

Task 1: Tracking Eye and Body Movements of Driver in Real-Time

Rob is a product manager for a tech company in Seattle. He likes to track different aspects of his life, including his sleeping habits, daily step count, and computer productivity. He has recently heard about insurance companies tracking customers to determine coverage rates. He is interested in a similar system where he can track his own driving behavior. As a busy man with a family and career, he frequently finds himself exhausted at the wheel; he wants to see how his eye and body positions differ from when he is alert. In addition, he is often the driver for family road trips. His spouse and children love to point out beautiful scenery along coastal routes, so his eyes leave the road. With a system that tracks his eye and body movements, he can track his overall attentiveness while driving.

Task 2: Education on Consequences of Distracted Driving

Kendall is a student at the University of Washington with several years of driving experience. She primarily drives around University District for leisure and errands. While scrolling through her social media feed, she stumbles upon a local news article that reports a motor vehicle accident caused by inattentive driving. In addition, a TV advertisement from the Department of Transportation reminds viewers of the fatal consequences of texting and driving. Jane is curious about current statistics on the causes of accidents and how she can prevent distracted driving in her own life. Since it has been several years since she passed her driver's license test, she wants to refresh her memory on safe driving habits. She is also planning to go on a road trip across the U.S. and she is aware that traffic laws varies between states; her friends encourage her to do research on ways she can avoid trouble with the law.

Task 3: Getting Alerted of Distracting Behavior While Driving

Kanye is an Uber driver in Seattle, so he drives his own 2014 Toyota Prius around town, picking up and dropping off people. He has an air vent phone mount where he keeps his iPhone 6s while driving so that he does not have to hold it in his hand. He uses his cell phone for GPS navigation as well as communication with his riders. To be a good driver, Kanye prepares bottled water and candy for passengers and he always follows traffic rules, considering the safety of the riders and his own. Driving all day can be tiring, and he notices that he sometimes gets distracted by incoming text messages and phone calls as well as interesting conversations with passengers. Kanye is aware of the consequences of distracted driving, so he would like to be alerted every time he loses focus at the wheel; at the same time, he hopes the alerts will not become a new distraction while driving.

Task 4: Sharing and Comparing Safe Driving Habits

Tyga is a driving instructor at Safe Driving School. He and his coworkers partake in friendly competition to figure out which one of them has the safest driving habits. Tyga thinks he is the

safest driver because he never interacts directly with his phone while driving. But Kylie claims that she is the safest because she recognizes and manages distractions beyond just phone interactions. Both Tyga and Kylie have developed their own driving habits that they are proud of, but they don't have a quantitative way of comparing their habits so they can know who is the safest.

Task 5: Processing and Visualizing Information About Driving Behavior

Kim is a racecar driver who has competed in Formula One and NASCAR. She is a member of an exclusive driving club called SilverStone, which provides high tech equipment for their drivers. Kim has been using a GoPro Camera along with Kinect-like sensors to collect data while she is racing, and that data is analyzed by professionals to improve her performance as a racecar driver. Off work, Kim has also installed tracking equipment on her family vehicles and has been interested in finding out more about driving behaviors of her family members and herself. However, she doesn't have the time to sit through and watch videos of people driving, nor has the knowledge or tools to understand data outputs from the Kinect-like sensors.

Task 6: Monitoring Driving Behaviors in Employees/Children

Khloé is a new manager of A1Express, a Seattle courier service. Khloé is reviewing car accident reports for the past 4 years of their drivers and notices that long-distance truck drivers have been in significantly more accidents than other types of drivers. She further investigates into those accidents by requesting police/public records and finds that the cause of those accidents are mainly driver-related. Khloé suspects that some employees are not driving safely and might be engaged in distracting activities, such as texting or eating. Khloé wants to monitor her employees' driving behaviors on the road to further evaluate the cause of high accidents. If employees are distracted, she would like to be able to monitor drivers' driving behavior in real-time.