Memo

Date: July 1,2017

To: Philadelphia Recycling Center

From: Guangyu Mao

Subject: Automatic Recycle

Introduction

This is my senior design project that is based on the density differences to detect and classify different material. This design is for a recycling company in Philadelphia which will produce a huge amount of the recyclable garbage.

In this design, first I will use statistical methods to obtain the recyclable garbage distributed in different area in Philadelphia. Based on the data, we can know that what is the most recyclable garbage that produce in Philadelphia. Then, we can establish a database that contains all the density of those recyclable garbage. After the database is set up, I will connect those data into the density sensor and install it in the recyclable machine. Once all the garbage delivery into the garbage station all the garbage will scan by the machine that installed with the sensor?. After the scanning, the nonrecyclable garbage and recyclable garbage will separate. The recyclable garbage will go through the scanning again to classify by different material.

Classifying all the recyclable garbage before processing the recycling can reduce the time and people to separate that garbage. And, the derivative will produce better quality so if the reuse to public or house will release longer.

This design can start use in different area on Philadelphia once it become more optimal then we can start to collect more data in neighboring city because different location will produce different garbage so if we need to use this in another city we need to update the density database server.

Recycling saves energy because the manufacturer doesn't have to produce something new from raw natural resources. By using recyclable materials, we save on energy consumption, which keeps production costs down. We classify different materials before recycling to reduce energy waste and labor waste during the recycling. The automatic separation can make recycling more efficient and pure recyclable derivative.