

# TFM

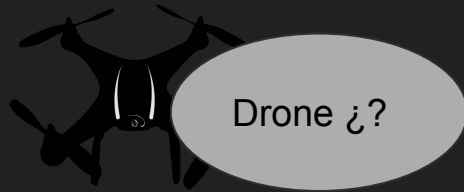
Pedro Arias

# Infraestructura

- ROS + MAVLink → MAVROS

ROS

- Drone



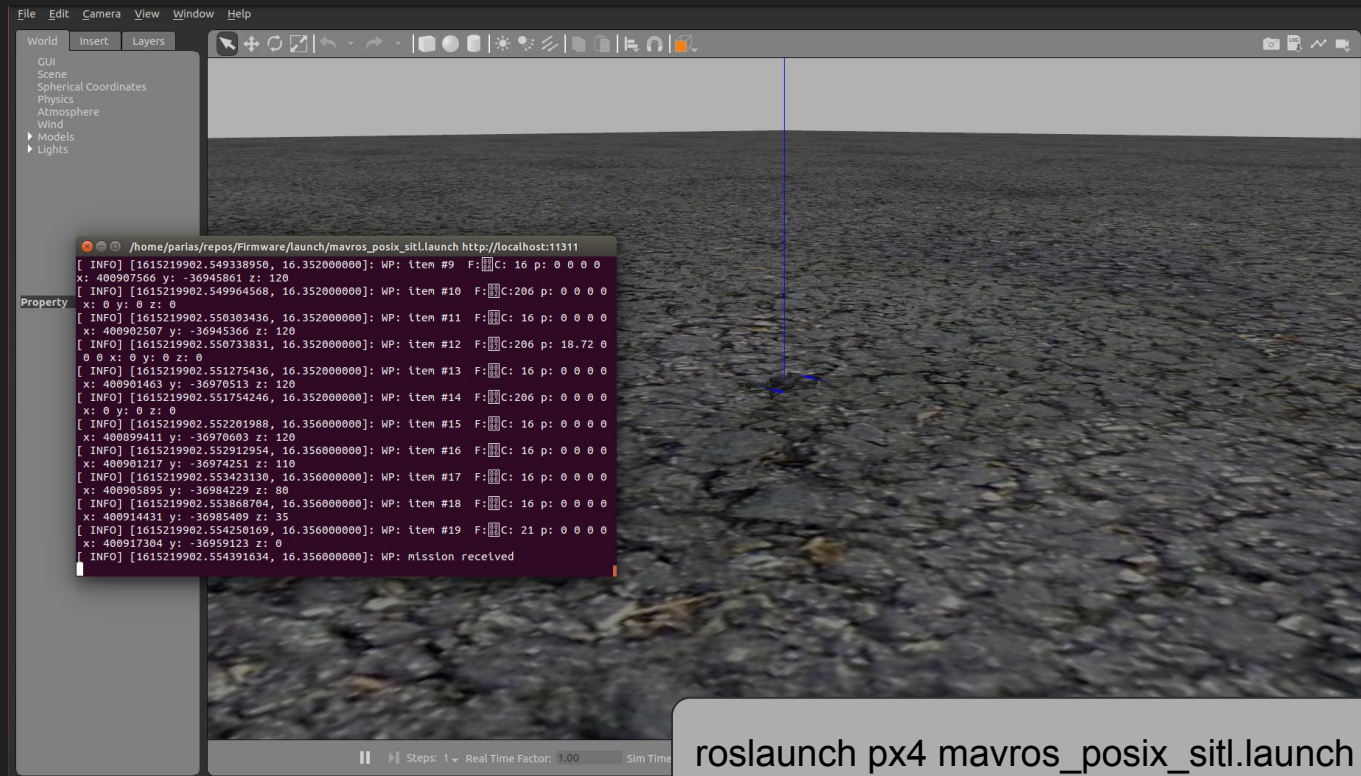
# ROS + PX4 + Gazebo

- Ubuntu 18.06
- ROS Melodic
- Gazebo 9

ROS Melodic  
EOL 2023



ROS Noetic ¿?



