

# I-BRAILLE :AN AFFORDABLE INTERNET-OF-THINGS BASED BRAILLE DISPLAY



**Durbin**  
Solutions

Authors: Mowaz Mohammed Abdul Karim  
Tasnuva Chowdhury  
Pramit Dey  
Irfan Nafiz Shah  
Arnob Paul  
Al-Mubin Khan Nabil

Submission ID: 971



## ABSTRACT:

iBraille provides opportunities for the blind and deaf to read any text from anywhere - digital or physical. We are offering a portable and cheap mechanical braille designed for user ease. Our users can use it to read from a book, and it can also be connected to computers and smartphones for reading or typing text.

## INTRODUCTION :

In 2020 there were an estimated 18.1 million people in the working age who were blind. The yearly cost of potential losses in 2018 was \$43.6 billion purchasing power parity due to blindness. For Bangladesh, 750,000 people are suffering from blindness. To develop our country it is crucial to address this issue. Generally most braille displays are very costly, costing \$2000 to \$10000 which is unviable for the case of Bangladesh GDP per head; hence our goal is to make this as cost effective for these people as possible.

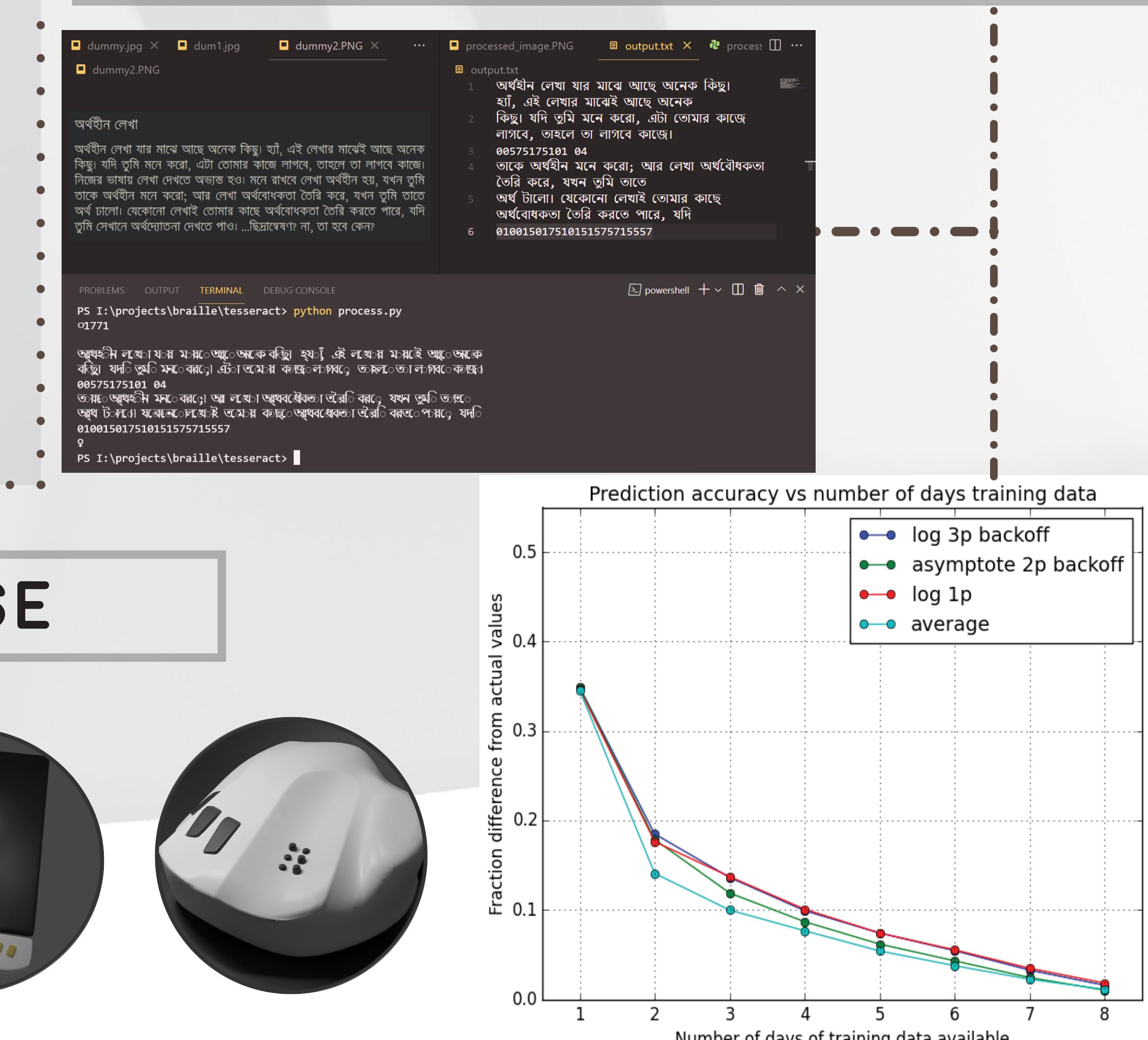
## DESCRIPTION:

