

# DivyaNayan – A Personal Reading Machine for Visually Impaired

## Introduction

DivyaNayan is a reading machine for visually impaired or illiterate person where any printed or digital document can be accessed in the form of speech output. The device uses a contact line scanner for acquiring the image of a printed document. User manually scans the document by placing the machine on printed document without knowing the direction of text flow, over the document to be read. It uses optical character recognition technique to convert the image into text and a text to speech converter, further converts the text into audio. The audio files are organized in the machine and can be listened back. The device is standalone, portable, completely wireless and IoT enabled. The device can analyse a multicolumn document to provide seamless reading and is capable of page, text, and word level navigation while reading. It has currently support for reading Hindi and English but can be further configured to other Indian and foreign languages. The device is equipped with user interfaces such as internal speaker, rechargeable battery, USB, headphones, SD card, Wi-Fi and Bluetooth to control the machine.



## Salient Features

- Stand-alone, portable, completely wireless and IoT enabled
- Currently supports Hindi, English documents reading in Indian accent.
- Configurable for other Indian and foreign languages
- Multifunctional (Read printed text, e-books, e-news)
- Document storage and updates via cloud
- Page orientation detection and correction
- Capable to read Multi-column document
- Online Hindi and English news reading
- Capable of page, text, and word level navigation
- Rechargeable and detachable Lithium ion battery
- Battery run time of up to 3 hours

- Auto-standby for longer battery runtime
- Internal memory of 32 GB for document storage

## Language

Languages supported (Current)	: English, Hindi
Accuracy	: 97.5 % for English, 85% for Hindi
Auto language identification	: No

## Specifications

Dimensions	244 x 52 x 44 mm
Weight	450gms approx.
Portable	Yes, the device is standalone, portable, completely wireless and IoT enabled
Document Storage	32 GB (~30K pages) built-in storage memory and USB connectivity for further storage
Input format	Printed text
Output format	Audio
Document size	Up to 212 mm
Document type	Non-glossy white background
Document scanning direction	Top – Down , Bottom – Up , Left – Right , Right - Left
Scanning speed	Manually by the user, 10-15 seconds to scan one A4 size printed page
Conversion time (A4) (a) Image to text – English/Hindi (b) Text to speech – English/Hindi	(a) 18/80 seconds  (b) 3/6 seconds
Volume control	Yes
Speech pace control	Yes
Storage	Yes
Batch processing	Yes
Interfaces available	Wi fi, Bluetooth, LAN, USB (to read from pendrive), Headphone (3.5mm audio jack)