
DIGITAL IMAGE PROCESSING PROJECT

Sai Charith 160050083

Nikhil Samrat 160050088

Sunchu Rohit 160050097

IMPLEMENTATION OF HOUGH TRANSFORM IN DETECTING ROADLANES AND VEHICLES

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OVERVIEW

We plan to use Hough transform to detect roadlanes in the traffic images. Then detect trucks and cars moving in the traffic. Using this we would like to analyze traffic videos to detect vehicular movement on the wrong side of the divider.

GOALS

1. Detect road and lanes in the image
2. Detect cars and trucks in the image
3. Analyze the same in traffic videos
4. Detect wrong side vehicle movement

ALGORITHM

We will use optimized versions of Hough Transform to detect roadlanes and divider, similarly detect shapes to identify vehicles

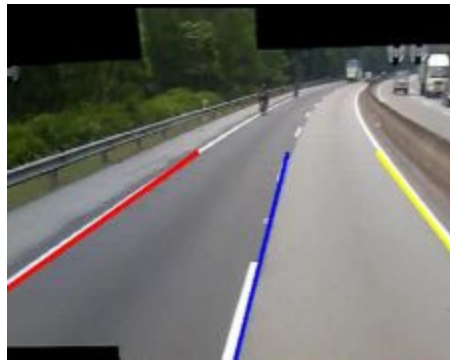
EVALUATION

We will be tuning the parameters with test images and videos of traffic datasets available online and optimize the algorithm to detect maximum achievables and test on new testing datasets

IMPLEMENTATION

- We implemented Hough transformation scheme to identify lines in an image
- We used existing implementations of houghpeaks and houghlines
- We used existing implementation of Canny edge detection in MATLAB
- From video input we identified occlusion free road using mode of video frames sampled 1 out of 10
- We applied hough transform and identified lines on road which correspond to lanes in road
- We used this image and calculated the difference image with every video frame and thresholded it and obtained an image which corresponds to objects in the image that appear(here vehicles)
- We used bounding boxes to locate these objects and display it in a video.

SAMPLE OUTPUTS



REFERENCES

[Lane mark detection using Hough transform](#)

[MIT Traffic Data Set](#)

[Real time detection of lane markers in urban streets](#)