Our device can detect Bengali and English text with Optical Character Recognition (OCR) from any digital or printed text. We are making a system to read the text via a modern solution that can learn by experience, and convert it into braille for the blind and deaf on a display. We are also taking a different approach on the braille display with a mouse. It can be moved on the board, to provide a reading experience much closer to visual reading, compared to normal braille displays. It can also be easily used wirelessly with current smart devices.

## REQUIRED TECHNOLOGIES:

- Machine Learning
- Optical Character Recognition
- Image Processing
- Microcontroller Microprocessor
- Servo and Stepper Motors
- Internet-of-Things Module
- Wireless Communication Conveyor Belt
- Gears

## OPTICAL CHARACTER RECOGNITION



## BRAILLE DISPLAY MOUSE

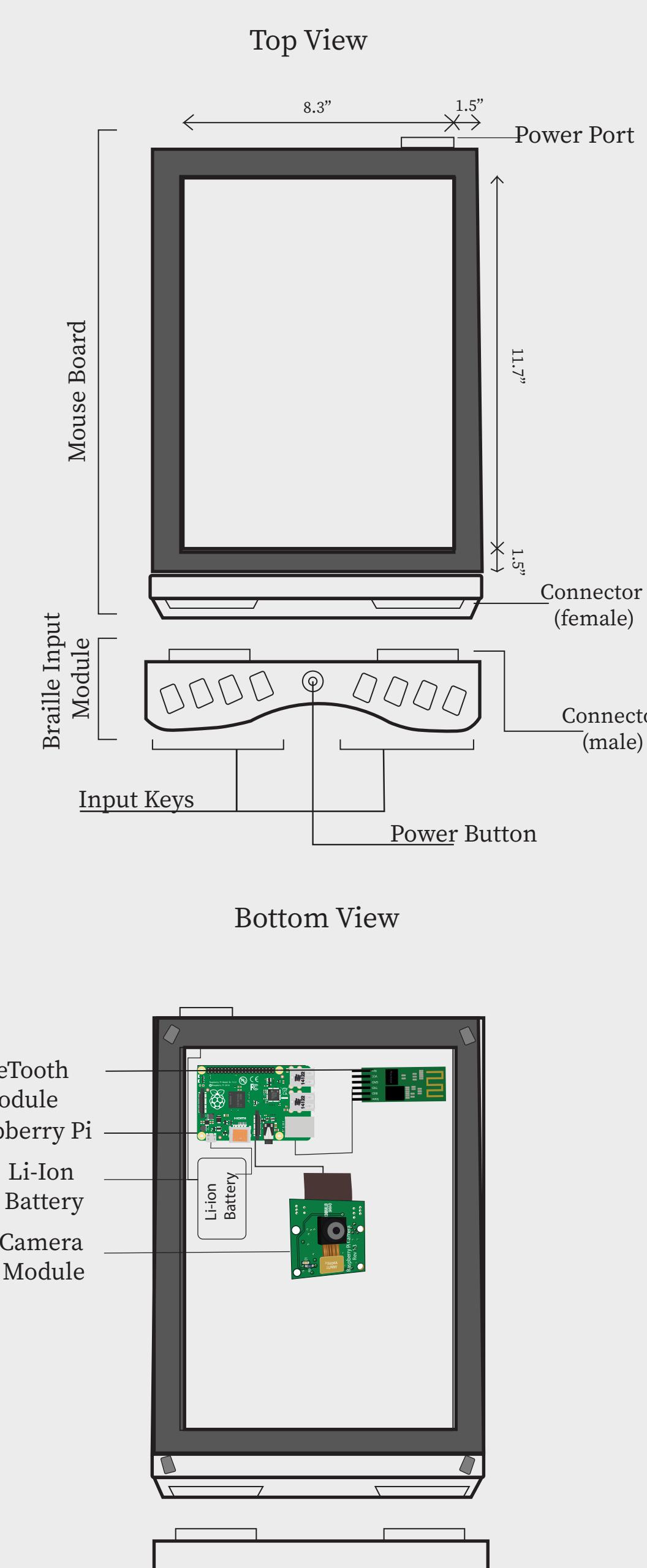
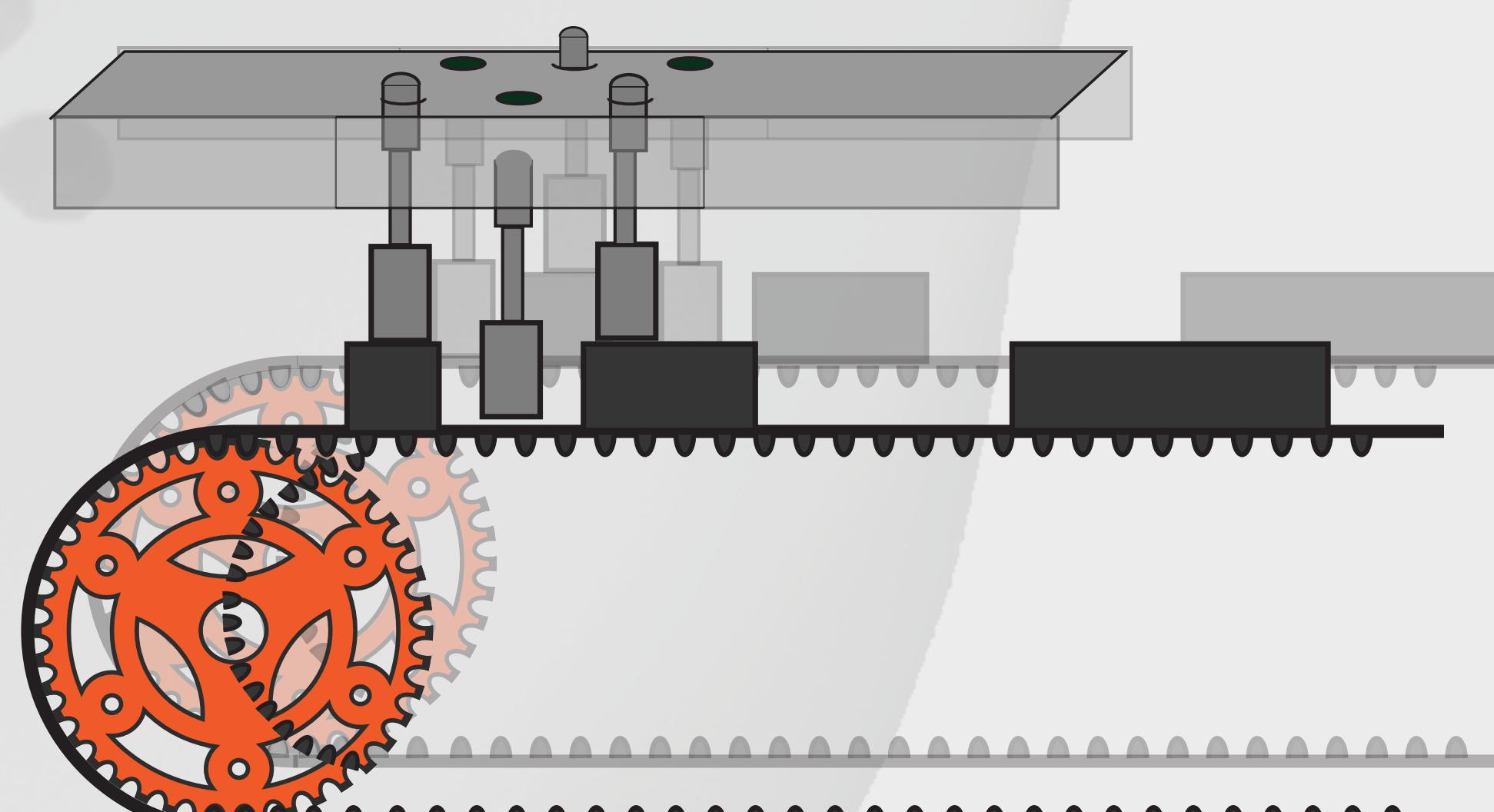


## METHODOLOGY:

An A4 size board that will represent the real size of the scanned or digital paper. A 2 x 2 inches mouse on top of the board will work as a cursor to the paper. This mouse has a braille display with a single braille cell with moving belt mechanism. Users can move the mouse around on the board to read the text with their first finger on the display at the position pointed by the cursor. This also allows the user to properly use their smart devices when connected, the same as normally using a tablet. Thus digital papers can be read directly from the device. The board also has buttons for general and braille-to-text input. Any physical paper can be scanned using a smart device and processed using our custom mobile app.

## CONCEPT:

Mechanism Design:



## CONCLUSION:

We are trying to provide the underprivileged with the help they require to lead an easy and free life, and adapt to digital Bangladesh. We believe blind and blind-deaf people can help develop our country. We are providing a solution that can help even the poorest people in Bangladesh promoting an environment



INTL CONFERENCE ON 4<sup>TH</sup> INDUSTRIAL REVOLUTION & BEYOND

