



Republic of the Philippines

# **POLYTECHNIC UNIVERSITY OF THE PHILIPPINES**

**COLLEGE OF ENGINEERING  
COMPUTER ENGINEERING DEPARTMENT**



CMPE 30193

Methods of Research

## **TITLE PROPOSAL**

### **Proponents**

<b>Name</b>	<b>Section</b>
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Date



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## **Title:**

MACHINE LEARNING SCANNER APPLICATION FOR PROPER  
SEGREGATION OF RECYCLABLE MATERIALS AMONG HOUSEHOLDS

## **Rationale:**

We are not strangers to the problem of waste. Every year, billions of tons of waste are dumped around the world. The National Solid Waste Management Commission (NSWMC) estimates that by the end of 2022, the Philippines would have produced 22.27 million tons of waste. Plastic waste is one of the major contributors to this problem. According to the World Bank, the Philippines produces 2.7 million tons of plastic waste each year, with 20% of it ending up in the ocean. Plastic waste is harming marine life and affecting food security, climate change, and the economy. According to the World Bank, the Philippines recycled only 28% of important plastic polymers in 2019. They also remarked that when recyclable plastic products are dumped instead of recycled into valuable materials, it is a loss to us. Recycling our waste would aid in addressing the country's growing waste crisis.

The only concern is that most Filipinos are confused about recycling, which is why this study is being conducted. This software will allow users to scan their trash before tossing it in the garbage bins to determine whether it is recyclable or not. Machine learning will be used in this application to improve the accuracy of determining the type of trash being scanned.



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### **Statement of the Problem:**

The objective of this study is to create an application that allows users to scan their trash and determine if it is recyclable or not. Furthermore, it seeks to respond to the following questions:

1. How much recyclable waste (kg) is being produced by the selected households per week in Binangonan, Rizal before using the Recycle Helper mobile application?
2. How much recyclable waste (kg) is being produced by the selected households per week in Binangonan, Rizal after using the Recycle Helper mobile application?
3. How much recyclable waste (kg) is being produced by the selected households per week in San Jose Del Monte without using the Recycle Helper mobile application?
4. Is there a significant difference between the amount of recyclable waste being produced per week in San Jose Del Monte, Bulacan (control group) and amount of recyclable waste being produced per week in Binangonan, Rizal (experimental group)?



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### Scope and Limitations:

This research focuses on scanning waste and determining whether it is recyclable or not. If the trash is non-recyclable, this application will not provide users what specific type of trash it is. This application will also not give users any options on what to do to recycle their trash.

