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Data Processing for Increased Driving Awareness and Oversight: User Research

To better develop an understanding for the product's target market- newly licensed teenage drivers- user research was performed to produce a more detailed picture of their habits and characteristics behind the wheel. In addition, alternative demographic groups and audiences were researched to better understand the marketability to potential alternative markets. These audiences include: average daily commuters, elderly drivers, and businesses. The research methods performed on our product's potential users included examining expert research, interviewing individuals, and an online circulated survey.

The expert research performed in our analysis included a series of reports published by the CDC, National Highway Traffic Administration, and the Insurance Institute for Highway Safety. These reports provided high level analysis of the various demographics and national driving statistics. Specifically, in research performed by the CDC they concluded that "Teens are more likely than older drivers to underestimate dangerous situations or not able to recognize hazardous situations". This conclusion, based on driving statistics and research performed on teenage drivers, acknowledges the lack of experience as a main contributing factor of vehicle accidents. Furthermore, research performed by the National Highway Traffic administration examined the cost of motor vehicle crashes and determined that in 2015 the economic cost exceeded 240 billion and the societal cost exceeded 836 billion. The administration additionally concluded that motor vehicles account for over 2 million injuries and approximately 36

thousands deaths annually. The expert research analysis was able to confirm that motor vehicle accidents still remain as one of the largest contributors to injuries and deaths in the United States and a primary reason to the problem are newly licensed drivers. Currently there is a lack of impactful solutions to decrease the number of car accidents in the United States and thus an opportunity for our product to fill the void.

The expert review allowed for high level insight on driver characteristics, however insufficient information for how to solve such problems. The interviews conducted provided a more personable approach for how our product can impact the driver's behavior and highlighted potential features to be included in the product. In total, 8 interviews were conducted. The individuals interviewed included: teen drivers (Run Qiao [Feb 3] , Bin Jia [Feb 3], Kecheng Sun [Feb 3]), parents of teen drivers (Flor Garcia [Feb 2], Ruth Mercado [Feb 2], Jim Cornish [Feb 2]), child of an elderly driver (Shen Li [Feb5], Lisa Qing [Feb5]), and business owner (Shen Li [Feb5]). In the interviews conducted on teen drivers, a majority of the interviewees proclaimed that they believed they were good drivers but at the same time confessed to speeding and using their phones while driving. It became clear that the term "good driver" had a varying definition with teen drivers and primarily was based on the number vehicle accidents one has been in. In terms of teen drivers, the need for a non-bias driver scale should be implemented into the product that rates a driver's safe driving on a number of categories and not solely by the number of accidents one has been in. Additionally, an intuitive way of presenting the tracked driver data should be developed to "backup" the driver rating (i.e. speeding habits, swerving habits, phone usage, etc) and suggestions on how to improve. One of the key takeaways of the interviews with the teen drivers was their habit to drive in a safer manner when a parental is in the car with them. In the interview with Run Qiao, she stated "When my dad is in the passenger seat he always points out when I do something wrong, so I always try to be more detailed."

Incorporating a way to virtually place the adult in the car while a teen drives alone can be a major feature for the product to influence safer driving in teens. This feature however also came with negative backlash and privacy concerns for the teen drivers due to the idea of their parents knowing their behavior in a car alone. In the interviews with parents of teen drivers, their primary concern was the inability to know how their children behave when they are not present in the car. Creating a link for the parent to be able to monitor their teen's driving would not only allow for the ease of mind for the parent, but also a "virtual presence" of someone watching them while they drive. For parents, there were no privacy concerns regarding the amount of data they received on their children's driving habits since their children's safety is their primary concern. A reversal of roles was discovered when we interviewed a child of an elderly driver. Shen Li is the son of 91 year old Huon Li who still occasionally drives. In the interview, Shen Li believed that the product could also be used to monitor the driving skills of his father to better determine when his father is unfit of driving a car. Additionally, Shen Li, who also is a business owner, believed the product could be used to monitor the driving of his employees when they are operating company owned vehicles. In the interviews conducted, the main takeaways included the varying definition of a "good driver" and the potential ways a "virtual presence" inside a car can be utilized. The interview also presented a potential conflict of privacy concerns between parents and their teen drivers.

The final piece of user research performed was an online survey. The survey was circulated to friends and family and primarily used to retest and review the results and conclusions of the expert research. The survey was completed by 20 individuals and was comparable to the results of the statistics found through reviewing expert research. These statistics included the number of accidents individuals have been in and common bad habits such as using their phone while driving.

The user research performed allowed for a better understanding of the potential future users of the product. In information gather by examining expert research, a big picture idea was provided on national driving safety issues. In the online survey, mainly completed by local individuals, the conclusions of the expert research were confirmed on a smaller scale population. In the individual interviews conducted, new potential uses for the device were discovered as well as potential negative views of the device primarily concerning privacy.

Works Cited

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