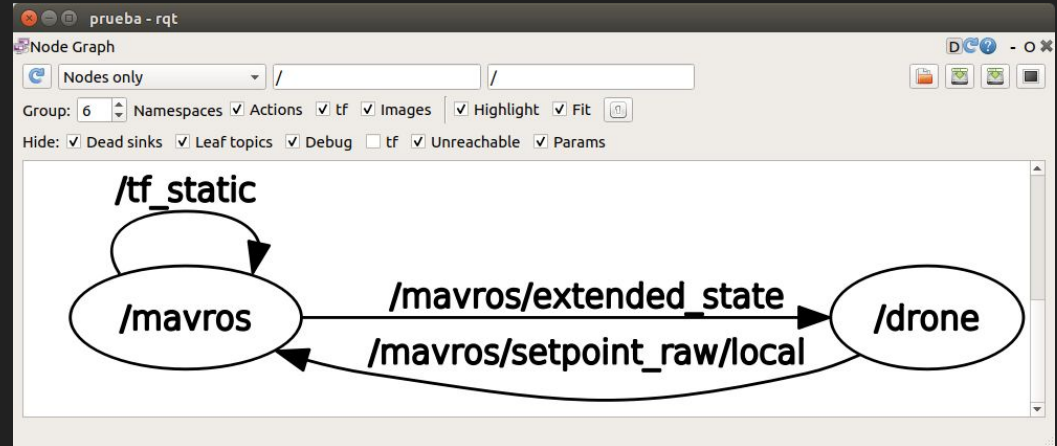
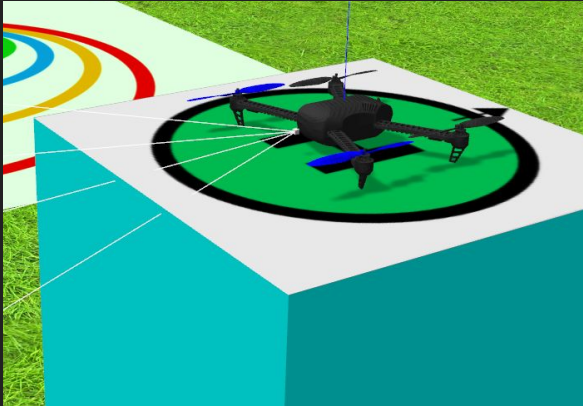
roslaunch px4 mavros\_posix\_sitl.launch

# Drone Wrapper

- Paquete ROS: Melodic y Kinetic (deprecated)
- Python 2.7



[/JdeRobot/drones](https://github.com/JdeRobot/drones)



Services

mavros/cmd/arming  
mavros/set\_mode  
mavros/cmd/land  
mavros/param/set  
mavros/param/get

Topics  
subs

mavros/state  
mavros/extended\_state  
mavros/local\_position/pose  
mavros/local\_position/velocity\_body  
mavros/global\_position/global

/iris/cam\_frontal/image\_raw  
/iris/cam\_ventral/image\_raw

Topics  
pubs

drone\_wrapper/extended\_state  
drone\_wrapper/local\_position/pose  
drone\_wrapper/local\_position/velocity\_body  
drone\_wrapper/cam\_frontal/image\_raw  
drone\_wrapper/cam\_ventral/image\_raw

mavros/setpoint\_raw/local



Drone  
Wrapper



API

drone.get\_position()  
drone.get\_velocity()  
drone.get\_yaw\_rate()  
drone.get\_orientation()  
drone.get\_roll()  
drone.get\_pitch()  
drone.get\_yaw()  
drone.get\_landed\_state()

drone.set\_cmd\_pos(x, y, z, yaw)  
drone.set\_cmd\_vel(vx, vy, vz, yaw\_rate)  
drone.set\_cmd\_mix(vx, vy, z, yaw\_rate)

drone.takeoff(height)  
drone.land()

drone.param\_get(param)  
drone.param\_set(param, value)

drone.get\_frontal\_image()  
drone.get\_ventral\_image()

# Aplicaciones

- Python Interpreter
- CLW
- RQT Drone Teleop
- Academy

```
parias@parias-msi:~$ python2
```

```
Python 2.7.17 (default, Feb 25 2021, 14:02:55)
```

