

Literature Review

Road Accidents/Fatalities:

On average, in Great Britain, 5 people die per day on the road and many more are injured [1]. There are many different determining factors in these accidents that need to be explored, what are the main causes of road accidents and what percentage of those is the driver at fault? See [2], where speeding and distractions (both areas that can be easily explored in this project) make up nearly 50% of the causes of fatalities on the road. This is the area that needs to be focused on, because the aim of the project is to provide more data into what could potentially cause a driver to have an accident and data into what technology could potentially prevent a driver from causing an accident.

A list of the various reported causes of road traffic accidents [3] lists “driver failed to look properly” as the number 1 reported cause, which is not something that can be easily fixed with software/hardware (apart from self-driving vehicles). However, number 2 is “driver failed to judge the other persons path or speed” which is something that can be very easily tested within this project, and there is high potential for hardware feasibly being able to fix this problem. For example: in the project I could simulate two different scenes – one where there is no indicator of the car in front slowing down, and another where there is an audio (beep) and visual (red light) stimulus for when the car in front is slowing down significantly – then check how quickly the test subject reacted to the car in front slowing down for both scenarios. If there is a significant improvement with reaction times and braking times with the audio and visual stimulus then there is good evidence to suggest that if a company created that technology it would reduce road traffic accidents, as that is the number 2 reported cause.

References:

- [1] <https://www.brake.org.uk/facts-resources/1653-uk-road-casualties> - 2017 report on road casualties.
- [2] <https://www.aceable.com/safe-driving/car-accident-statistics/> - US driving fatality data (2007 – 2012).
- [3] <https://www.regtransfers.co.uk/content/common-causes-for-road-accidents-in-britain/> - latest statistic from the department of transport (in Britain) for the most common causes of road traffic accidents.