Garbage Locating and Classification

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Environment Pollution

- Land Corrosion
- Water contamination
- Air pollution
- Health threat

United States:

·2,400 kilos per family/year
·100 billion plastic bags /year
·0.6 billion food waste/year

Recycling rate: $<35\%$

Can you classify your daily waste yourself?

Public:

A mobile app with waste classification technology that can help them correctly dispose their waste.

-image only, people only have cell-phone camera access to the waste without external device

-efficiency process, using cloud. The app should not have large size and should not use up the calculation resources of the phone.

Waste handling facility:

Automatically classify the mixed waste on a process line, so fewer workers will be needed to only sort out the confused waste.

-external device available(may not applicable for our product, due to financial reason), accessible in multiple aspect, which may further improve the accuracy

-not original waste, mixed with others and often with things stick on it.(e.g. Colorful liquid from other trash)

Goals for the project:

1. Be able to classify well imaged trash.(only one object in the image and clean background)

2. Able to locate the object(s) of interest in a photo.

3. Further improve accuracy and increase the range of categories available

Process

1.Recyclable
2.Household
3.Hazardous
4.Other

Image

Target Detection

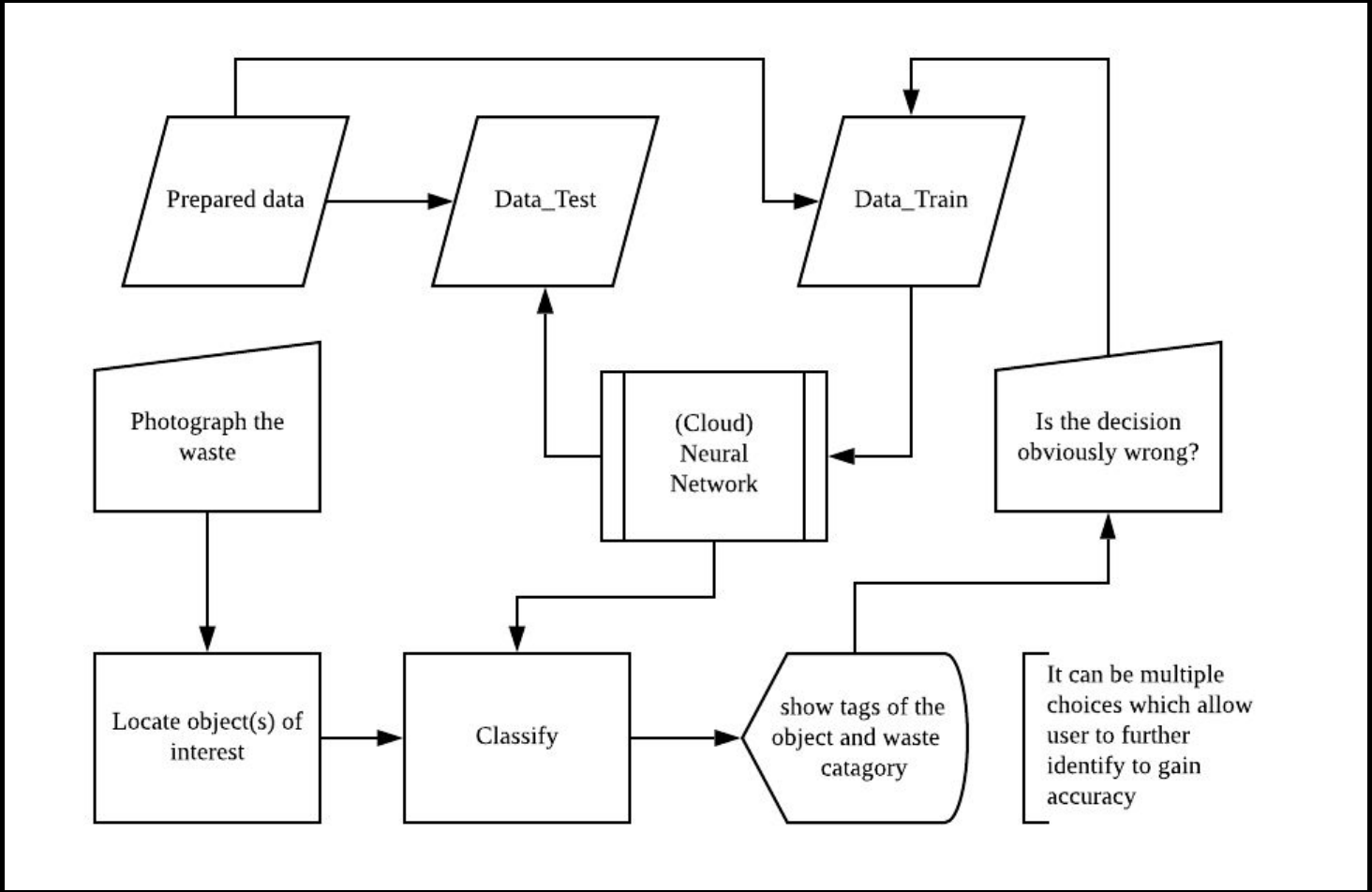
Target Recognition

Data set

Feature Extraction

Training Model

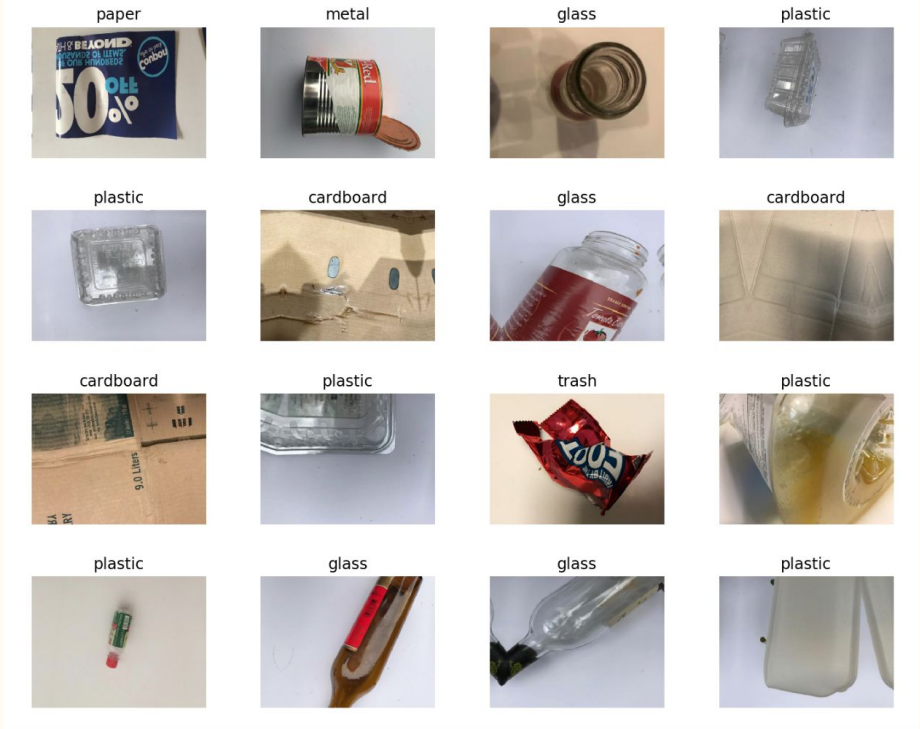
Architecture



Existing product:

image classifier for waste sorting by Collin Ching

This product is able to identify well imaged waste with good accuracy.



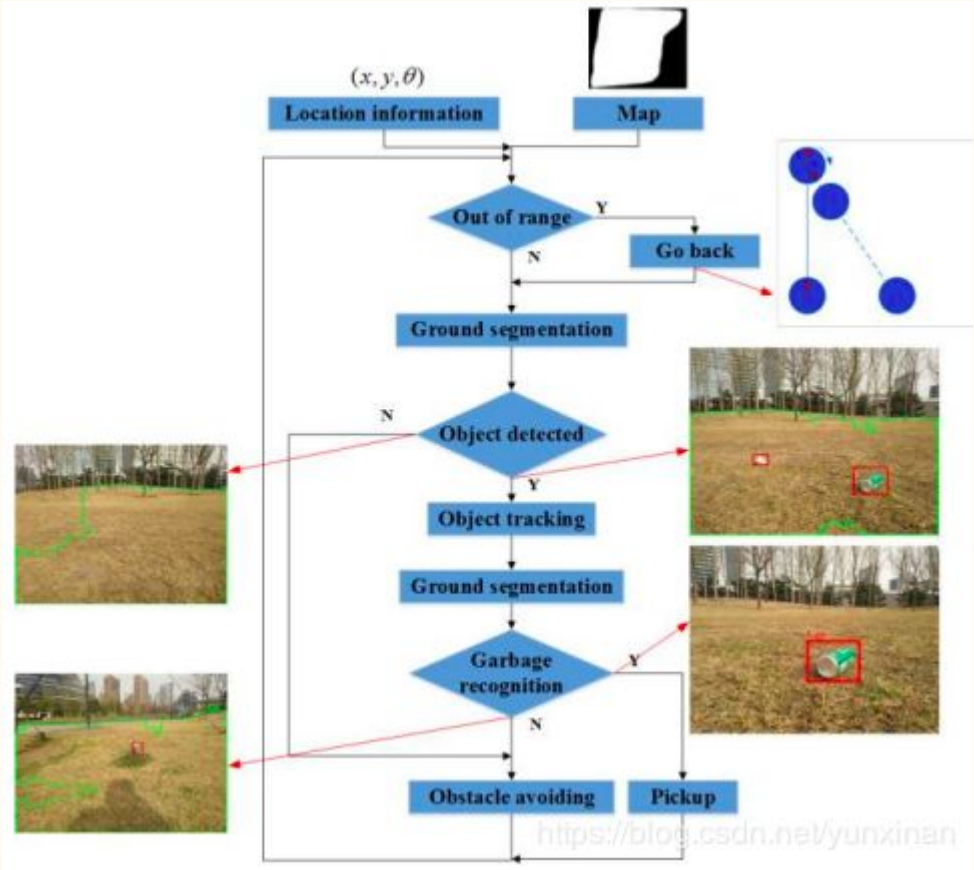
Reference link: https://towardsdatascience.com/how-to-build-an-image-classifier-for-waste-sorting-6d11d3c9c478

Deep Learning Based Robot for Automatically Picking up Garbage on the Grass

1.Grass segmentation

2.Garbage location and tracking

3.Limited kinds of rubbish



https://blog.csdn.net/yunxinan/article/details/93395628

Plan for Sprint 2

1. Detailed final solution
2. Simple Model
   Sorting representative objects from different kinds