EE 368: Final Project Proposal

Detection of vehicular distance on the windows phone

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Due to low visibility, nighttime accidents on road systems are common. With increased performance of smart-phones, low cost real time driving assistance can be provided to drivers, lowering probabilities of accidents by earlier warning systems. Significant research has been done in detecting distance between vehicles at nighttime using the hues of the taillights of the vehicle ahead and the headlights of the vehicle itself in real time.

Using the newly added camera module API in the windows phone SDK, the project's plan is to implement real-time vehicular distance detection for window's phones in real time. The tasks to be done to achieve this includes implementing the app on the windows phone using the camera interface, adding algorithms to perform a bright object extraction and filtering to isolate the rear lights of the car ahead, and using the position of the headlights relative to the image to detect the distance to the car ahead.

While the main project goal is to detect vehicular distance, an additional goal that could be attempted if the first part is completed, is to additionally add detection of road-signs in the field of vision. This would involve detection of the shapes classic to a road sign (square, diamond, circle, octagon, triangle), and warning drivers when the signs are processed.

This project will **not** be using a DROID phone.

References

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[3] G.K. Siogkas and E.S. Dermatas, "Detection, Tracking and Classification of Road Signs in Adverse Conditions," *Electrotechnical Conference*, 2006.