

MACHINE LEARNING-BASED RECYCLING SYSTEM

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A dissertation submitted in partial fulfillment for the requirement for

BEng (Honours) in Software Engineering

School of Computing

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in collaboration with

University of Westminster, UK

2023

Abstract

Human activity on Earth generates trash almost daily, with specific categories such as electronic, plastic, and metal posing significant threats to the ecosystem if not properly recycled. This is happening in Sri Lanka as well and the poor management of waste doesn't seem to reduce. Therefore, effective recycling methods are important in mitigating the negative impact on the environment.

The aim of the author's project is to conduct research and create a system that can efficiently minimize waste generation. Using machine learning techniques, such as object detection, the system will identify various types of waste, including E-Waste, metal, cardboard, paper, and plastic, from user input. The system will encourage people to recycle waste generated in households by offering financial benefits, such as money. Typically, people are not inclined to recycle as they find it tedious and time-consuming to personally go to a garbage dump or wait for a garbage truck to deposit the recyclable items. This proposed system aims to provide an easier alternative way to recycle to the people. By giving their recyclable items to recycling companies or collectors, they may earn a benefit, which further encourages recycling in the community.

Keywords — Object detection, Machine learning algorithms, Waste Management, plastic, paper, recycle, reuse, Deep Learning, Multiple Object detection.