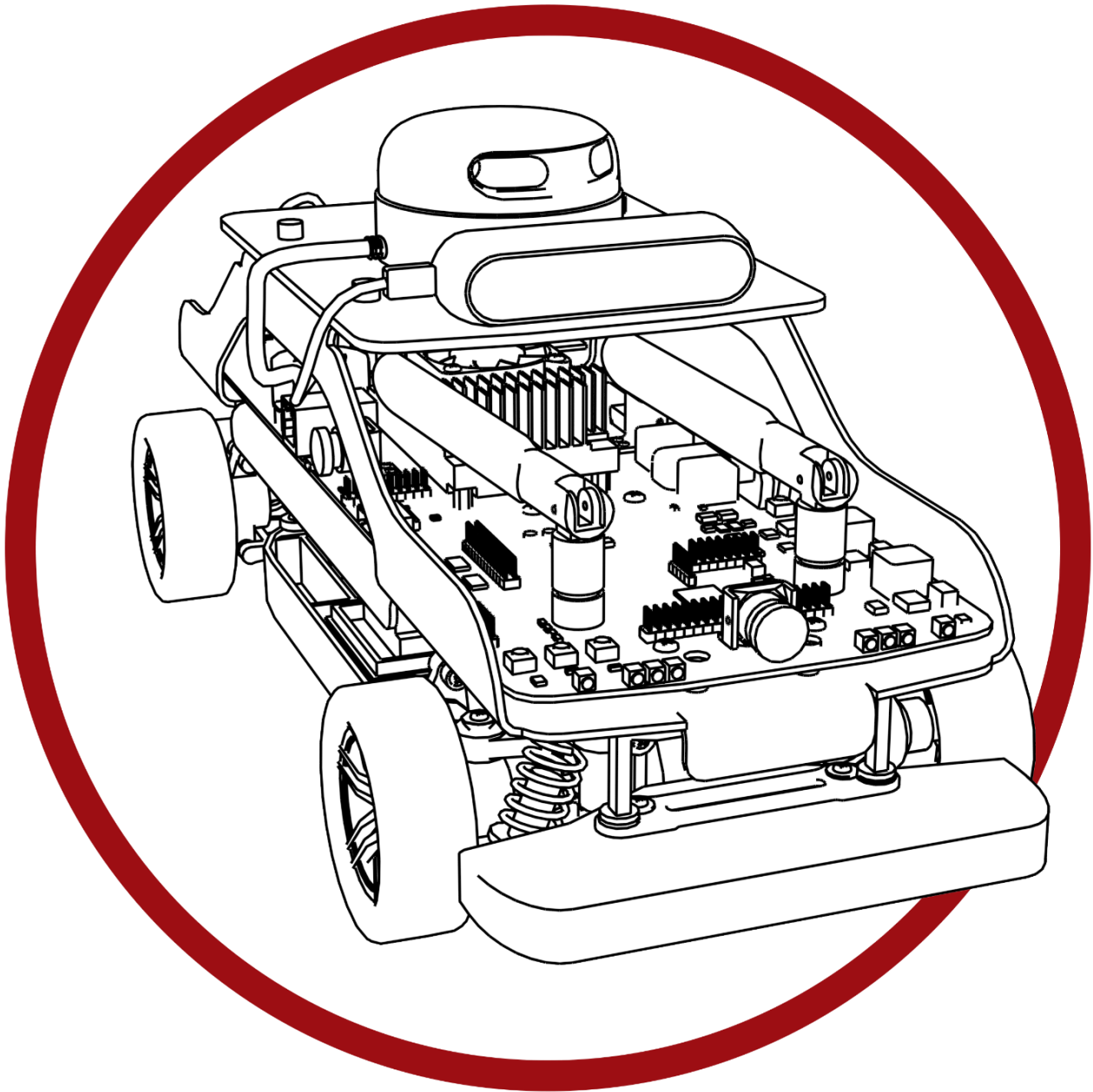


Self-Driving Car Research Studio



Hardware Tests - Python

Intel RealSense, RPLidar A2, CSI cameras and I/O

1. Use a charged battery to power the QCar platform.

Note: Check the user guide **II - Power** for information on this.

2. Use a quick ping test to ensure that you are connected to the QCar platform.

Note: Check the user guide **III - Connectivity** for setting up a remote Wi-Fi based connection with the QCar.

3. Deploy the hardware test scripts on the QCar one at a time.

Note: Check the user guide **V - Software - Python** for information on how to deploy python applications to the QCar target.

4. The expected behaviour is as follows:

- a. [Hardware_Tests_IntelRealsense.py](#)

This script should launch an RGB and Depth window on your screen. An example output is shown here (RGB on left, Depth on right).



b. [Hardware_Tests_CSI_Cameras.py](#)

This script should display images from all CSI cameras in multiple windows on your screen. A sample output is shown below (in order, 0 - right, 1 - rear, 2 - left and 3 - front camera).



c. [Hardware_test_RP_LIDAR_A2.py](#)

This application should display a polar plot of the LIDAR scans. A sample output is shown here. Note that the 0 degree mark corresponds to the front of the vehicle, and the data is scanned in a counterclockwise positive direction.

Note: Don't forget to use the sudo flag when calling this script!



d. **Hardware_Test_Basic_IO.py**

This script should automatically drive a sinusoidal throttle and steering command to the wheels. As the steering changes left and right, the corresponding LED indicators should light up. As the wheels spin forward or backwards, the corresponding headlamps or rear lamps/reverse indicators should light up.

Note: Don't forget to use the **sudo** flag when calling this script. If purchased with the Self-Driving Research Studio you may use the provided stand to elevate the QCar while performing the Basic_IO test.

e. **Hardware_Test_Gamepad.py**

This script initializes and reads the Joystick - **Logitech Gamepad F710**. Plug the gamepad's USB dongle into one of the USB ports on the QCar. In a terminal for the QCar, type the following command

```
ls -l /dev/input/by-id
```

And find the Logitech gamepad event. Add 1 to the event number and set the value as the controller number within the **gamepadViaTarget()** method's call in line 17.