

brandeismakerlab

# How to Donkey Car (Driving)

This guide will explore how to use the Donkey Car.

Written By: Daniel Lay

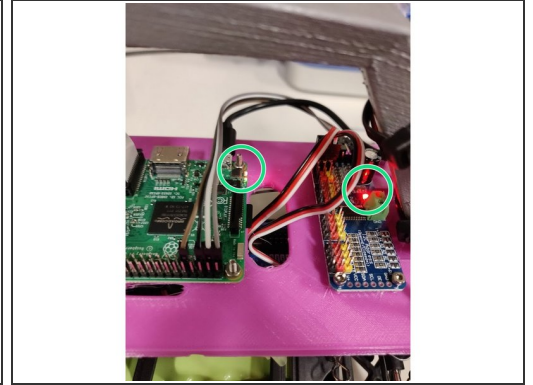




## TOOLS:

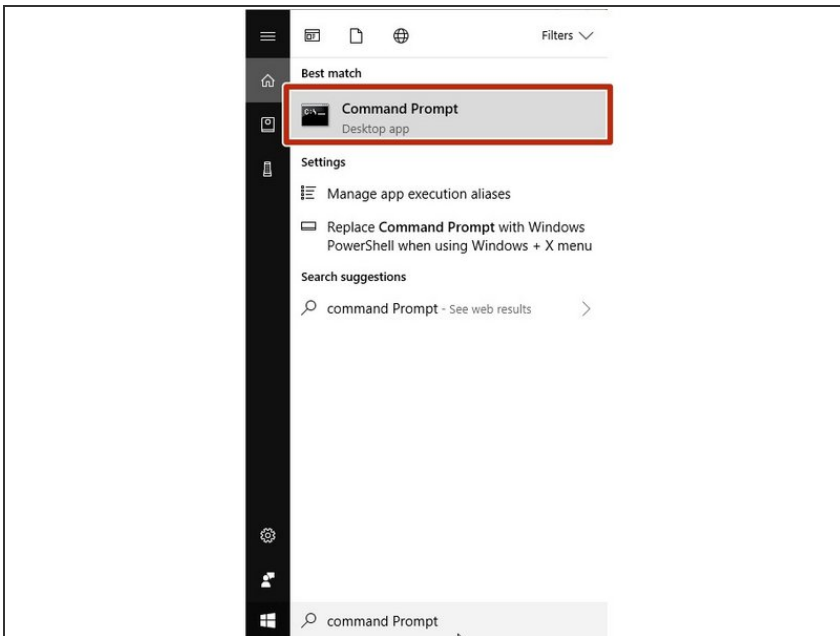
- [Donkey Car](#) (1)
- [PC with Windows 10](#) (1)

## Step 1 — Turn on the Raspberry Pi



- Click the button on the battery pack. There should be a green light should start shining
- Make sure that the button of the usb cable is pressed
- The lights on the pi should turn on (red and yellow)

