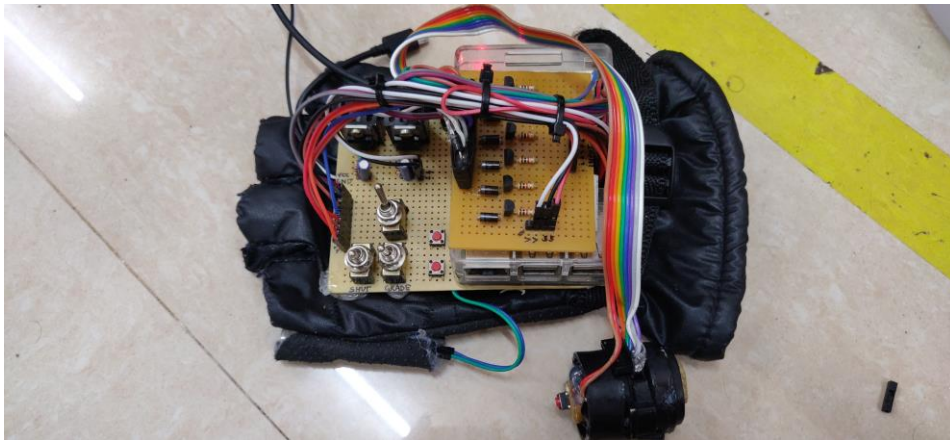


# Victorious Visionaries: Portable Braille



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# OBJECTIVE

The aim of this project is to make a Portable Braille System as an assistive reading device to solve the problem of unavailability of many of the printed books and texts in Braille script.

# WORK PLAN

- ▶ Implementation of text extraction from an image using Optical Character Recognition.(OCR)
- ▶ Implementation of text to Braille conversion in Grade 1 and Grade 2.
- ▶ Combining the above in Raspberry Pi to achieve image to braille code conversion.
- ▶ Modification of dot matrix printer head to act as an actuator.
- ▶ Adding extra features like speed variation and read mode, making driver circuit for actuation.
- ▶ Fabrication of the prototype and testing/feedback in blind home/school.

# STATUS

- ▶ Currently the model takes images and converts them to text format and then to Braille code and feeds this code to user's fingertip by a dot-matrix printer head.
- ▶ A vibration motor is installed to give feedback to the user.
- ▶ Toggle switch is used to select between Grade 1 and Grade 2 Braille as per user convenience.
- ▶ Two push-buttons are given to adjust the speed at which the Braille code is actuated.

# FUTURE WORK

- ▶ Customized processing unit can be used to make a more compact model which also reduces the cost drastically.
- ▶ Using a memory unit to store the words, hence achieving a system of e-braille books.
- ▶ Rewind/Forward features can be added, so that the user can go forward or backward to some words if needed.
- ▶ Can be extended to handwritten and cursive text reading.
- ▶ Wireless interfacing between camera and processor to make the model more portable and user friendly.
- ▶ Object and face detection to make this system as a complete personal assistant for the blind.

# BUSINESS MODEL PLAN

<b>Key Partners</b> <ul style="list-style-type: none"><li>• GE Healthcare</li><li>• Forus Health</li><li>• IAB (Indian Association for Blind)</li><li>• NAB(National Association for Blind)</li><li>• Dell &amp; Goodwill e-waste management system</li></ul>	<b>Key Activities</b> <ul style="list-style-type: none"><li>• R&amp;D to make this into a complete personal assistant or blind.</li></ul> <b>Key Resources</b> <ul style="list-style-type: none"><li>• Miniaturized actuators obtained from obsolete printer heads.</li><li>• Customized microprocessor.</li></ul>	<b>Value Propositions</b> <ul style="list-style-type: none"><li>• Very cheap compared to existing braille readers.</li><li>• Highly portable for day to day usage.</li><li>• After few extensions it can become a personalised assistant for the blind.</li></ul>	<b>Customer Relationship</b> <ul style="list-style-type: none"><li>• Partnering with blind schools and rehabilitation centres.</li></ul> <b>Channels</b> <ul style="list-style-type: none"><li>• Government organisations like NGOs, IAB, NAB.</li></ul>	<b>Customer Segments</b> <ul style="list-style-type: none"><li>• Visually impaired students.</li><li>• People who read regularly in Braille.</li><li>• Blind homes/Association.</li></ul>
<b>Cost Structure</b> <ul style="list-style-type: none"><li>• Processing unit : Rs.2000-3000. Can be reduced further with customized boards.</li><li>• Camera: Rs. 2000-3000</li></ul>			<b>Revenue Streams</b> <ul style="list-style-type: none"><li>• Rehabilitation centres for blind.</li><li>• Governments organisations like governments schools for blind, IAB,NAB.</li></ul>	