Memorial University

Faculty of Engineering and Applied Science

ECE 7410

Image Processing and Applications

Project Peport



Submitted to:

Dr. Stephen Czarnuch

Prepared by:

Charles Smith

Roland Agiaye

Hongfei Zhang

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* Address a realistic application of image processing
* Utilize at least four fundamental image processing approaches covered in this course
* Include a clear justification for, and explanation of, the parameters and approaches  
  chosen
* Not include an implementation of more advanced computer vision techniques

# Problem definition

In recent years, the market for car makes has grown rapidly due to the rapid growth of the automotive industry. Vehicle detection is well developed at many locations and the market is saturated, however, it introduces another market for the classification of vehicle models & makes. Particularly, a software platform that identifies vehicles and classifies their models, makes, and physical features. Highway patrol, motor-registration, evidence collection, and vehicle accident report generation from any recording device are all possible applications of such a platform.

# Proposed solution

By recognizing this potential opportunity, the team hereby proposes a software based processing platform capable of detecting a vehicle within/at certain range and angles, and recognizing key characteristics of detected vehicle including but not limited to car model, make, and unique physical details such as modified parts or body damages. Given the short length of summer term and team’s current knowledge, to ensure the success of term project and delivery of a Minimal Viable Product (MVP) at end of the term, the team has decided to reasonably limit the functionality/feature of the final product, however, not preclude any above mentioned features. Specifically, the list below outlines   functionalities/features that will be included in the MVP. Any additional features will be implemented, should development period permits:

* Deployment position of video recording device will be restricted to where a dash-cam normally sits, that is the usage of proposed software will be exclusively for vehicles.
* Software will only be able to process the rear body of a vehicle at a direct angle.
* Outcome will only include car model and make with detail emphasis on specific model (e.g. not only recognizing a car is BMW, but also be able to classify the model of BMW)
* Software will provide a visual or verbal presentment for processing result
* Software will perform batch-processing, however, it will perform in a real-time manner, should time and team capacity permits.

Local binary patterns used for classification

### Classifier:

Classify the car brand by compare the different of Local binary patterns and print the result

### LocalBinaryPatternUtil:

Compute the Local binary patterns algorithm

### LogoExtractor:

Extractor the car brand by using the edge detection,

detect the front of the car first

differentiate the plates and logo

isolate the logo based on plate and Hight

# Results

# Discussion

# Conclusion