

Getting Started on the RACECAR

To get our cars running, we need to do a few things first:

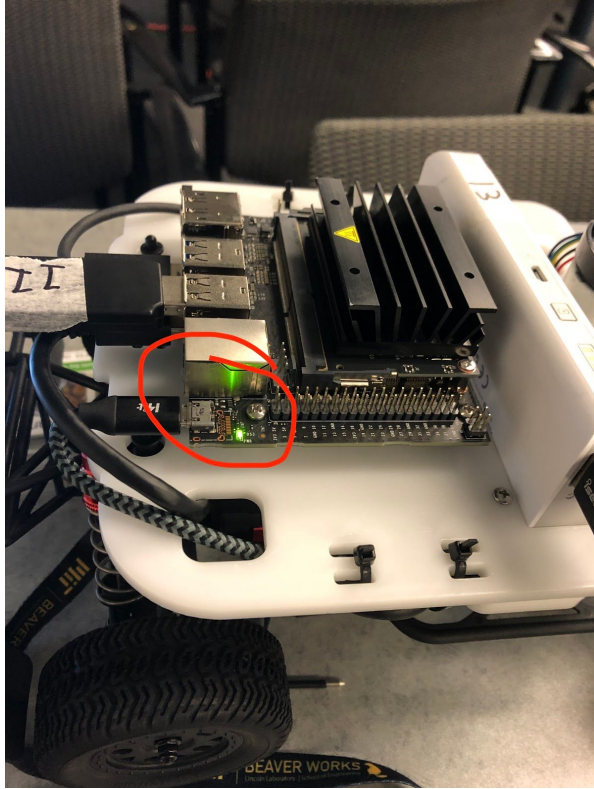
1. Make sure that the white battery (shown below) which powers the Jetson Nano is plugged in:



This is how the battery should look when the USB cables are properly plugged into the battery:



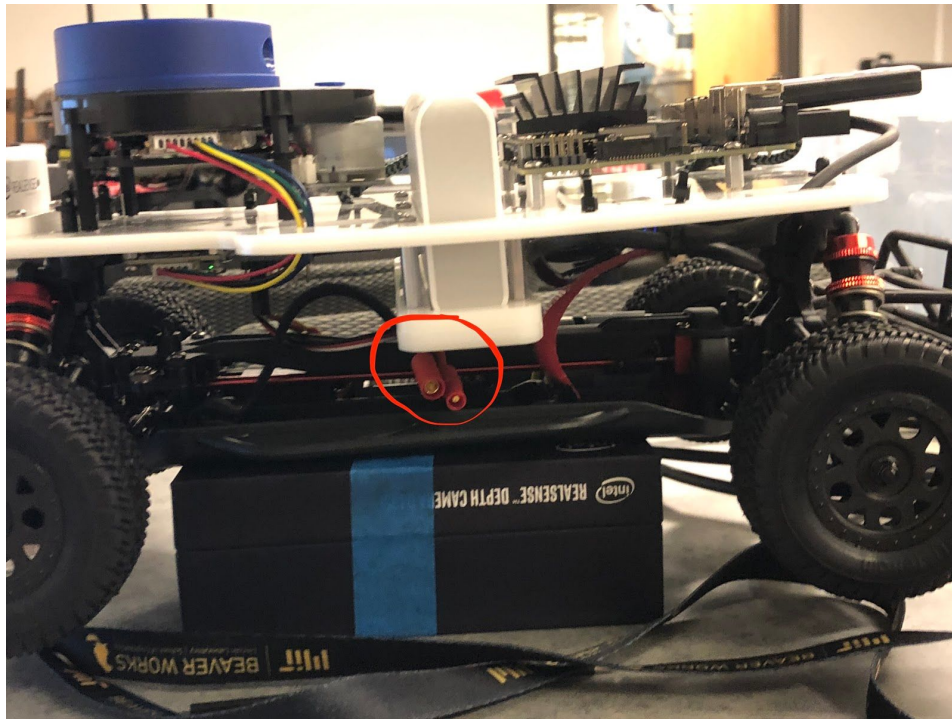
When this battery is plugged in, the Jetson should light up here, like this:



2. We also need to turn our car motor on by plugging this battery in:



This battery needs to be connected to here in the car:



This is how it looks when it's connected and secured in place:



We also need to make sure that this switch is turned on:



Now that the hardware is all ready to go, let us access the software part of the car!

