

# Raspberry Pi and Portable Camera Based Product Label Reading For Blind Persons

Raji Pandurangan\*, Shilpi Kumari, Manjari Kumari, Shobhna Bharti, Priyadharshini K,

Department of ECE, Bharath University, Chennai-073,

\*Corresponding author: E-Mail:

rajipandurangan.ece@bharathuniv.ac.in

## ABSTRACT

Propose a camera – based mark peruse to visually impaired persons to peruse names on the Products. Camera goes about as principle vision in distinguishing the label inside and isolates mark from picture. The distinguished name change over to content is on display unit associated with controller. Change over content ought to be change over to voice to hear name as voice through ear telephones joined with sound port. In this undertaking, a programmed mark peruse will actualized, utilizes a blend of different advances like embedded Linux, image preparing and optical character acknowledgment. The task utilized as numerous applications like constant perusing a book or mark for visually impaired individuals or notwithstanding for typical individuals like to listen to sound then perusing a book themselves. The task can likewise be utilized as a changing over old printed books into book recording.

**KEY WORDS:** Automatic text extraction, Optical character recognition (OCR), Raspberry pi, Text Reading, Text recognition and Audio output.

## 1. INTRODUCTION

Among 314 number of million outwardly hindered persons around the globe, 45 million are visually impaired. Indeed, even in a present day nations like the U.S., the 2008 Health meeting provided details regarding review assessed 25.2 million grown-up are visually or outwardly impaired. Producing camera based PC vision with other existing business items such optical character acknowledgment (OCR) framework. The ability for blind people have significant visual impairments to read labels and product packages printed makes easy independent living and foster economic and social self-sufficiency. Perusing is fundamental in the public printed content is all around in reports, receipts, bank articulations, eatery menus, classroom hand outs, item bundles, drugs bottles guidelines and so on. The capacity of visually impaired individuals or have noteworthy visual disabilities to peruse printed names and item bundles will improve autonomous living and encourage monetary and social independence. Recent computer vision enhancements, digital cameras, and portable computers make feasible to assist these individuals by developing camera based computer vision products like (OCR) systems.

## 2. RELATED WORK

The paper, shows a way to deal regular scenes automatic detection and sign recognition, and its application to a sign interpretation undertaking. The strategy can essentially enhance content identification rate and optical character acknowledgment (OCR) precision. In this paper, investigate another system to identify content strings with subjective introductions in complex regular scene pictures. By accepting no less than three characters content, propose two calculations of content string discovery. 1) Adjacent character collection technique and 2) content line gathering strategy. The neighboring character gathering technique computes the kin gatherings of every character competitors string sections and afterward blends the crossing kin gatherings into content string. The content line gathering systems perform Hough transform to fit among the cancroids content hopefuls. Strong framework proposed to naturally distinguish and concentrate content in pictures from diverse sources, including video, daily papers, commercial, stock declarations, photos, and checks. A programmed execution assessment plan is additionally proposed.

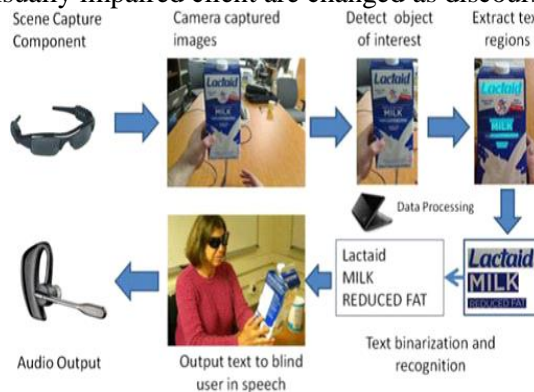
**Proposed System:** This paper shows assertive content perusing model. As outlined in Fig. 3, the framework structure practical parts: scene catch, information handling, and sound yield. The catch part gathers scenes containing enthusiastic objects for pictures or video types. In model, it compares to a camera connected to a couple of shades.

The information handling segment convey proposed calculations, including 1) object-of-interest identified specifically remove the item held by the visually impaired client from the jumbled foundation or other impartial articles in the camera view; and 2) content limitation to get picture districts, and content acknowledgment to change picture based content data into meaningful codes. Utilize a smaller than normal portable workstation as the handling gadget in this present model framework.

