

HELPFUL TEMPLATE FOR RESEARCH PROPOSAL

Student ID(s) and Student Name(s):

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Topic: Computer vision and automobile

Research Proposal Title (3-15 words): Driver safety and drowsiness detection system

Describe the issue/problem/opportunity of the proposal?

Road accidents are the most dangerous and frequently happening accidents in the world due to various reasons such as careless driving, mistakes, drowsiness, drunkenness etc. Among them driver drowsiness is the most dangerous and unpredictable situation. Driver drowsiness can occur due to many reasons such as tiredness and medication. Whichever the reason being, the final outcome will be bad consequences such as damages, injuries and deaths.

To avoid and reduce these types of accidents we are proposing a driver safety and drowsiness detection system to alert the driver that he/she is not in a good condition to drive the vehicle. This will assist the driver to concentrate on his/her driving while increasing personal safety as well as public safety.

Aim and Objectives (1 aim and multiple objectives)

The aim of this proposed system is to develop, user friendly, efficient, accurate and low cost application using image and video processing algorithms to detect driver drowsiness to reduce road accidents and increase driver safety.

Objectives

- Research on the identified areas relevant to the project and come up with the Literature review.
- Design the system architecture according to the gathered information from the research process.
- Implementing the finalized design.
- Testing and evaluate the implemented product.
- Make the deliverable on time (Project Proposal, Final Report and Prototype)

Scope of your research (try to make it narrow):

Identifying the driver conditions based on facial features using Haar-Cascade classifiers (face and eye datasets) and providing alerts upon unstable driver conditions.

What software methodology will be used and why? Resources needed.

Image and Video processing techniques are rapidly changing with the new technologies. Therefore we believe that we have to make any necessary changes accordingly. In waterfall development lifecycle has fixed phases and linear timelines. Therefore waterfall development lifecycle is not suitable for this project.

Since there are only two members in the group we will be using pair programming agile method. By using this methodology users can give feedbacks for the project at any time of the project life cycle. Since the features of the application are small incremental deliverables it will be easy to manage the project. It will also be a professional approach to the overall project.

What research question(s) are you trying to answer (only 1 question?)

1. Can we improve the automobile safety practices using computer vision and low cost hardware such as cameras?
2. Can we improve the automobile safety practices by monitoring facial gestures of a human?