3. Connecting to WIFI

We can access the software through the car's jupyter notebook remotely from the computer. To do so, first make sure that the computer is on the correct wifi for the car we are trying to connect:

- RMS_BRAVO: 2, 3, 4, 5
- RMS_CHARLIE: 6, 7, 8, 9
- RMS_DELTA: 10, 11, 12, 13

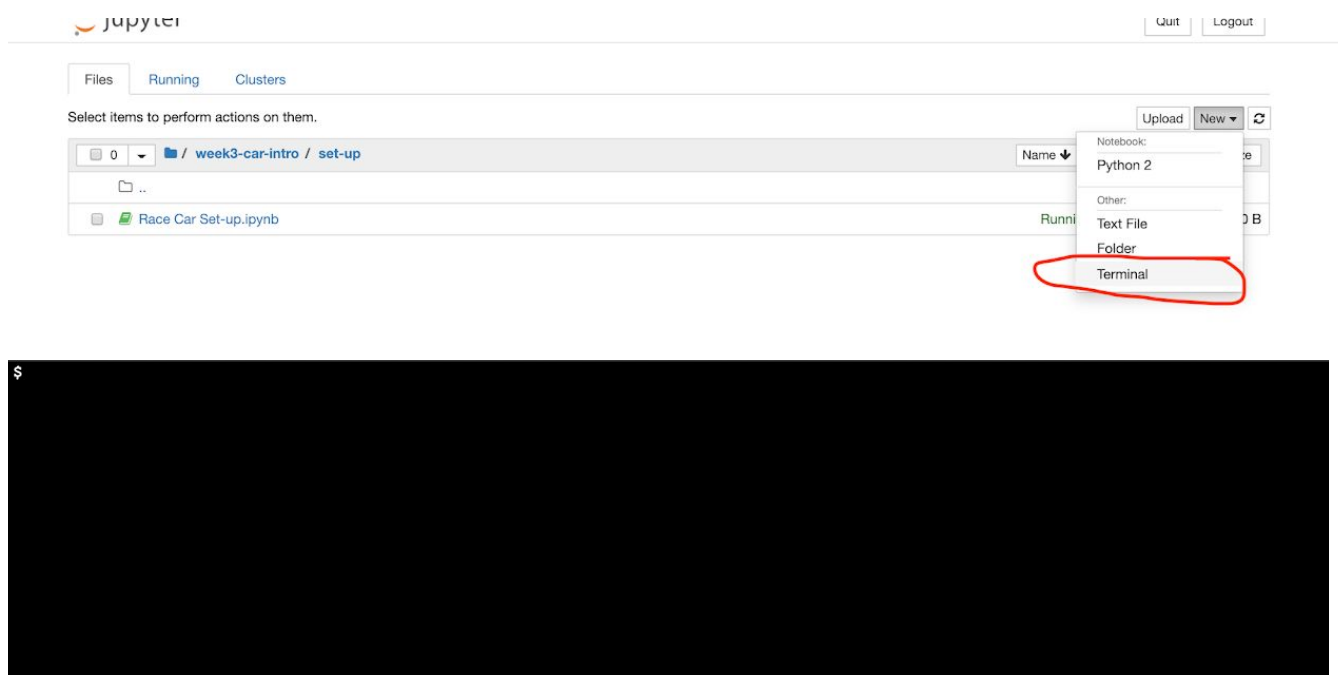
4. Open the google chrome web browser on your computer, once your computer is connected to the correct wifi.

It should automatically redirect you to the correct jupyter notebook.

If not, type `192.168.1.<car#>:8888`

5. From there, jupyter should open. Then, we will be able to get to the car's jupyter notebook.

Now, we need to open the terminal from the jupyter home screen:



6. Then, type `bash` into the terminal. This should happen:

```
$ bash
racecar@racecar:~/racecar_ws/jupyter_ws
$
```

Then, type in `teleop`. This should happen:

```
$ bash
racecar@racecar:~/racecar_ws/jupyter_ws
$ teleop
... logging to /home/racecar/.ros/log/ea4862fc-a7fd-11e9-8550-ee100eb217a1/roslaunch-racecar-6320.log
Checking log directory for disk usage. This may take awhile.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://racecar:40449/

SUMMARY
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PARAMETERS
* /car_max_backward: 1.0
* /car_max_forward: 1.5
* /car_max_turn: 0.4
* /car_throttle_backward: 0.3
* /car_throttle_forward: 0.3
* /car_throttle_turn: 0.4
* /gamepad_throttle_speed_scale: 1
* /roscdistro: melodic
* /rosversion: 1.14.3
* /steering_center_rel_offset: 0

NODES
/
  gamepad (racecar_mn/gamepad.py)
  joy_node (joy/joy_node)
  pwm (racecar_mn/pwm.py)
  throttle (racecar_mn/throttle.py)

auto-starting new master
process[master]: started with pid [6330]
ROS_MASTER_URI=http://racecar:11311

setting /run_id to ea4862fc-a7fd-11e9-8550-ee100eb217a1
process[roscout-1]: started with pid [6341]
started core service [/roscout]
process[joy_node-2]: started with pid [6344]
process[gamepad-3]: started with pid [6345]
process[pwm-4]: started with pid [6346]
```

When teleop is starting to run, make sure to have the joystick (see below for an image) nearby and press its center button.



7. Now, we can control the racecar with our controllers and also run almost any code here. Test the following code below to make sure the car runs.

MAKE SURE THE CAR IS ON A BLOCK BEFORE RUNNING.

