

# VOICE FOR BLIND PEOPLE

Winning Entry in Fall2021 RasPi Programming Competition  
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Competition Sponsors - Dr. Ayman Elmesalami & Dr. Soad Ibrahim



## Introduction

In the real-world people with vision disabilities or partially sighted users won't have easy access to read the text content in any document. In this scenario, we have implemented this project to increase the accessibility of text in any document or image for all real type users by using the most common means of communication that is speech.

## Technologies/ Languages

Raspberry PI is a cheap computer that runs Linux, but it also provides a set of GPIO pins, allowing to control electronic components for physical computing and build hardware projects explore the Internet of Things it is also used in industrial Applications.

Image processing is a method to perform some operations on an image, in order to get an enhanced image or to extract some useful information from it. It is a type of signal processing in which input is an image and output may be image or characteristics/features associated with that image.

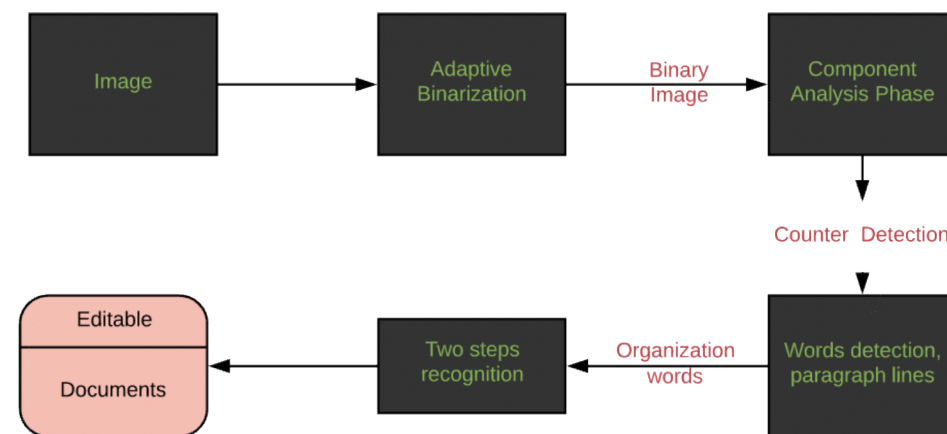
Python is a high-level, general-purpose and a very popular programming language It is being used in web development, Machine learning along with all cutting-edge technology in Software Industry.

## Tesseract OCR

Tesseract is an open source Optical Character Recognition engine that can recognize more than 100 languages with Unicode support. Also, it can be trained to recognize other languages. An OCR engine can save time by digitizing documents rather than manually typing the content of the document. From this post, you'll learn how to extract text from images using Tesseract OCR engine and Python.

Tesseract recognizes and reads the text present in images. It can read all image types png, jpeg, gif, tiff, bmp, etc. It is also widely used to process everything from scanned documents.

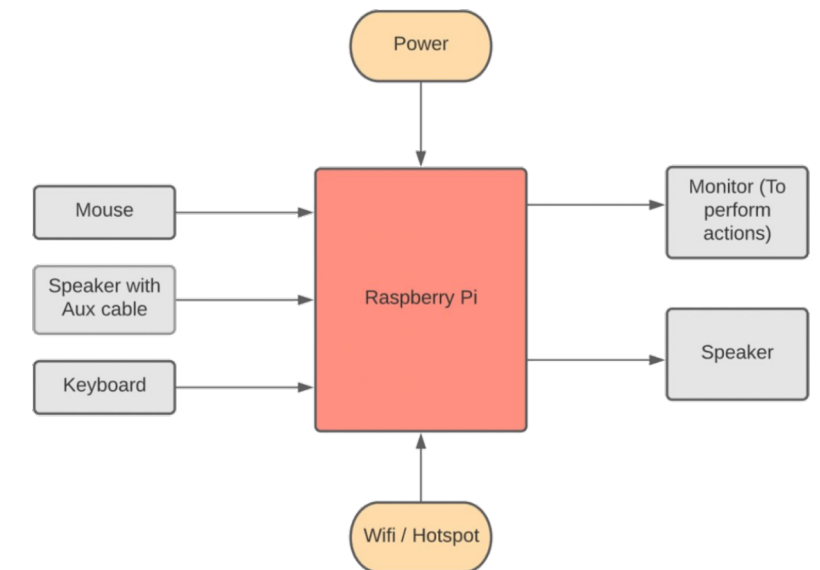
### Structure:



## Implementation

Install Debian OS in a SD card, used it in Raspberry Pi.  
Connected all the hardware devices as per diagram.

Used Python Programming language to capture and extract the text from the images and convert it to speech.



## Features

The text in the image should be plain and readable. The image should be right side up, good contrast, in focus.

Gives a Sign in the form of speech for accepting the input .

With the Bluetooth speaker a clear speech will be generated based on the text extracted.

## Pros & Cons

- One Switch to control
- No Internet connection required
- No graphical user interface to navigate
- OCR can be limited due to fonts , colors text size.
- Works best for small sections of text.