the assist blind people. The objective is to convert the label into audio. This project is more helpful to the people who are visually impaired. The photo which is taken in webcam can be converted into audio. The ROI detection will able to identify the text and the text location algorithm is able to differentiate TEXT to audio In this method the text or label is converted into audio by using the web cam and raspberry pi. Power supply the power supply(5v) is to power the raspberry pi and all the components. Webcam The web cam acts as the eye. The webcam takes the picture of the label and transfers it to the raspberry pi. Which is converts into audio. Raspberry pi the raspberry pi is the CPU of this entire process. It process the text and converts it into audio. It is portable and it also regulates the power supply HDMI to VGA The HDMI is able to produce the output image on the screen . VGA is to convert the HDMI image to binary value which makes the raspberry to under the text HARDWARE!S USED: • Raspberry Pi • HDMI to VGA converter • Webcam • Speakers / Headphones • SD Card • Monitor, Keyboard, Mouse • Power cable SOFTWARE!S USED • Raspbian OS • Python • OCR Algeria APPLICATIONS • Handicapped people application

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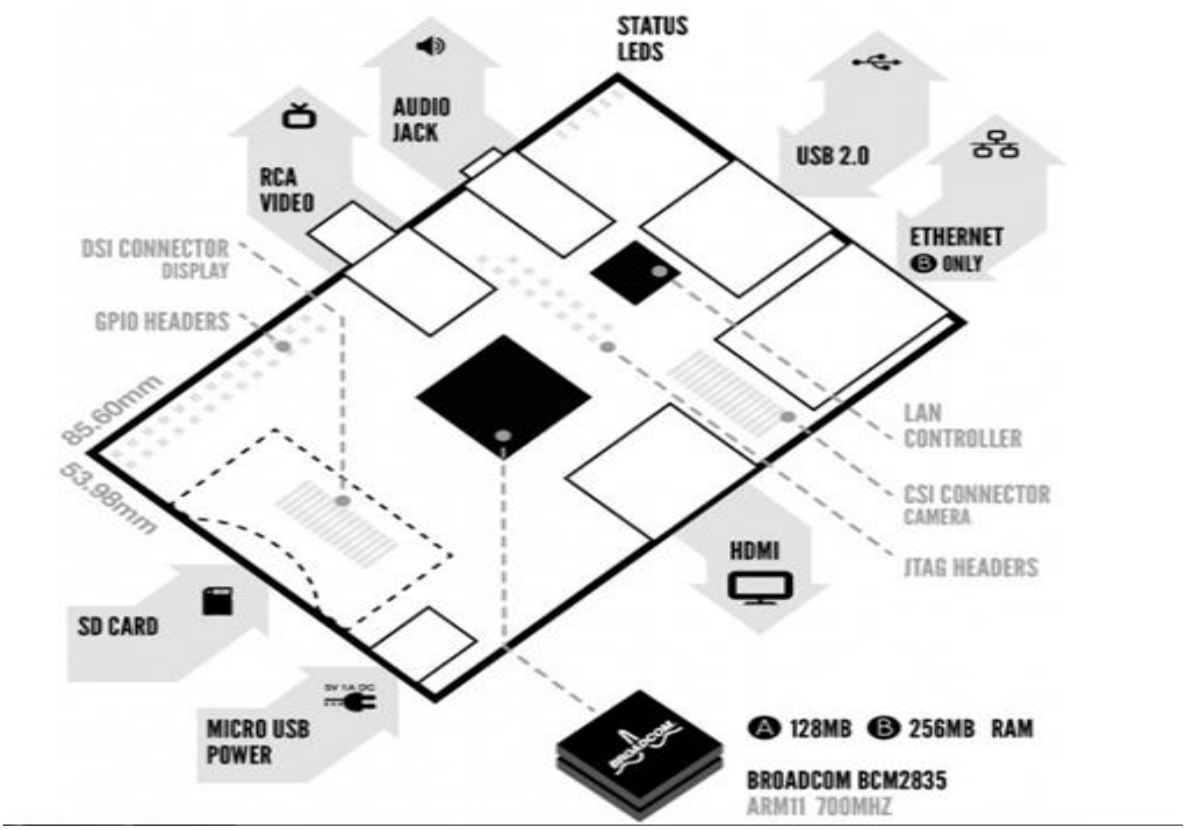

Figure 1: Raspberry pi Port specification

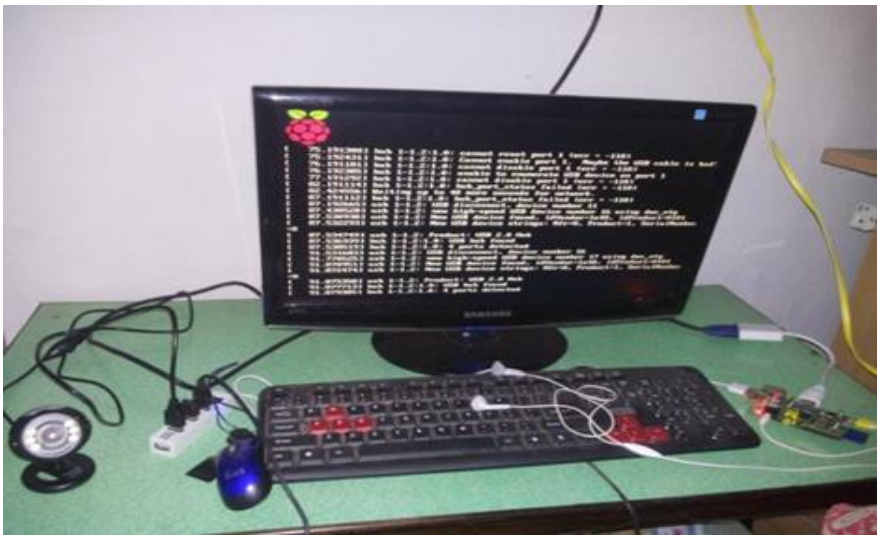

Figure 2: Working model

V. CONCLUSION

This project is a new concept of converting the picture into audio. With a sensitive camera it is produce the output with in few seconds. This concept helps the visually impaired people to unidentified the text .Every blind person will not be able to afford to learn braille .By using this method we are able to help the blind people can able to listen to the text and the label.

ADVANTAGES:

- A low cost,
- Automatic system for reading text books will be implemented that not only converts printed books to digital text, but also reads them as an audio output.

- Our proposed algorithm can effectively handle complex background and multiple patterns,
- extract text information from both hand-held objects and nearby signage

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