Alpha Presentation
Hardware in the Loop (HIL) Vehicle Simulator

The Capstone Experience

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Project Overview

• Windows 10 application that will simulate a vehicle’s CAN Bus by using a HIL system.
• Current hardware is too expensive and not available to all of Bosch’s engineers at once.
• Simulates vehicle functions such as acceleration, steering, braking, gear changing, cruise control, and more.
• Ability to simulate different variations of vehicles that is configurable by the user.
System Architecture

Windows 10 -> PCAN Basic API -> Python

PEAK Driver

PCAN-USB Pro FD

Bosch Radar

wxPython -> DBC Files

BOSCH
Hardware in the Loop Diagram
Main Frame

45 Mph
1500 Rpm
Graph Frame
Automatic Testing Frame
Configuration Frame

[Diagram showing a configuration window with file paths for DBC Files, Channel 1, Channel 2, Button to Signal Map, CRC to Signal Map, and MC to Signal Map.]
What’s left to do?

• Have the GUI update in real time with the relative signal values.
• Have the graph update in real time with the relative signal values.
• Implement the automated testing section.
• Implement the master signal list section.
• Implement the configuration section to edit JSON files.