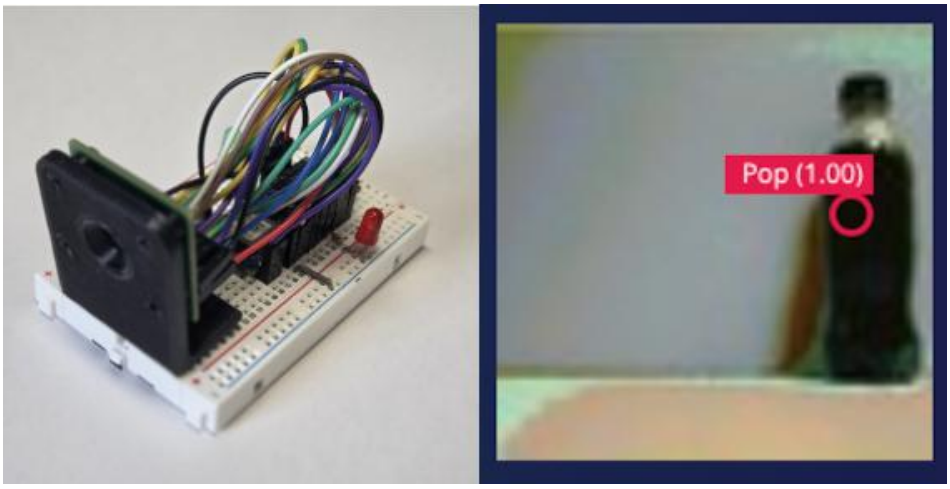
Object Detection (AI) with an Arduino for less than $100CAD

Object detection (identification of objects and their location in an image) is one of the most useful and widespread application of artificial intelligence, even on microcontrollers.

This demo shows how free, web-based tools designed for memory-constrained devices at www.edgeimpulse.com can be used to collect a dataset, train and test a neural network, and deploy it to an Arduino microcontroller to detect pop bottles.

Although performance is limited on small, memory constrained devices, useful applications are possible, for example, spotting defective parts on a (relatively slow) assembly line.

The total hardware cost for this demo is under $100 CAD.



Left: Arduino-based prototype with an OV7675 camera mounted on a breadboard.

Right: Object detection output showing a pop bottle correctly identified by the neural network (“Pop (1.00)” indicates the model’s estimated probability).