The sound yield segment advices the visually impaired client of perceived content codes. A Bluetooth earpiece with smaller than expected amplifier used for discourse yield. This straightforward equipment arrangement guarantees assistive content perusing framework. Portrays the framework flowchart. An edge grouping V by a camera worn by visually impaired clients, containing their hand-held protests and jumbled foundation.

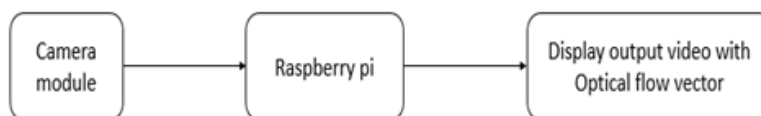
To concentrate content data from the items, movement article location is initially connected to decide the client's object S by shaking it while recording video ground from movement based item detection and R speaks to the ascertained forefront object at every casing. The interested object restricted to closer view veils.

Then, novel proposed confinement calculation connected to the enthuse object to concentrate content locales. At to begin with, hopeful areas created by format examination of shading consistency and even arrangement After content district limitation, off-the-rack OCR utilized to perform content acknowledgment in the restricted content locales. The perceived words of visually impaired client are changed as discourse..



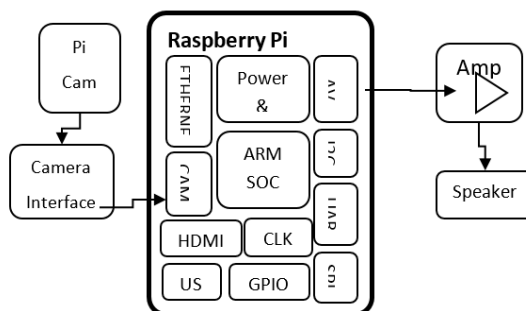
**Figure.1. Proposed casing work Flowchart to peruse content from hand-held items for visually impaired clients.**

#### Block Daigram:



**Figure.2. Block diagram for portable camera based label reader for blind people.**

#### Architecture Daigram:



**Figure.3. Architecture diagram for raspberry pi based automatic label reader.**

**Module Discription:** Raspberry pi is a Broadcom (BCM2835) contains the following peripherals which may safely be accessed by the arm soc: Here arm1176jz-f-5 processor soc is advance risk machine system on chip It is using for instructions.soc is a Broadcom (Cpu, GPU, SDRAM and single Usb port). It is a system on a chip. It is somewhat equivalent to the chip used in smart phones (android, iphone). Soc running at 700 MHZ (can be over clocked).



**Figure.4. Raspberry pi development board.**

- In BCM2835 there are number of peripherals which are intended to be controlled by the GPU. These are: GPIO (General Purpose Input Output): it is a low level peripherals, (audio) same specific function. Specific function including SPI, UART. SPI (special peripheral interface) and UART (universal asynchronous receiver transmitter).
- Raspberry pi also contains camera module and High Definition Multimedia Interface (HDMI) and I2C and AV (audio video) cable.

### 3. RESULT

The result of automatic label reader will consider in many applications like real time reading of a book for blind people even for normal people who prefer to listen audio than reading a book themselves and also converting old printed books into audio books. 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 a audio outputs. In this project a raspberry pi board connected to a embedded camera module is used, using which a picture of the page is taken automatically. This image is then processed automatically using a image processing based optical character recognition (OCR) program that can convert the printed text to a digital text, this digital text can then be converted into audio using a voice to text program. Raspberry pi is a revolutionary credit



**Figure.5. Raspberry pi development board connections.**



**Figure.6. Label name.**



**Figure.7. Output on Display**

Card sized embedded computer which can be used for many projects and at the same time it is low cost, low power, and small in size and easy to use.

### 4. CONCLUSION

In this paper, we have portrayed a model framework to peruse printed content available held article for helping blind persons. And have a bowel content confinement calculation in light of models of stroke introduction and edge disseminations. Besides will address the critical human interface issues connected with perusing content by visually impaired clients.

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