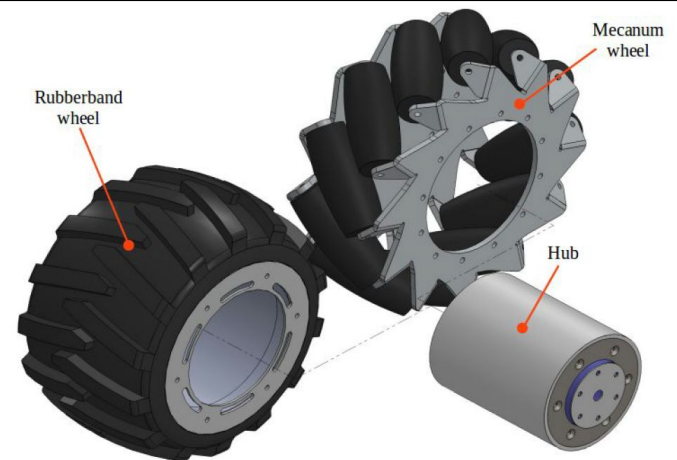
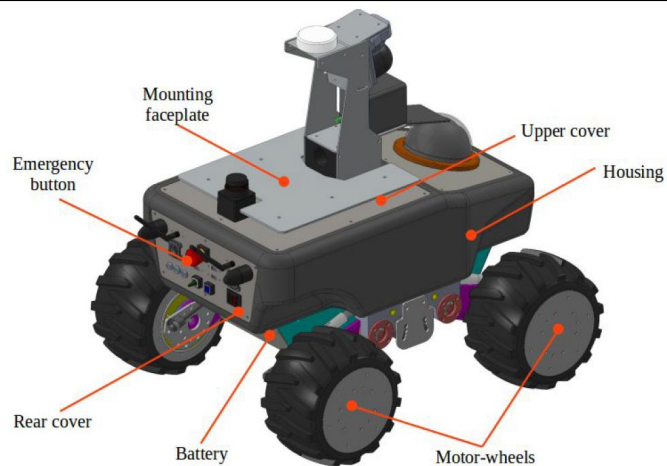
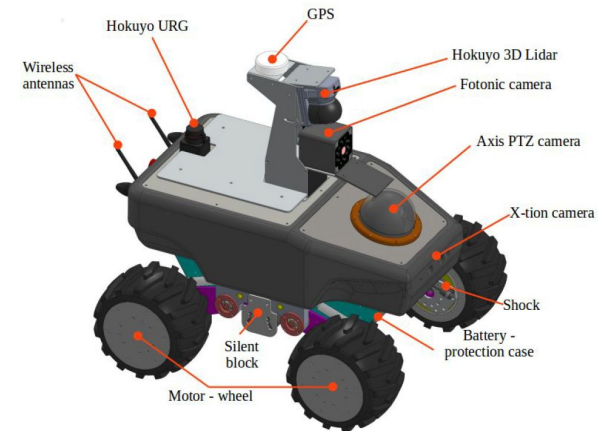


