

### Background

Modern vehicle interfaces, with a vast number of settings and adjustments are becoming increasingly complex. But this has moved the driving experience away from the road and created distractions for the driver. Distractions like these lead to thousands of traffic related accident each year.

### The Project

We are enhancing and simplifying the driver experience by concentrating controls to one region - the dashboard and steering wheel. This in turn will improve the safety for the driver, and provide an updated user interface.



### Implementation

- Modular menu system for flexible feature implementation. Low depth menus for easy access with minimal navigation.
- Critical car data such as speed remains on screen at all times.
- Data from a vehicle simulator sent to the dashboard system over UDP for near real time updates.
- Physical buttons for tactile interface. Button presses transmit over USB and are processed as keyboard input.
- Developed on a cross-platform framework for maximum flexibility.

### Software

- C/C++
- Qt Graphical Interface
- Integration with Racer Car Simulator

### Hardware

- Intel Atom Processor
- Custom Steering Wheel
- OLED Buttons
- Digital Dash Display
- Atmel Microcontroller
- Kontron MSMST

### Gamification

To promote safe and efficient driving habits, the dashboard shows a current score and a total score for the driving session. This is calculated using throttle, brake, and speed data.

