SE498 Introduction to Autonomous Vehicle System
Laboratory Assignment 4: Image Processing and Line Following

Goals for this Lab Assignment:

1. Learn image processing interface using ROS and OpenCV

2. Learn Tibot Line Following using image processing techniques with RaspiCam

Exercise 1 – Image Processing

```
$ catkin_make
$ source devel/setup.bash
$ roscore

$ source devel/setup.bash
$ rosrun se498_lab4 read_camera_cpp
```

Task 1: modify read_camera.cpp so that it can convert color image to edge image, example as below


```
$ catkin_make
$ source devel/setup.bash
$ roscore

$ source devel/setup.bash
$ rosrun se498_lab4 save_image_cpp
```

Task 2: modify save_image.cpp so that it can load an image and save its copy.

```
$ catkin_make
$ source devel/setup.bash
$ roscore

$ source devel/setup.bash
$ roslaunch se498_lab4 image_pub_sub.launch
```

Task 3: draw a square in the center of the image with 100 pixel x 100 pixel.