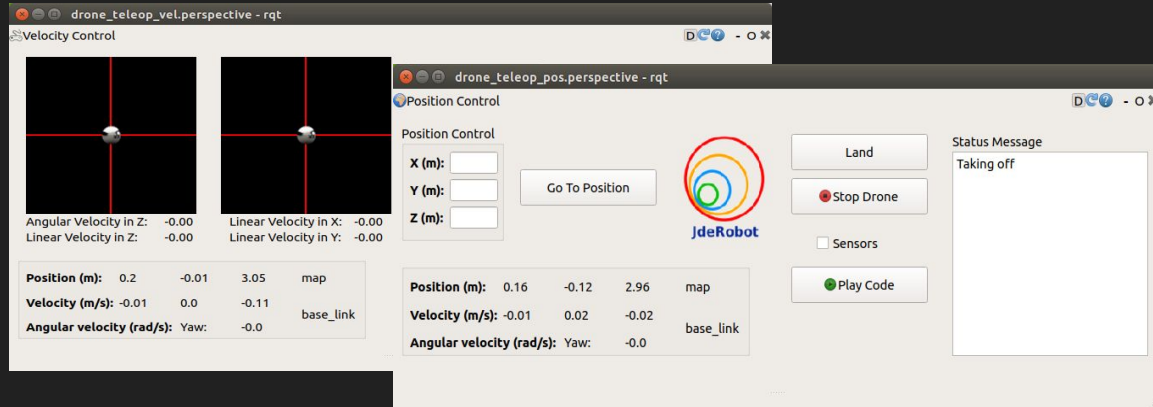
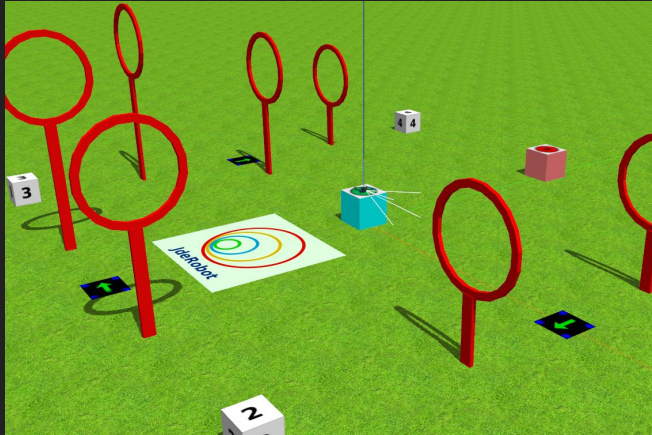
```
[GCC 7.5.0] on linux2
```

```
>>> import rospy
```

```
>>> from drone_wrapper import DroneWrapper
```

```
>>> drone = DroneWrapper()
```

```
>>> drone.takeoff()
```

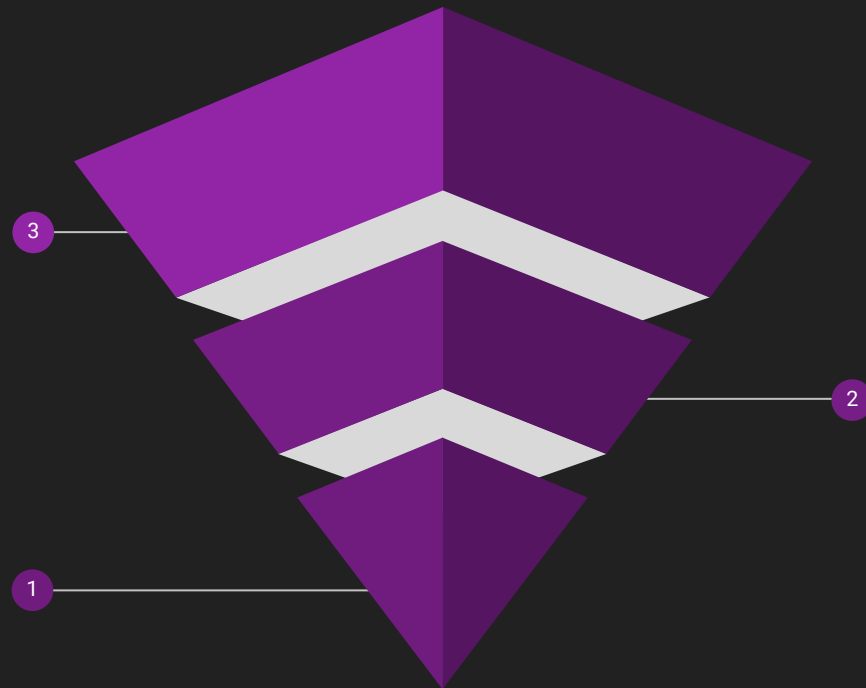


## Aplicaciones

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## Vehículo

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## Drone Wrapper

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