AINT308 - OpenCV Assignment 1 2022

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***Abstract*—Machine learning is not a new technology, it is a field that is becoming more prevalent within modern engineering practises. It is being used more in the rapidly evolving fields of automation and automation. This report outlines some of the functionality of a popular C based computer visions library OpenCV. Task 1 is to evaluate the colors of pixels in a picture to determine the colour of a given object in the frame (car). Task 2 was to track on object across frames of a video to track its motion (swinging pendulum). Task 3 was to identify and cross correlate components on a circuit to check for any missing components.**

Keywords:
Computer Vision, OpenCV, Object Detection

I. Task 1: Colour Sorter

A. Introduction

The first task was to evaluate pixel color within the RGB colour space. The task was to identify the colour of a given car within the frame.

B. Solution

The figure below shows my solution to the first task, the Colour Sorter.

INCLUDE

C. Further Improvements

Switch to HSV colour space

D. Conclusion

II. Task 2: Colour Tracker

A. Introduction

B. Solution

The figure below shows my solution to the second task, the Colour Tracker.

C. Further Improvements

D. Conclusion

III. Task 3: Cross Correlation

A. Introduction

B. Solution

The figure below shows my solution to the third task, the Cross Correlation.

C. Further Improvements

D. Conclusion

The animation of the arm moving through the maze can be seen here: - Linky