

CAR-CAR 3

First Person Viewing and Control of Remote Vehicles

In 2014-2015, a team from ELE worked on a capstone project, CAR-CAR. This acronym stands for Computer Assisted Remote Car, and the goal of the project was to develop a simulator like experience while viewing a live camera feed, and the ability to control a wireless scale car. While the operation of the target vehicle may be unrealistic in terms of the speed, acceleration, and turning ability, the feedback delivered to the driver will be similar to the sensation experienced as if the driver was in the vehicle.

This year, the capstone project involves complete implementation of the concept to include the following features:

1. The bandwidth from the remote camera has to be increased to support communication from multiple on-board cameras.
2. Development of driver feedback devices including tactile, haptic and force feedback.
3. Use of Oculus Rift or other VR device to display video data.
4. Extend communication range.

This project will require 1 Electrical¹ and 1 Computer engineers. The role of the participants will be:

Electrical: To improve existing circuitry. Refine onboard computers and sensors to collect car and roadway data. Integrate sensors for GPS, vibration/acceleration from

different placements in the vehicle. Design and develop devices for transmitting received feedback to the driver (vibration, force, point-of-view translation). Develop and integrate distance and car-2-car communication sensors to facilitate autonomous and platooned driving.

Computer: Display data received on VR device.

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