Forum8 World16 Workshop 2019 Presentation

Matthew Swarts (with F8 support from Airi Hotta)
Georgia Tech Research Institute
Aerospace, Technology, and Advanced Systems Laboratory
Food Processing Technology Division
Energy and Sustainability Lab
Create and Attach Sensor Model to Vehicle
Drive Vehicle in Environment and Transmit Scanning Device
Use Custom Schema and TCP Buffer to Organize Message Stream
Diagram of the TCP Data Stream Process

UC-win/Road

- Vehicle Depth Sensor
- TCP Server

Node Server

- Web Server
- TCP Client

Web Browser

- WebGL

TCP Stream

WebSocket
Output in Separate Application for Algorithm Development
Future Steps

- Implement Reverse Vehicle Control Schema to allow vehicle input
- Implement Odometry readout from UC-win/Road
- Implement IMU readout from UC-win/Road
- Add (Gaussian) noise function to depth sensors in UC-win/Road
- Connect to SLAM Algorithm which supports limited sensor data
- Add multiple depth scanners to a model in UC-win/Road
- Implement color camera streams for vehicles that don’t use Lidar
- Connect to ROS for more complex control mechanisms

https://github.com/Forum8World16/ucwinros