QUANSER
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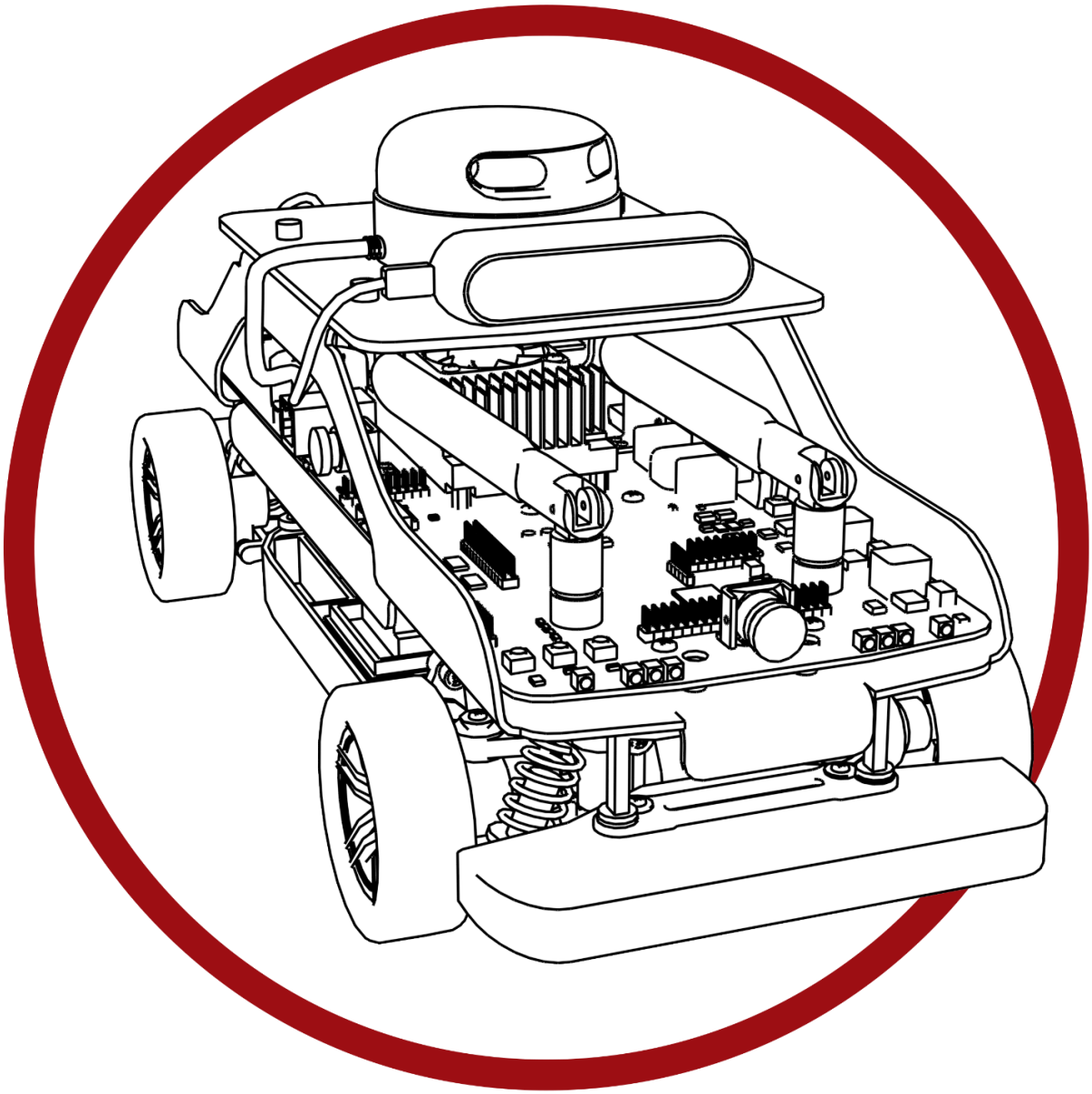
Self-Driving Car Research Studio



Stream Communications - Python

V 1.1 (November 2020)

