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November 26 - December 25 Weekly Report

1 Progress

- Using different wheels and motors, differential drive was tested.

  * Our first wheel pair was not practical to use. We were not able to go even straight.

  * Second wheel pair was better.

- OpenCV on C++ is investigated.

  * OpenCV is native on C++ and the process time decreases significantly on C++.

- HSV, HSI and LAB color spaces were investigated.

  * https://www.learnopencv.com/color-spaces-in-opencv-cpp-python/

  * LAB color space had best outcomes in terms of filtering in different light conditions

- 11 papers on lane detection methodology were read to understand possible methods on detection of path.

2 Plans

- Optimization of the edge detection algorithm will be done according to the selected color in standard committee.

- The research will be done on wheel and motor selection.

- OpenCV will be studied further.

Appendices

A Photos

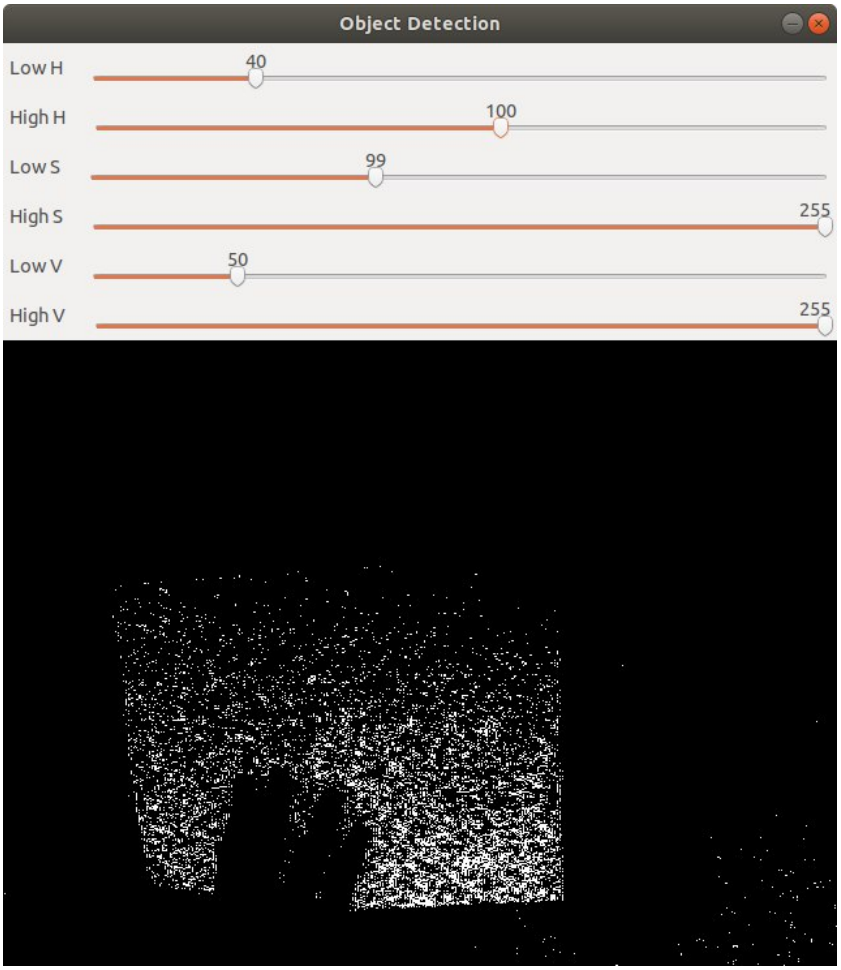

Figure 1: Object Detection using HSV Filtering with C++

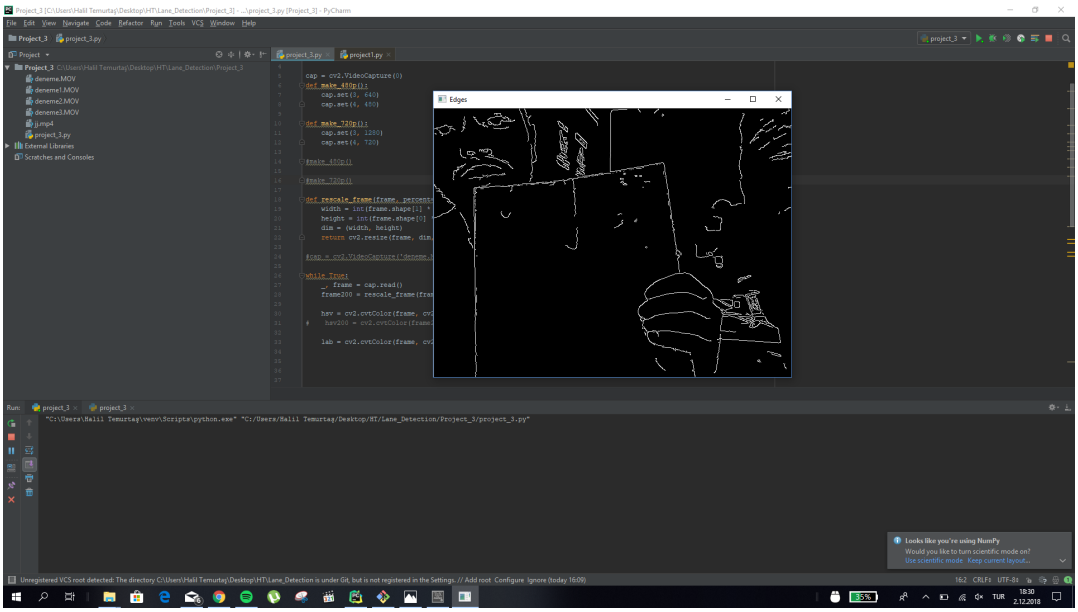

Figure 2: Object Detection using Lab Colour Space and Canny Edge Detection

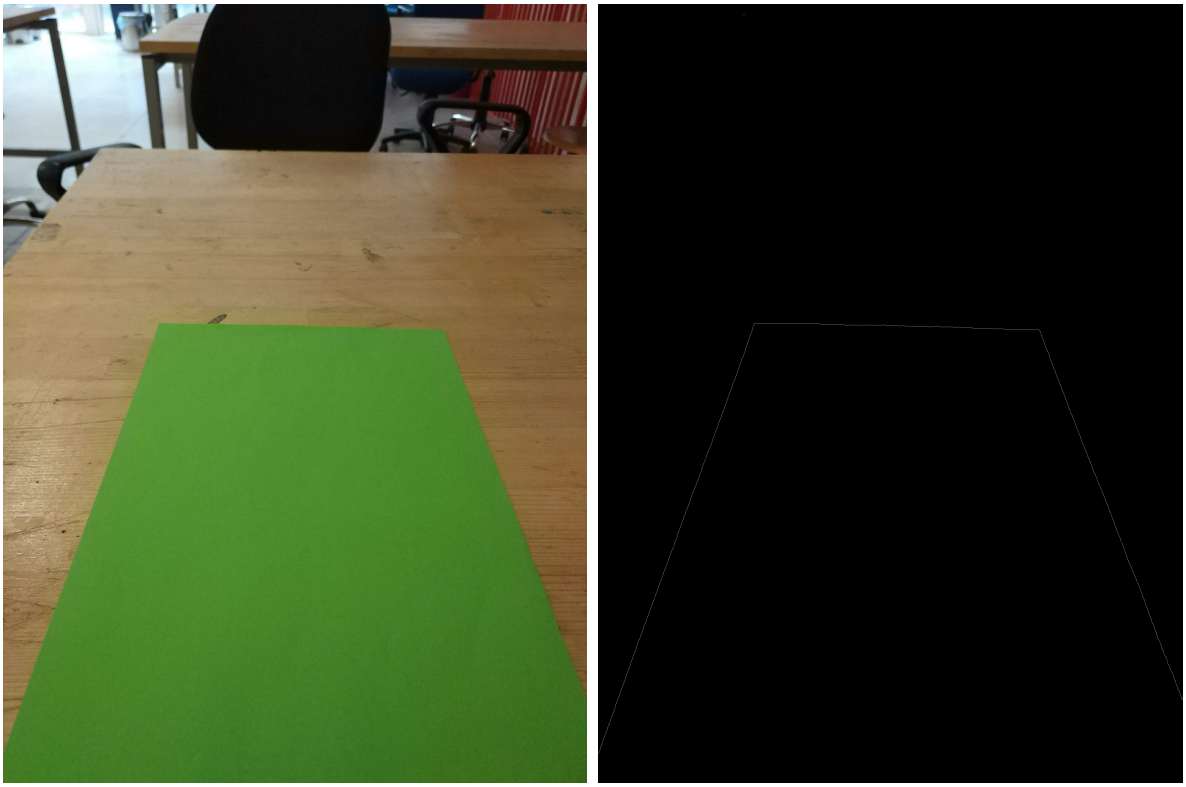

