HOUSEHOLD OBJECT DETECTION FROM INDEX FINGERTIP

Objectives

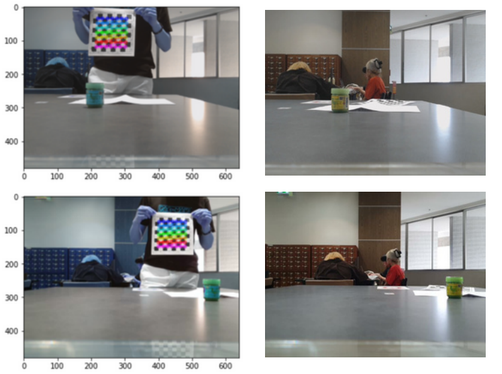
The idea of effortlessly identifying objects can help benefits in many scenarios, such as, assisting disabled person to identify and retrieve the object. Also, it can optimize an industries such as logistics, manufacturing, or retails. Our goal is to initiate and find the potential of simplify object detection.

Scopes & Challenges

We aim to detect the simple household object such as remote, notebook, phone. The two camera will be used to simulate different views. Our main challenge is, the application should be responsive and robust. Additionally, using two camera to create stereovision to locate the object is not simple.

Why not Stereovision?

We have tried. Unfortunately, we were unable to correctly calculated 3D coordination (x,y,z) which make it impossible to locate object. This may come from poor camera calibration and limited hardware resources.



Our camera calibration process

Our Approach:

We use two camera on different angle. For each camera, the hand movement are tracked into coordinate (x,y) with the help of *MediaPipe*. The projection line of the index fingertip is created and every object in the line are marked from the object detection model. Finally, we find and display the output of the object that appear is marked on both camera.