ECM3401

Project Statement and Plan

Total 4 pages.

PROJECT STATEMENT

There is a clearly stated, achievable, challenging, and worthwhile goal, with sensible plans for tackling it.

Several road accidents might then be avoided if an alert is sent to a driver that is deemed drowsy. The challenge is to use the behaviour of the driver which would include yawning, eye closure, eye blinking, head pose, etc., is monitored through a camera and the driver is alerted if any of these drowsiness symptoms are detected.

Plan for tackling this challenge would be to use agile method to produce my result as it is the most suitable SDLC method for small projects due to the facts that:

* fuses together aspects of prototyping and iterative approaches
* Heavy focus on tool used to reduce development time and costs (IDEs, GUI builders, database management systems).
* development deadline prioritised over requirements: i.e., the project iterations are overrunning, the focus is on reducing requirements rather than extending the deadline.

Approach

I plan to approach the above plan in an agile way of working by splitting the tasks into two-week sprints. I believe this will give my development much more structure and it would also mean that making long-term and short-term goals is easier.

* In terms of actual development, I plan to start with creating the skeleton web application. This means creating the web page with placeholders of where things will eventually go. This is to ensure that when I start adding functionality I do not have to worry about the formatting and where things will go.
* The next step will be to incorporate the OpenLayers map and make sure it’s working properly on the page, as well as placeholder buttons for the functionality in the sidebar. Finally, I will incorporate the file-upload functionality to make sure it’s user friendly and that it has appropriate error handling.

In terms of the architecture, I will try to split out the different parts of functionality into their own respective components (i.e. their own .js files) and import them all on the main page. This will make development easier because the component’s code will be self-contained and independent from the rest of the page, which means that making changes and fixes will be much easier.

Software Development Phases

Software development may be organised into software development phases:

1. The requirements capture phase:

In the requirements capture phase, the problem to be solved is described as a collection of services and constraints in a requirements specification.

1. The design phase:

In the design phase, the requirements specification is described by a model of a system in a technical specification.

1. The implementation phase:

In the implementation phase, the technical specification is encoded in a suite of computer programs

1. The testing phase;

In the testing phase, the suite of computer programs is tested, eventually leading to a delivered product.

1. The maintenance phase:

In the maintenance phase, the delivered product is repaired and enhanced as necessary.

RISK ASSESSMENT

There is an awareness of how achievable the project is and what may go wrong, and appropriate fall-back plans for goals not achieved.

To reduce the risks that comes with this project I have decided to Drowsiness detection can be divided into three main categories (1) Vehicle based (2) Behavioural based (3) Physiological based. Due to safety reasons, I have decided to focus on the behavioural based thesis which includes yawning, eye closure, eye blinking, head pose. Since drowsiness cannot be manipulated in a real environment; thus, the drowsiness detection system has to be developed and tested in a laboratory setting. However, in a laboratory setting, the most reliable and informative data that pertains to driver drowsiness relies only on the way in which the driver falls into the drowsy state.

ETHICAL & LEGAL CONSIDERATIONS

Due consideration has been given to whether the proposed project raises any ethical or legal concerns.

LITERATURE REVIEW PLAN

An appropriate set of sources has been chosen for review, with a well thought out provisional overall structure.

*Driver Drowsiness Detection System and Techniques: A Review* - this paper show how they implemented a real-time processing of an incoming video stream in order to infer the driver’s level of fatigue if the drowsiness is Estimated then the output is send to the alarm system and alarm is activated.

*Learning to Detect Drowsiness in Drivers (Eye Blinking Based Technique)* - this literature rievies the method for measuring and detecting eye blinks. I talks about the position of the irise

TIME PLAN

A sensible time plan for the project has been produced.

REFERENCES

A suitable number of references has been given, in a correct and consistent style.