Figure 3: Object Detection using HSV Colour Space and Canny Edge Detection

Figure 4: Object Detection using HSV Colour Space and Canny Edge Detection

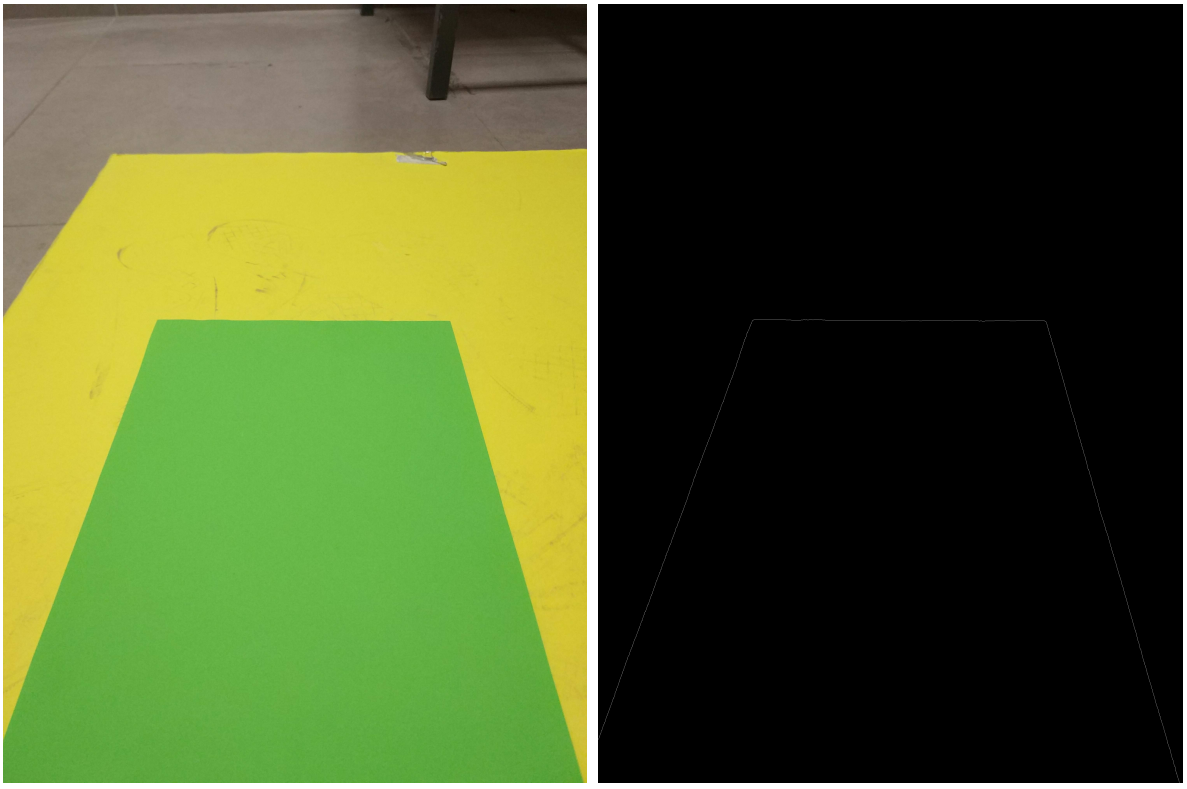

Figure 5: Object Detection using HSV Colour Space and Canny Edge Detection

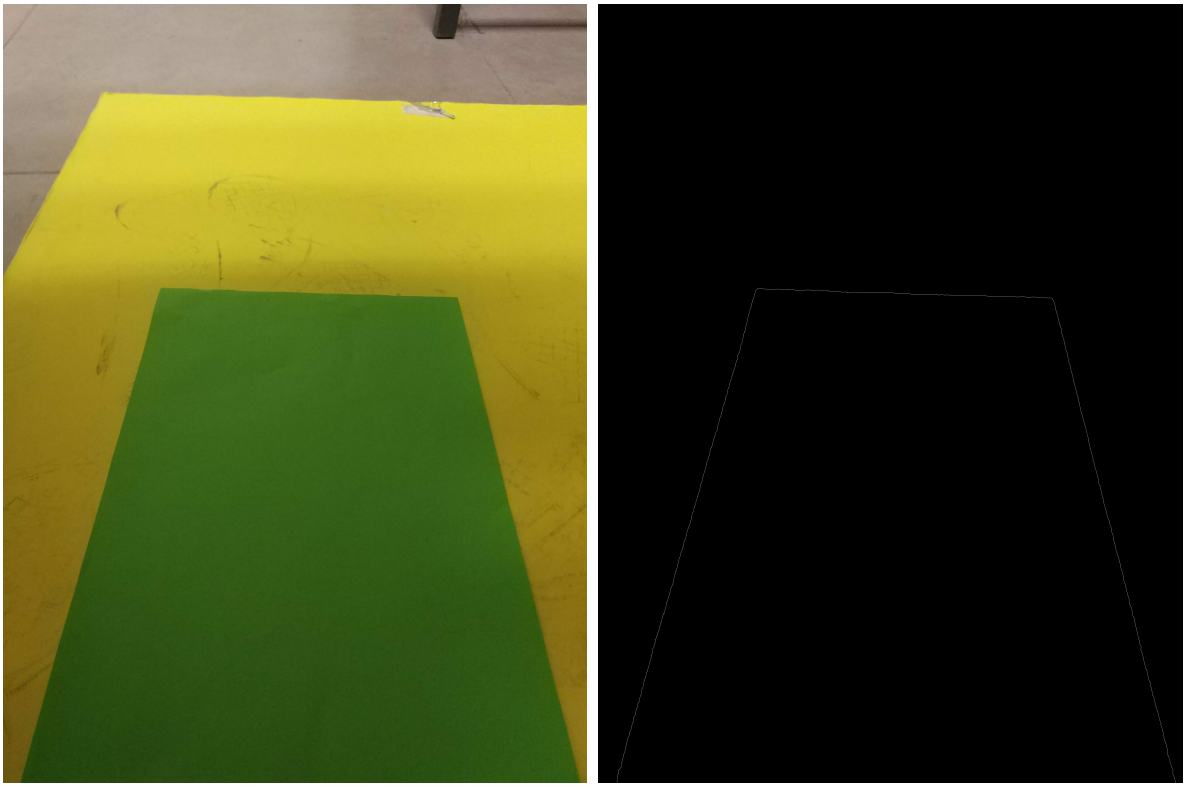

Figure 6: Object Detection using HSV Colour Space and Canny Edge Detection