
FINAL YEAR PROJECT REPORT

# TRAFFIC CONGESTION RESOLUTION AND ROAD PLANNING

In fulfillment of the requirement
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By


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# TRAFFIC CONGESTION RESOLUTION AND ROAD PLANNING

## ABSTRACT

In this project we perform classification of Vehicles in surveillance videos on three different datasets with varying level of complexity. First Dataset (Highway II) contains single lane, high speed vehicles, no vehicle occlusion, long shadows and the camera angle is top front view. Second Dataset (Toolplaza) contains two lanes, slow speed vehicles, varying vehicle type, long shadows and the camera angle is top front view. Third Dataset (Nipa) contains three lanes, high speed vehicles, varying vehicle type, no shadows and the camera angle is top side view. Existing algorithms such as blob analysis, tracking using kalman filter, detection line techniques were used and tested on all 3 data sets and experimental results for detection, tracking and attribute based classification are presented at the end. Results show that the algorithms perform well for simple datasets but as soon as the complexity increased, several tracking and classification errors were identified. Major Contribution of errors was because of occlusion due to shadows and occlusion due to camera angles.

Moreover, this report provides information about different image processing algorithms which are implemented on Xilinx FPGA model Virtex4 using an efficient tool known as Xilinx System Generator for MATLAB. All the image processing algorithms including image inversion, contrast sketching, Sobel edge detection, Boundary extraction etc are explained in this report. Using the Hardware co-simulation function given in the System Generator we are able to implement these algorithms on the Virtex 4. Using System Generator reduces complexity and intricacy in the design.

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