**Donkey RC Car Setup**

**A close up of a machine

Description automatically generated**

## Powering up the Donkey Car

## To turn on the donkey car you will need two batteries. one Ni-Mh battery that fits into the bottom slot of the donkey car and has some pins that hold it in. There is a small connector right by the slot that the Ni-Mh battery will plug into. In order to power the Pi, there is a Li-Po battery which will plug into the Pi thru a usb to micro usb cable. Once you have these two batteries plugged in the donkey car will be ready to roll or setup.

## Setup the Wi-Fi connection for Pi

To setup Wi-Fi access to the donkey car you will want to power up the Pi on the vehicle. Connect the pi to a monitor thru the HDMI port on the Pi and plug in a usb mouse and keyboard. You will want to select the Wi-Fi you wish to connect to on the raspberry pi.

**Connecting to the Pi**

If you followed the above instructions to add wifi access, your Pi should now be connected to your wifi network. Now you need to find its IP address so you can connect to it via SSH.

The easiest way (on Ubuntu) is to use the findcar donkey command. You can try ping raspberrypi.local. If you've modified the hostname, then you should try: ping <your hostname>.local. This will fail on a windows machine. Windows users will need the full IP address (unless using cygwin).

If you are having troubles locating your Pi on the network, you will want to plug in an HDMI monitor and USB keyboard into the Pi. Boot it. Login with:

* Username: **pi**
* Password: **1234**

Then try the command:

ifconfig wlan0

If this has a valid IPv4 address, 4 groups of numbers separated by dots, then you can try that with your SSH command. If you don't see anything like that, then your wifi config might have a mistake. You can try to fix with

sudo nano /etc/wpa\_supplicant/wpa\_supplicant.conf

If you don't have a HDMI monitor and keyboard, you can plug-in the Pi with a CAT5 cable to a router with DHCP. If that router is on the same network as your PC, you can try:

**ping** **raspberrypi**.local

Hopefully, one of those methods worked and you are now ready to SSH into your Pi. On Mac and Linux, you can open Terminal. On Windows you can install [Putty](http://www.putty.org/), [one of the alternatives](https://www.htpcbeginner.com/best-ssh-clients-windows-putty-alternatives/2/), or on Windows 10 you may have ssh via the command prompt.

If you have a command prompt, you can try:

**ssh** **pi**@**raspberrypi**.**local**

or

**ssh** **pi**@<**your** pi ip address>

or via Putty.

* Username: **pi**
* Password: **1234**
* Hostname:<your pi IP address>

# **Drive your car**

If you are not already, please ssh into your vehicle.

### Start your car.

**Put your car in a safe place where the wheels are off the ground.** This is the step were the car can take off.

Open your car's folder and start your car.

cd ~/mycar

python manage.py drive

Once the car has been trained to use autopilot you can launch with the command:

python manage.py drive --model ~/mycar/models/mypilot.h5

This script will start the drive loop in your car which includes a part that is a web server for you to control your car. You can now control your car from a web browser at the URL: <your car's IP's address>:8887

**Building Donkey Car**

To build the donkey car you will need the following parts:

* Exceed Racing Desert Short Course Truck 1/16 Scale Ready to Run 2.4ghz (AA Blue)

<https://www.amazon.com/Exceed-Racing-Desert-Course-2-4ghz/dp/9269802086/ref=as_li_ss_tl?_encoding=UTF8&pd_rd_i=9269802086&pd_rd_r=78JFQN575NX4QN9YW9NA&pd_rd_w=WcZLu&pd_rd_wg=GWXCG&psc=1&refRID=78JFQN575NX4QN9YW9NA&linkCode=sl1&tag=donkeycar-20&linkId=1bc61faa0d090a48af6fbaeeaa069b0d>

* Element14 Raspberry Pi 3 B+ Motherboard <https://www.amazon.com/ELEMENT-Element14-Raspberry-Pi-Motherboard/dp/B07BDR5PDW?tag=donkeycar-20>
* HiLetgo 2pcs PCA9685 16 Channel 12-Bit PWM Servo Motor Driver IIC Module for Arduino Robot

<https://www.amazon.com/HiLetgo-PCA9685-Channel-12-Bit-Arduino/dp/B07BRS249H/ref=sr_1_4?keywords=servo+driver&qid=1578327015&sr=8-4>

* SainSmart Wide Angle Fish-Eye Camera Lenses for Raspberry Pi Arduino

<https://www.amazon.com/gp/product/B00N1YJKFS?tag=donkeycar-20>

* M3x10 screws <https://www.amazon.com/Screws-Mushroom-Phillips-Self-Tapping-Electronic/dp/B07NQCG6JP?tag=donkeycar-20>
* M2x6 screws <https://www.amazon.com/uxcell-Stainless-Phillips-Tapping-Screws/dp/B01KXTSW6Q?tag=donkeycar-20>
* 32GB Micro SD Card <https://www.amazon.com/dp/B06XWMQ81P/ref=twister_B07V2PRSXC?_encoding=UTF8&psc=1>

# **Power Bank 10000mQSah,TONV Portable External Cell Phone Li-Polymer Battery’s 2 Input and 2 Output**

<https://www.amazon.com/10000mah-TONV-Portable-Li-Polymer-Compatible/dp/B078TFHXVY/ref=sr_1_1?keywords=tonv&qid=1578335174&sr=8-1>

* Soft spring

3d Printing the body of the donkey car and adapters