# Programación del robot Summit XL

Clase 10  
Ing. Alexander López

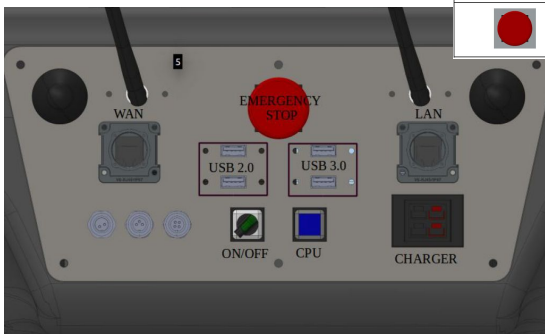


# Partes del Robot

## Driver de motores con comunicación CAN



## Tablero del robot



ON/OFF switch

PC button

Emergency button

## Cámara 360° de seguridad

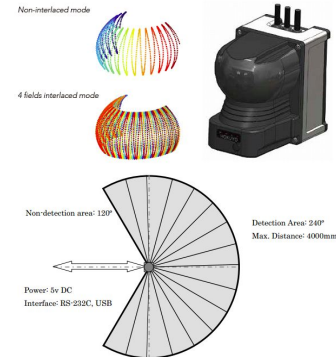


## Sensor Laser Hokuyo URG-04LX-UG01

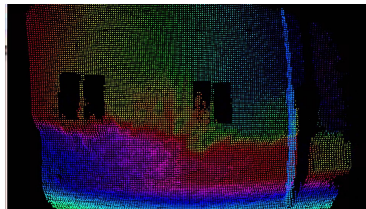


## Sensor 3D Hokuyo

<http://carnegie robotics.com/multisense-sl/>



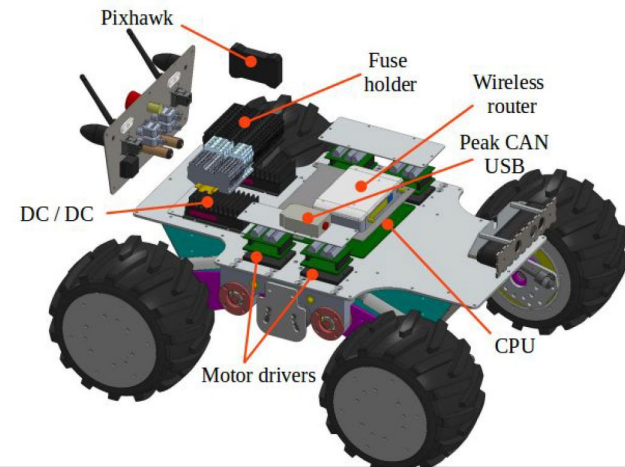
## Fotonic 3d Camera



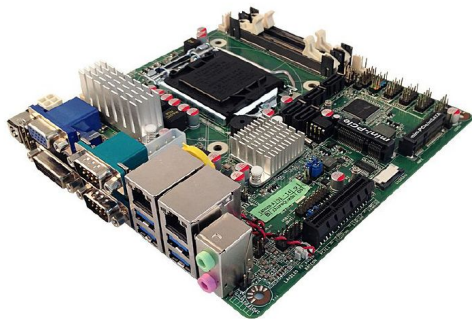
## Sensor de profundidad



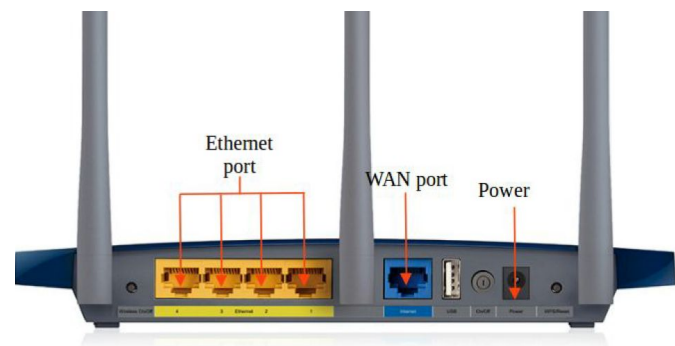
