**Final Project Report (Deep Self – Lane line detection)**

|  |  |
| --- | --- |
| **Progress Report** | 1. Convolutional Neural Networks ( CNNs )  2. Canny edge detection.  3. Data Recording & Data Processing |
| **Name and Roll Nos. of Students** | Prince Yadav 20001011503 |
| **Task Accomplished:**   1. **Canny Edge Detection :** A Canny edge detection is a multi-step algorithm to detect the edges for any input image.  * Removal of noise in input image. * Computing image pixels to obtain magnitude along x and y dimension. * Converting image into gray scale.   **2. Hough Transform:** The Hough transform is a technique which can be used to isolate features of a particular shape within an image. Because it  requires that the desired features be specified in some parametric form. Used parameters like **cropped image , rho, theta ,threshold ,lines , minimum line length, maximum line Gap.** | |
| **Comments of the supervisor** |  |
| **Date of submission to Project Coordinator** | 27/7/2022 |

**Task Accomplished:**

Convoluted Neural Networks (CNNs) are widely adopted for pattern recognition tasks in image analysis. This project, implemented with CNN’s, illustrates the concept of transferring human driving behavior to machines or Self-Driving cars.

**1. Data collection strategy using Simulator:** The data for the training was collected using the simulator provided by Udacity. This simulator has two modes.Training mode and Autonomous mode.

**2. Preprocessing and Augmentation of training data:** Preprocessing and Augmentation of images are required to enhance convergence, minimize overfitting and speed up the training process. The image processing pipeline was implemented in python using the Computer Vision Library. The code for data processing, network model and training is available in the file model.py

…

Detecting Lane lines is one of the most fundamental concepts for building a Self Driving Car. In this project, we have used OpenCV to detect lane lines in a sample video sample obtained from a camera places on a car.