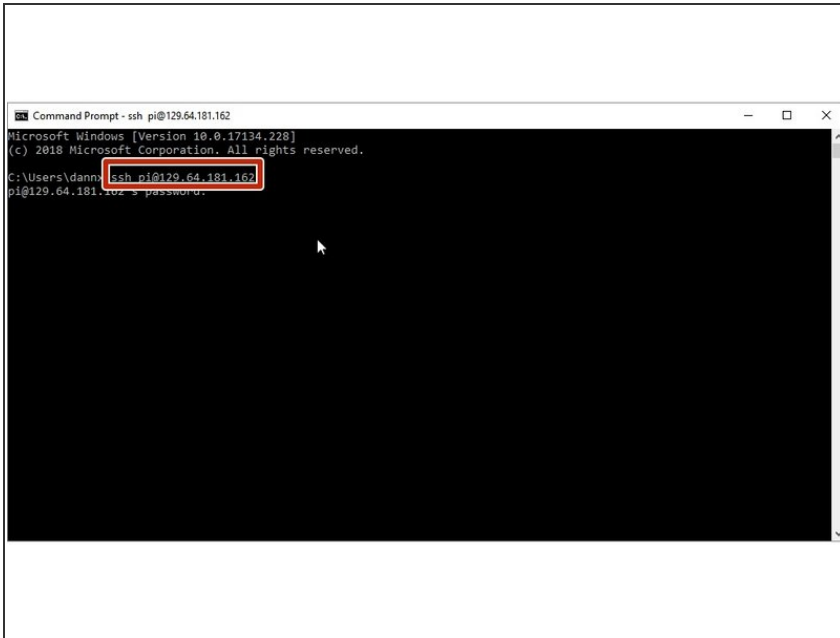
## Step 2 — Open up command prompt



- On your server computer, access your command prompt



## Step 3 — ssh into the Raspberry Pi

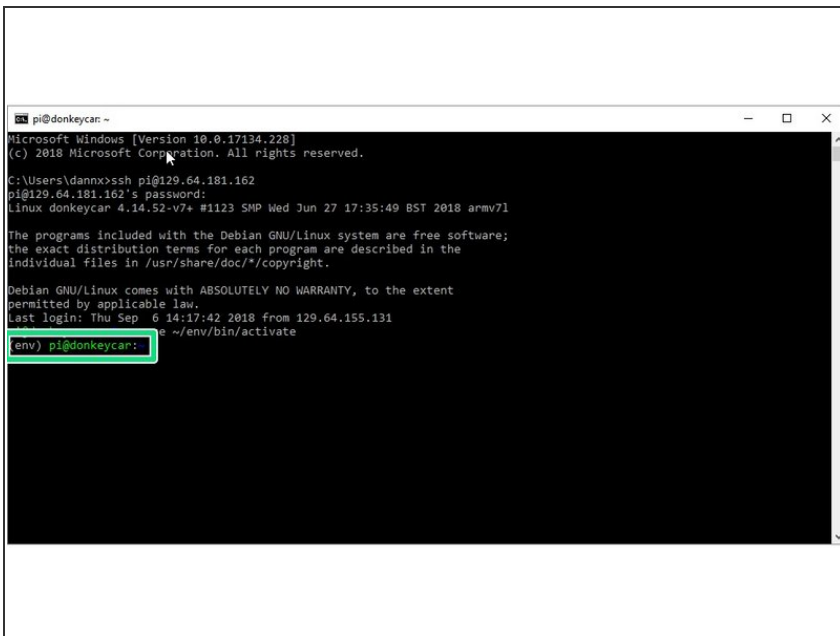


```
Command Prompt - ssh pi@129.64.181.162
Microsoft Windows [Version 10.0.17134.228]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\dann> ssh pi@129.64.181.162
pi@129.64.181.162's password:
```

- Type: `ssh pi@[ip address]`
- ❗ In the brackets, type in the ip address for YOUR raspberry pi.
  - For us: 129.64.181.162
- Type: `[password]`
- ❗ When it prompts you for your password, type in the password you gave the pi.
  - For us: donkeycar
  - Stock password: raspberry
- ❗ Nothing will show up when typing your password. This is a security feature.

## Step 4 — Access the VM



```
pi@donkeycar ~
Microsoft Windows [Version 10.0.17134.228]
(c) 2018 Microsoft Corporation. All rights reserved.

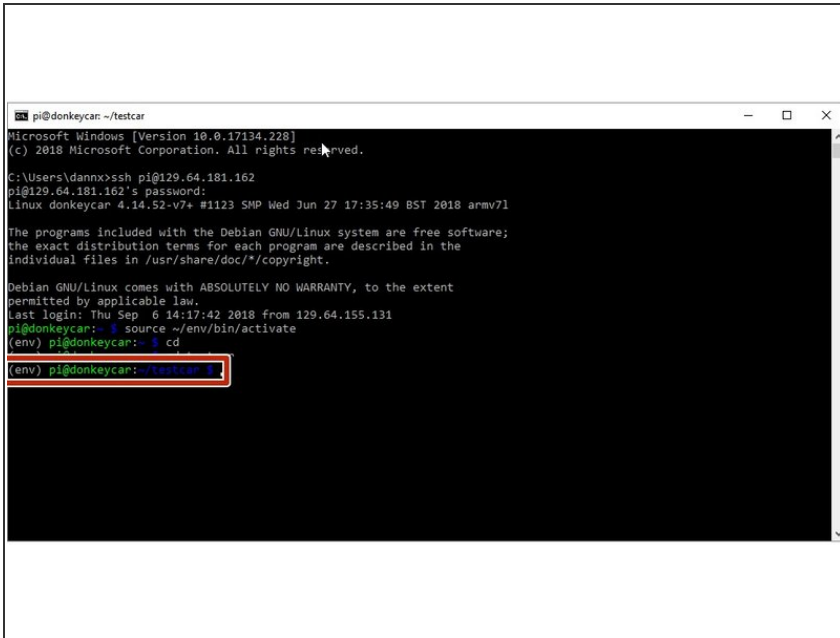
C:\Users\dann> ssh pi@129.64.181.162
pi@129.64.181.162's password:
Linux donkeycar 4.14.52-v7+ #1123 SMP Wed Jun 27 17:35:49 BST 2018 armv7l

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Thu Sep  6 14:17:42 2018 from 129.64.155.131
(env) pi@donkeycar: ~$ source ~/env/bin/activate
```

