**Eyetracking Project:**

*For improved car safety and safety of the community*

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**Executive Summary:**

**Background and Purpose:**

Driving and traffic regulations are common use for day-to-day individuals who drive to work, drive on vacation, and drive there kids to school. Safety is always a concern for parents and even companies who supply vehicles and other forms of transportation to the consumer. When parents drive there kids to school or even allow there kids to be dropped off at school by a bus or walk the safety is there number one concern. Today's technologies serve an amazing purpose – we are able to call freely of landlines, text or email messages, and even video conference with people from all over the globe, but there is a downfall.

Driving distractions and technology go hand-in-hand when it comes to accidents, injuries, or even death with driving related instances. Not only does technology take away from a drivers focus and cause injury to others, but the driver is also in danger themselves with probable cause of felonies and/or manslaughter charges ruining lives, careers, and even families.

Companies do try to prevent unattributed technological distractions like AT&T with there “Stop Texting and Driving” campaign, but instances of texting and driving still occur and increase.

**Our Solution:**

Eyetracking's goal is to prevent and inform companies and consumers of there driving habits by supplying information to companies/consumers about looking away from the road. As humans, we are always interested in visible and physical data and information and the Eyetracking project's goal is to capture that interest.

With Eyetracking the user will always be the focus and interactivity will be key. Combining an eyetracking capability with a built-in web camera to track eye movement, a mobile-phone application, and a website where users will be able to tell how well they are driving the focus will change from what is on there phone and shift to the ability to drive well.

**The Competition:**

Other eyetracking suites and safety programs goals have attempted to dissolve the problem of distracted driving, but they were unable to encapsulate interactivity with information. Our solution provides a suite where the user holds the information, can compare themselves to other drivers around the world, and challenge themselves to improve driving habits.

**Our Goal:**

To provide and enhance the user’s car safety and intelligent driving techniques by alerting driver when driver faces distraction, provide information concerning distractions and driving habits, and reinforce safe driving techniques.

**Table of Contents:**

Executive Summary...................................................................................................................................2

**Part 1 – Planning:**

System Request..........................................................................................................................................4

Feasibility Analysis....................................................................................................................................5

Budget......................................................................................................................................

Project Plan......................................................................................................................................

**Part 2 – Analysis:**

System Requirements..................................................................................................................................

Use Cases......................................................................................................................................

Logical DFD......................................................................................................................................

Logical ERD......................................................................................................................................

**Part 3 – Design:**

Alternative Matrix......................................................................................................................................

Architecture Report......................................................................................................................................

Hardware & Software Specification............................................................................................................

Use Scenarios......................................................................................................................................

Interface Design......................................................................................................................................

Program Design......................................................................................................................................

Physical DFD......................................................................................................................................

Physical ERD......................................................................................................................................

Data Dictionary......................................................................................................................................

CRUD Matrix......................................................................................................................................

**Part 4 – Appendix:**

Project Charter......................................................................................................................................

Team Contract......................................................................................................................................

Team Information...................................................................................................................................

**System Request:**

**Project Name:** Eye-Tracking for Car Safety

**Project Sponsor:**

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**Business Need:** Enhance the user’s car safety and intelligent driving techniques by alerting driver when driver faces distraction, provide information concerning distractions and driving habits, and reinforce safe driving techniques.

**Functionality:** The device sits on the car dashboard and faces the driver of the car with a camera. The camera tracks eye movement and pupil location and sends data to the device concerning the pupil’s location and visibility. If the pupil becomes invisible to the camera or disappears from camera line-of-sight for any amount of time the device sends an audible alert.

For future functionality and usability we would expect the device to still track and alert eye movement, but with added features. Instead of the alert being instantaneous there will be a short delay and the alert will not be constant, but a short burst of sound. As far as being able to track user behavior and analytics the device will send information to a cloud server and be visible through a web- and application-front-end that will display statistics from the device such as drive time, speed, average time looking away from camera, etc.

**Expected Value:** Having a device that can alert and keep track of driving statistics and provide alert functionality will help deter from unsafe texting and driving while providing an analytical solution. Researchers and other users can track data and work to improve driving style/technique as well as increase own personal safety and the safety of others.

**Tangible:** A safer road where drivers will take more caution while driving their vehicles. Less injuries from accidents and other text- or call-related injuries while driving should decrease.

**Intangible:** Teaching people not to text and drive and giving them an alert while the driver is texting provides a safer environment increasing security and well-being.

**Special Issues or Constraints:** Implementation into different types of vehicles with the current hardware design could uncover difficulty. The mount will need to fit into most vehicles.

**Feasibility Analysis:**

**Budget:**

**Project Plan:**

**System Requirements:**

**Use Cases:**

**Logical DFD:**

**Logical ERD:**

**Alternative Matrix:**

**Architecture Report:**

**Hardware and Software Specifications:**

**Use Scenarios:**

**Interface Design:**

**Physical DFD:**

**Physical ERD:**

**Data Dictionary:**

**CRUD Matrix:**

**Project Charter:**

**Team Contract:**

**Team Information:**