Smart Mail Sorting System for Sinhala Handwritten Addresses

Authors: W.D.R. Fernando (dinal.16@itfac.mrt.ac.lk), S.D.P. Bhashani (piumikadasanayake@gmail.com), L.P.V.H. Ranasingha (ranasinghahanshika@gmail.com)

Abstract

In Sri Lanka post offices play the most significant role when considering sharing the letters, bills, bank statements, sending parcels, and many more. According to the performance report of the postal department in 2018, 258,866 letters had been sorted and delivered through the Central Mail Exchange per day in Sri Lanka [1]. This mailing process could be made more effective and systematic by reducing the time of the manual process and the human error rate. There are many existing systems regarding automating the mail sorting process in other countries. As an example, Amazon deploys a robot allowing it to receive a package and deposit it in the correct location in the center according to the zip code by reducing miss-sorts [2]. However, in Sri Lanka, there is no proper system to automate the mail sorting process because, in the context of the Sinhala language, the alphabet consists of symbols that are complex and vary in shape and dimensions. Identifying each letter or modifier in a Sinhala text image is a challenge due to features such as overlapping or touching characters, cursive or non-cursive characters, and vary in shape or dimension of the characters from person to person, etc.

This research proposes a solution to implement an automated system that can take an envelope image and classify that envelope into relevant postal division using postal code. The proposed methodology has two main phases known as identifying the relevant postal division and digitization of the mail process. The first phase consists of three sub-processes: preprocessing and identifying elements, segmenting and character recognition, error correction, and identifying relevant postal code. In the second phase, the proposed system keeps a record of mail details that are passed by the system.

[1] "PERFORMANCE REPORT," POSTAL HEADQUARTERS, COLOMBO 01000, 2018

[2] Matt Leonard, “Amazon deploys ‘Pegasus’ robots in sortation centers to reduce miss sorts,” May 19, 2019.