- We are going into the virtual machine of the raspberry pi
- Type: `source ~/env/bin/activate`
  - You know you are in the correct environment if the cmd displays: `(env) pi@donkeycar:`

## Step 5 — Access the car you want to use



```

pi@donkeycar: ~/testcar
Microsoft Windows [Version 10.0.17134.228]
(c) 2018 Microsoft Corporation. All rights reserved.

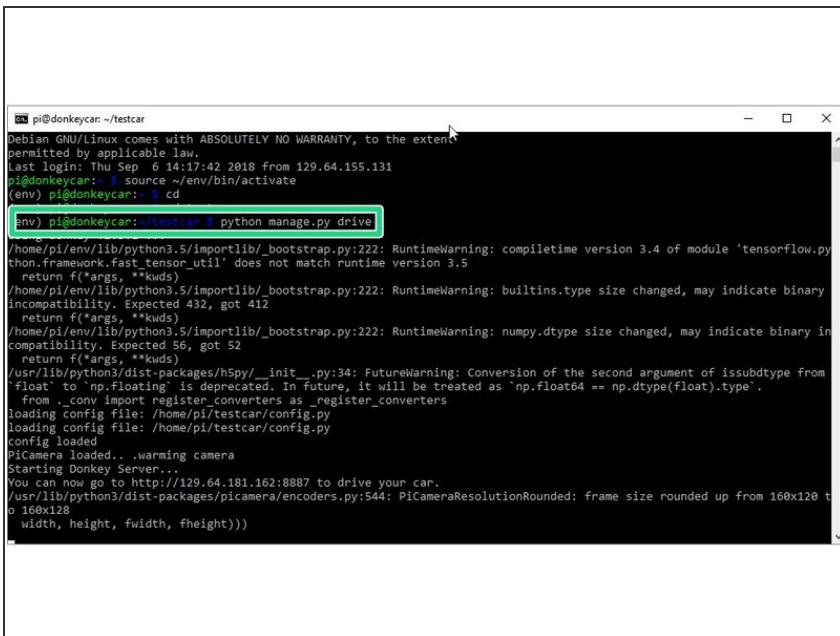
C:\Users\dannn>ssh pi@129.64.181.162
pi@129.64.181.162's password:
Linux donkeycar 4.14.52-v7+ #1123 SMP Wed Jun 27 17:35:49 BST 2018 armv7l

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Last login: Thu Sep  6 14:17:42 2018 from 129.64.155.131
pi@donkeycar: ~$ source ~/env/bin/activate
(env) pi@donkeycar: ~$ cd
(env) pi@donkeycar: ~/testcar$
  
