

Plastics Litter Imaging Protocol as Data Gathering for AI-based Counting

Latest Update: September 16, 2022

Introduction

This document serves as a protocol for sampling images of macro-plastics litter on the surface of beach or marine environments*. Macro-plastics are plastic litter that are clearly visible by the naked eye, and are larger than 5mm in diameter. This protocol was developed to increase the image dataset for training, testing, and validating the artificial intelligence model for counting macro-plastics developed by PlastiCount Pilipinas.

*It is important to note that the original use-case of the model was developed for drone-based images, however, due to lack of available data, the model was extended to handheld devices (i.e. phones and portable cameras) for citizen science.

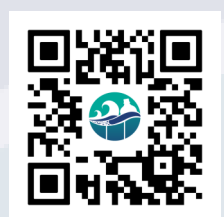
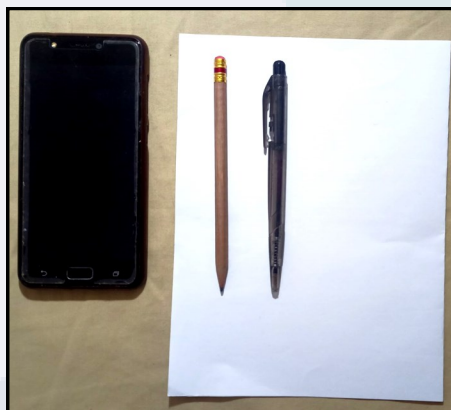
Materials

The following materials are needed to take image sample of macro-plastic litter in the environment:

- Handheld device with camera. (i.e. Phone or Portable Camera)
- Paper and Pen

Optional materials:

- Memory Card for storage
- GPS



Method

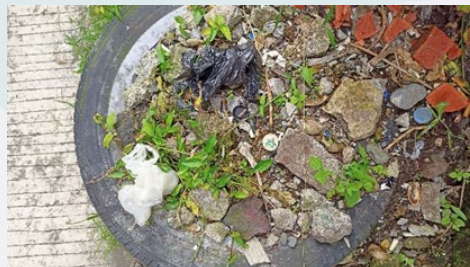
1. Locate a site where there are visible macro-plastic litter on the ground.
2. Take a clear and well focused picture of the plastics wherein the plastics are visible and distinguishable from each other. Take photos at the following distances:
 - At least 1-meter away from the plastics diagonally downward from eye-level.



- Top-view at breast-level



- Top-view at waist-level



3. Take note of what kind** and how many plastics are in the image.
 - For each image, consider only up to 10 visibly distinct plastics per image and between 2 to 10 kinds of plastics per image
4. Take note of the place and date of data collection.
 - You may record either
 - (a) Landmarks and General location; and/or
 - (b) The geographical coordinates at the site of collection (thru GPS device or phone)
 - Record the Date using the YYYY-MM-DD format.
5. Upload the data to the PlastiCount data entry portal:
 - <https://forms.gle/3ezh2nQwtnCnYqdx7>



** For the classification of plastics, turn to the next page.



Plastics Classifications:

For macro-plastics, you may use the following classes. Note: if the plastic in the image is not in the list, you can use the closest or 'others'

- a. Band-aid
- b. Bottle Cap
- c. Electronics Cable
- d. Cigarette Butt
- e. Deodorant Stick
- f. Diaper
- g. Glove/s
- h. Mask
- i. Plastic Bag
- j. Plastic Bottle
- k. Plastic Bucket
- l. Plastic Coated Paper / Plastic Laminated
- m. Plastic Cup
- n. Plastic Fork
- o. Plastic Lid
- p. Plastic Meal Container
- q. Plastic Pen
- r. Plastic Spoon
- s. Plastic Straw
- t. Plastic Wrapper
- u. Styrofoam Cup
- v. Styrofoam Straw
- w. Styrofoam Meal Container
- x. Syringe
- y. Toothbrush
- z. Others

