

## ABSTRACT

Braille Characters is a system of writing and prints (based on Latin alphabets) for the blind, consists of six-dots code in different combinations embossed on paper sheets. One of the tools to type the Braille characters is Perkins Brailier. The output of the Braille type machine is a paper with Braille characters. This has become the obstacle for common people to read what the blind have made. This final project design a system that can convert the Braille characters into sounds. In addition to helping common people, the blind can also get the benefit from the system to understand the Braille without them feeling the sheets with their hand.

The system consists of 2 main processes; conversion from Braille characters into Latin alphabets and conversion from Latin alphabets into sounds. On the Braille to Latin conversion process, the Braille characters gained from scanning result are pre-processed through median filter, grayscale process, BW image, BW areaopen, rotation, and dilation. After that a feature extraction algorithm is applied and the result will be classified using K-Nearest Neighbor (K-NN). Resulted Latin characters will be converted into sounds using diphone synthesis method.

This Braille-to-sound converter system is proved to work well by giving out 98.6294% accuration rate at its best and with 13.49 seconds average computation time. Those results were achieved with the value of  $k=1$  and 5 training images. With MOS (Mean Opinion Score), this system overall has the average value of 3.87.

Keywords : Braille, converter, Latin, diphone