Raspberry Pi Foundation

Waste classification using images — Project brief

Image source: https://pixabay.com/photos/compost-ecology-waste-garden-6053136/

A huge amount of waste is generated every year around the world. There are lots of different types of waste so it is sometimes difficult to know how to dispose of items properly. As such, a lot of waste ends up in landfills when instead it could be reused or recycled. One main category is biodegradable waste, which is organic matter such as garden and food waste. Over time, these items decompose and are recycled into organic material, which can be used for things like compost or even biofuels.

The problem

Some waste products are placed into the wrong types of bins, which can cause various issues. For example, if food waste is put into a recycling bin rather than a biodegradable waste bin, the food can contaminate the contents so that the other items may not be able to be recycled. Instead, it may all be sent to a landfill.

Using an image of an item to identify which bin it should be placed in would help people to sort waste correctly and reduce the amount of items ending up in landfill.

Your task is to train a machine learning model that will predict whether a waste product should be placed in a biodegradable waste bin or another type of bin.

Sample of the data

Image	Organic? (1 = Organic, 0 = Non-organic)
	1
	0

Image source: https://www.kaggle.com/datasets/techsash/waste-classification-data (CC BY-SA 4.0)