## GPS



## Computadora Jetway



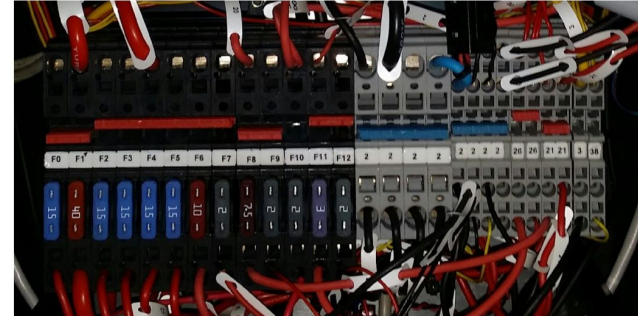
## Modem



## Convertidor DC-DC



## Borneras y panel de fusibles



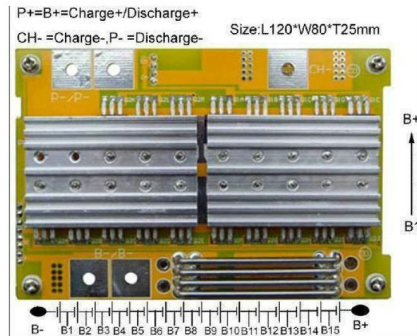
## Pixhawk



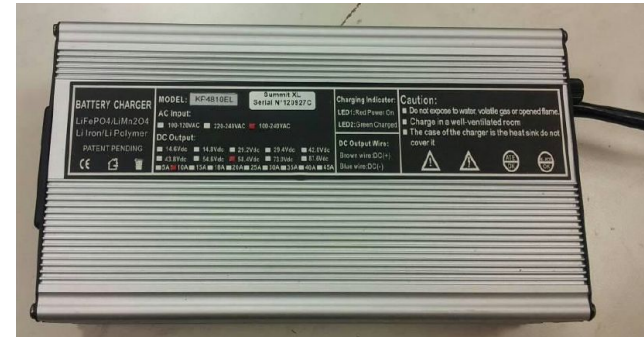
## Batería LiFePo



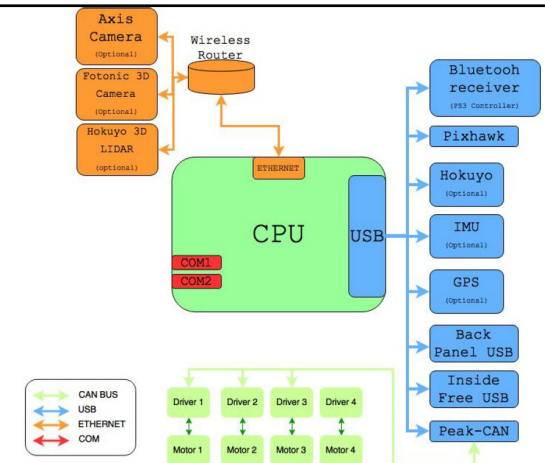
## Sistema de carga del robot



## Cargador de baterías



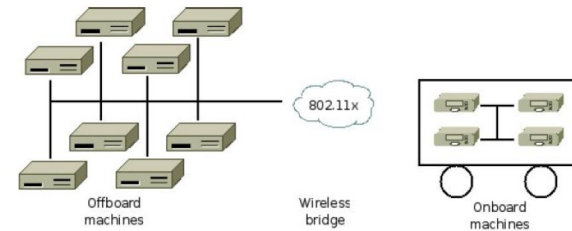
## Partes del cargador



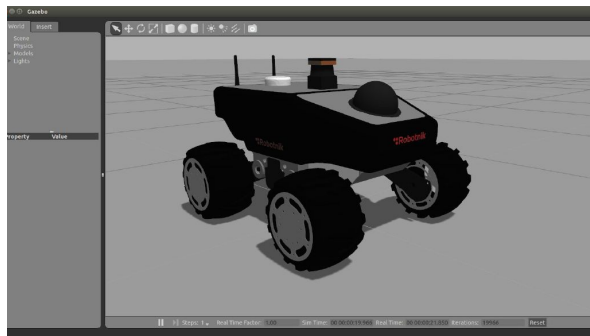


# Software

## Diagrama de comunicación



## Robot simulado



## Parámetros de comunicación

### Wifi:

Wifi SSIDs: Summit XL (A..Z)

Wifi Password: R0b0tn1K (R and K capital letters)