```

- Type: `cd [car name]`
- For us: `cd testcar`


## Step 6 — Set the car up for driving



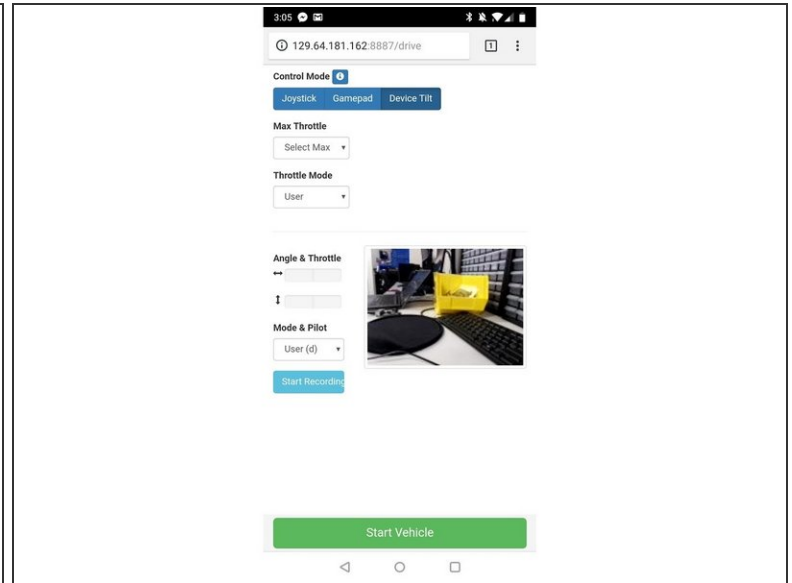
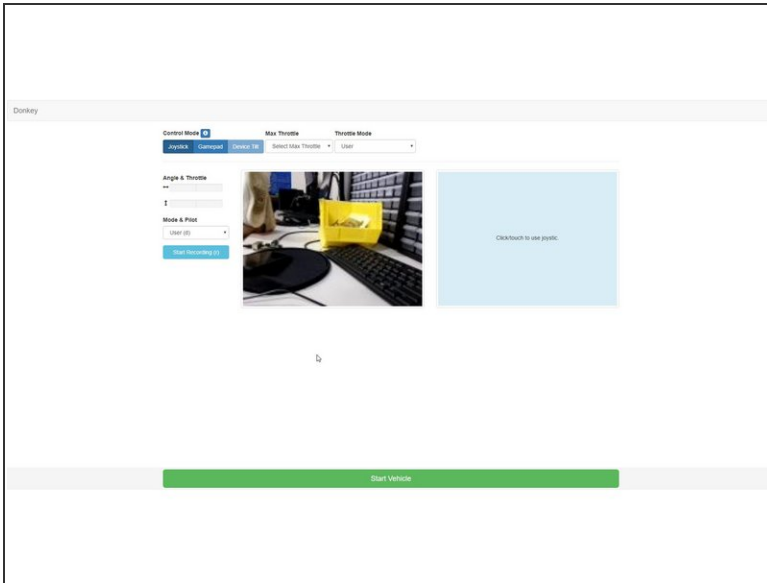
```

pi@donkeycar: ~/testcar
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Thu Sep  6 14:17:42 2018 from 129.64.155.131
pi@donkeycar: ~$ source ~/env/bin/activate
(env) pi@donkeycar: ~$ cd
(env) pi@donkeycar: ~/testcar$ python manage.py drive

/home/pi/env/lib/python3.5/importlib/_bootstrap.py:222: RuntimeWarning: completime version 3.4 of module 'tensorflow.pyth.framework.fast_tensor_util' does not match runtime version 3.5
  return f(*args, **kwargs)
/home/pi/env/lib/python3.5/importlib/_bootstrap.py:222: RuntimeWarning: builtins.type size changed, may indicate binary incompatibility. Expected 432, got 412
  return f(*args, **kwargs)
/home/pi/env/lib/python3.5/importlib/_bootstrap.py:222: RuntimeWarning: numpy.dtype size changed, may indicate binary incompatibility. Expected 56, got 52
  return f(*args, **kwargs)
/usr/lib/python3/dist-packages/h5py/_init_.py:34: FutureWarning: Conversion of the second argument of issubdtype from 'float' to 'np.floating' is deprecated. In future, it will be treated as 'np.float64 == np.dtype(float).type'.
  from .conv import register_converters as _register_converters
loading config file: /home/pi/testcar/config.py
loading config file: /home/pi/testcar/config.py
config loaded
PiCamera loaded.. warning camera
Starting Donkey Server...
You can now go to http://129.64.181.162:8887 to drive your car.
/usr/lib/python3/dist-packages/picamera/encoders.py:544: PiCameraResolutionRounded: frame size rounded up from 160x120 to 160x128
  width, height, fwidth, fheight)))
  
```

- Type: `python manage.py drive`
-  There should be a lot of lines that come after that. This is a lot of information that the car is doing to prepare for driving

## Step 7 — Access the website



- In a browser: (Phone or computer)
  - Type: [ip address]:8887/drive
- ❗ For us: 129.64.181.162:8887/drive

⚠ Whenever you drive the car, you are adding data to the tub. So if you are planning to train the car, DO NOT drive the car away from the track.