**Machine Learning in Waste Segregation**

**Purpose of this project:**

Identifies and classifies waste materials as recyclable and non-recyclable.

**Problem:**

Waste Management is a huge problem in any country, especially where the population is growing. One of the major problems is the huge amount of waste that goes to landfills. According to CNBC, San Francisco has diverted 80% of its waste from going to landfills with an aim to achieve zero waste (Katie). The city has done this with the help of its waste management company, [Recology](https://www.recology.com/) (Katie). With the help of the blue bins, it collects the recyclable waste from all around the city.

Even though most of the time people throw the waste in the appropriate waste bin, sometimes people tend to throw it in incorrect bin which makes the waste segregation difficult. This Project is aimed towards helping the recycling centers in separating non-recyclable materials using Machine Learning techniques.

**Method:**

I have developed a Machine Learning model which is trained with common waste materials that is thrown in recyclable bins such as cans, glass, cardboard, paper. This model is also trained with non-recyclable materials such as plastic bottles, plastic wrappers which are thrown by mistake into the blue bin.

With the help of neural networks and Google AutoML Vision, we identify and classify the waste materials into the following categories: Metals, Glass, Cardboard, Paper, Plastic.

**Result:**

Using neural networks and Google AutoML Vision, we are able to identify and classify these materials with 99% accuracy.

A screenshot of a cell phone

Description automatically generated

A Sample prediction using Google AutoML

**Conclusion:**

This project will pave way for a greener environment by helping the waste management facilities in effectively separating non-recyclable trash from recyclable materials.

Reference:

1. Katie, Brigham. “How San Francisco sends less trash to the landfill than any other major U.S. city.” CNBC, <https://www.cnbc.com/2018/07/13/how-san-francisco-became-a-global-leader-in-waste-management.html>. Accessed June 2019.