# Abstract

Lane detection is a multi-feature detection problem which is used as a part of intelligent vehicle system. It helps as driver assistance, lane departure warning, lane keeping system and also for self- driving cars. There is a high need for sophistication and accuracy is expected from lane detection systems to prevent road accidents and achieve high automation. The sensing for certain lane locations is still a hard task for the present solution. The approach used were canny edge detection along with Hough transform and CNN. TVT dataset contains 19383 image sequences for lane detection, and 39460 frames of them are labelled. These images are divided into two parts, a training dataset contains 9548 labelled images and augmented by four times, and a test dataset are 1268 labelled images. The size of images in this dataset is 128\*256.The CNN used is UNet- ConvLSTM model which is a combination of encoder decoder, convolutional and LSTM models. The metrics used for the evaluation of the models are accuracy, F1-score, recall and precision. The estimated value for accuracy is 98. The proposed work is novel as it can detect lane in a single road with higher accuracy.

Keywords: convolutional neural network, canny edge, Long Short-Term Memory, Lane detection, Hough transform.

