Rehabilitation Driving Simulator

Geoffrey Colman, Jackson Myers, Marissa Alvarez, Simon Wroblewski
Robert Johnson, Ph.D; Brendan Smith, Ph.D
Seaver College of Science and Engineering

LMU|LA
Frank R. Seaver College of Science and Engineering

Description:

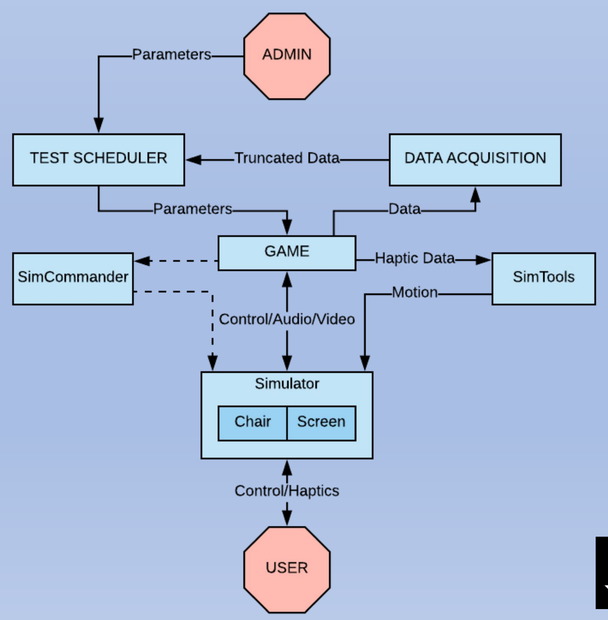
The simulator will help individuals with degraded motor skills learn to drive again and regain confidence on the road by practicing under different training scenarios in realistic simulated environments.

Features:

The simulator features a car seat, which provides haptic feedback mimicking real driving, and typical driving controls. This interface and the wraparound HD screens provide a life-like experience; this sandbox approach should help the user overcome the anxiety and stress of effectively being a new driver on the road.

Accomplishments in Fall:

- Each team member underwent Behavioral Research Training for certification on human subject research
- Developed the procedure and protocol for the research project
- Extensive fact-finding on APIs/SDKs and off-the-shelf products with which to work
- Designed and implemented a working Telemetry Module



Subsystem Divisions:

- **Experiment Scheduler -** The interface application that manages and launches all of the system's data and other top-level functions
- **Training Scenarios -** The system's user training mode
- **Test Scenarios -** The system's user evaluation mode
- **Telemetry Module (data acquisition) -** The system's capability to gather data on user performance via interaction with files and other applications

Plans for Spring Semester:

- Conduct research with individuals to test if the haptic feedback improves learning relative to a static simulation
- Build Experiment Scheduler as native Windows desktop application.
- Build custom data processing system for research purposes
- Create additional maps, courses, and different scenarios

Technologies:

Windows 10
SCS SOFTWARE
SIMXPERIENCE