Project 2 Advanced Land Finding Writeup

February 20, 2021

1 Project Goals

The goals / steps of this project are the following:

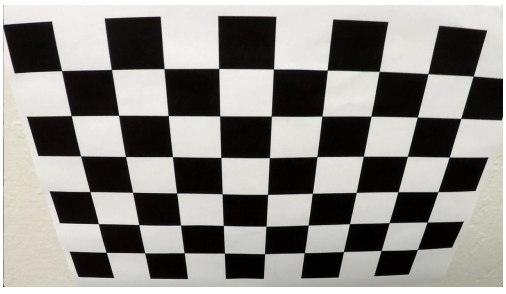
* Compute the camera calibration matrix and distortion coefficients given a set of chessboard images.
* Apply a distortion correction to raw images.
* Use color transforms, gradients, etc., to create a thresholded binary image.
* Apply a perspective transform to rectify binary image ("birds-eye view").
* Detect lane pixels and fit to find the lane boundary.
* Determine the curvature of the lane and vehicle position with respect to center.
* Warp the detected lane boundaries back onto the original image.
* Output visual display of the lane boundaries and numerical estimation of lane curvature and vehicle position.

2 Write up

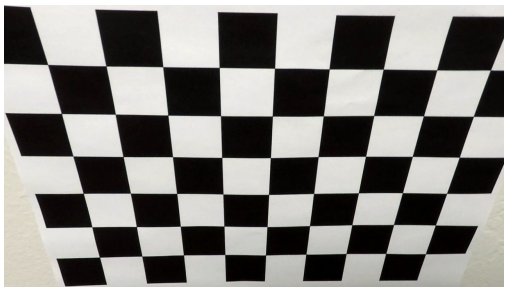
In this section I will go over the pipeline code in project2.py

2.1 Camera Calibration and Distortion Correction

The first step is to calibrate the camera using the provided figures using the defined function *cameraCalibration* and *undistort*.
The first function defines object and find image points for camera calibration using $cv2.findChessboardCorners()$. The second function creates undistort images witg $cv2.calibrateCamera()$ and $cv2.undistort()$. An example of the figure before and after distortion correction is shown in Figure 1a and Figure 1b .



(a) Before Distortion Correction



(b) After Distortion Correction

2.2 Create Color Thresholded Image

The function *thresholdImage* is used to create the binary threshold images