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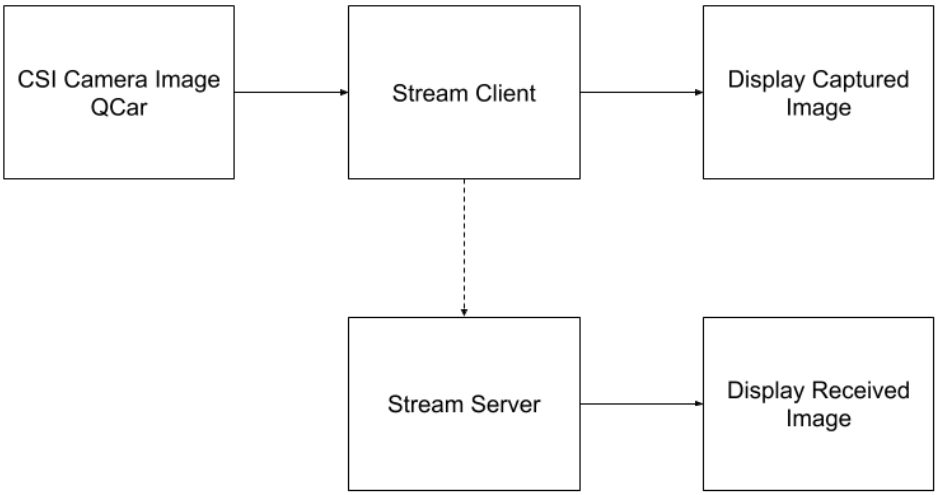

Figure 1. Python stream communication component diagram

II. Running the example

Check the user guide **V - Software - Python** for details on deploying python scripts to the QCar as applications. You will need to copy the Stream_Server.py and Stream_Client,py in the same directory as the **Quanser** folder found in the **Python/ROS** subfolder found under **Core.** You can refer to section **III - Connectivity** within the user guide for information on how to transfer files to and from the QCar.

Once the stream server/client examples have been copied to the QCar you will need modify the following:

- Within the Stream_Server.py script modify the following line with the IPV4 address of the QCar:

```
myServer = BasicStream('tcpip://<QCAR_IPV4_ADDRESS>:18001',
agent='s',send_buffer_size=buffer_size, recv_buffer_size=buffer_size)
```

- Within the Stream_Client.py modify the following line with the IPV4 address of the QCar:

```
myClient= BasicStream('tcpip://<QCAR_IPV4_ADDRESS>:18001',
agent='c',send_buffer_size=buffer_size, recv_buffer_size=buffer_size)
```

Once the server and client scripts have been modified you can run this example using the following sequence:

1. Run the Stream_Server.py
2. Run the Strean_Client.py

If you wish to terminate the example prematurely please stop the stream client first, the stream server will terminate automatically.

a. Sample image received by server.

b. Sample image sent by client.

Figure 2. Sample images of successful stream server/client connection.

III. Details

The `BasicStream` function is used to configure the parameters which are used to set up a stream server or client. Figure 3 shows a breakdown of what each input is responsible for configuring.

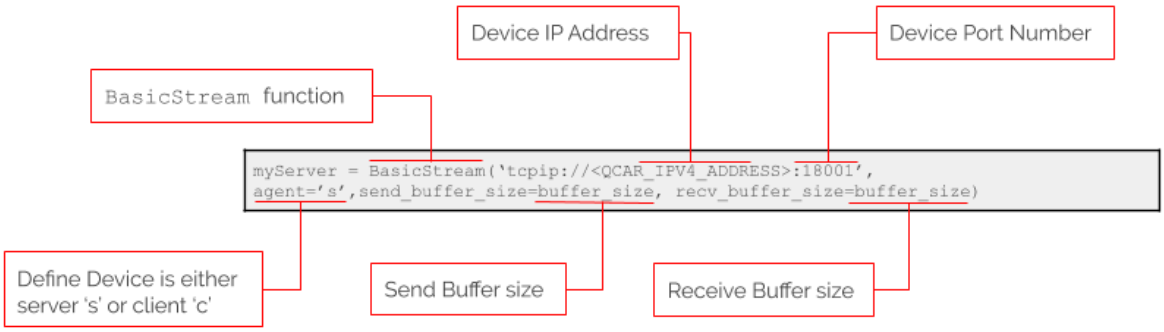

Figure 3: Basic Stream function input description

In this example the data which is being streamed is an image feed from the QCar. The stream client script is what's in charge of configuring the camera ID using following line:

```
myCam1 = Camera2D(camera_id="0", frame_width=imageWidth,
frame_height=imageHeight, frame_rate=sampleRate)
```

You can change the camera ID to stream a different CSI camera feed. The different IDs for the CSI cameras ranges from **0-3**.