### Router:

User/Password: root / R0b0tn1K

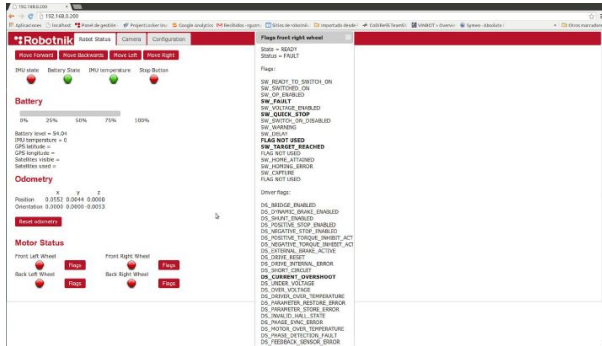
Router IP Address : 192.168.0.1

### Rover Computer:

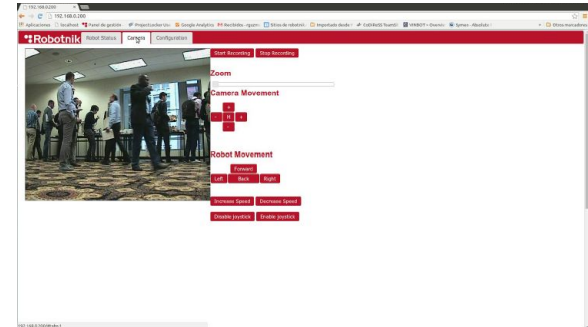
User/Password: summit / R0b0tn1K

And the password for the AXIS camera is also R0b0tn1K

## Interfaz de usuario



## Interfaz de usuario



## Control del robot



## Control del robot





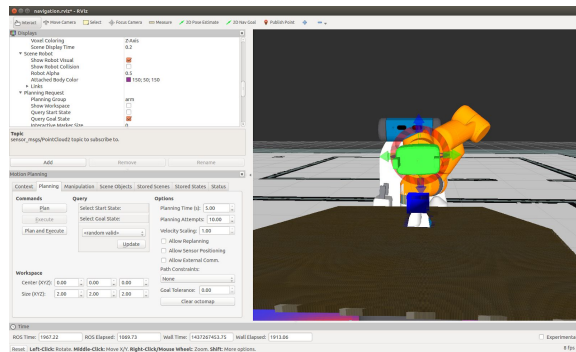
## Crear Summit workspace

```
alex@alex-K55SLA:~$ summit_ws/src/
alex@alex-K55SLA:~$ mkdir -p summit_ws/src/
alex@alex-K55SLA:~$ ls
baxter_ws  examples.desktop  right_hand_camera.py  Videos
catkin_ws  music              right_hand_camera.py  view_only_hand_camera.py
Documents  Pictures           summit_ws              view_only_hand_camera.py
Downloads  Public             Templates
alex@alex-K55SLA:~$ cd summit_ws/
alex@alex-K55SLA:~/summit_ws$ cd src
alex@alex-K55SLA:~/summit_ws/src$ catkin_init_workspace
creating symlink /home/alex/summit_ws/src/CMakeLists.txt pointing to /opt/ros
indigo/share/cmake/catkin/cmake/catkin.cmake
alex@alex-K55SLA:~/summit_ws/src$
```

## Sourcing

[illegible]

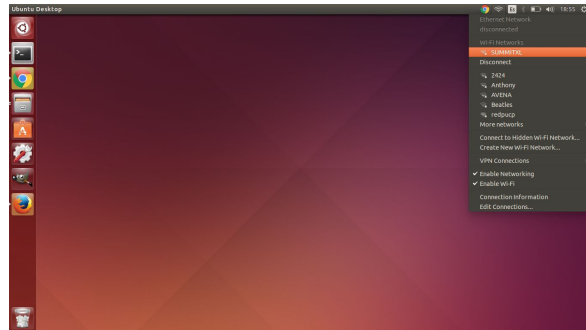
## Moveit!



## Instalar movit!

```
alex@alex-X555LA:~$ sudo apt-get install ros-indigo-movect-1
ros-indigo-movect-1
ros-indigo-movect-ros-control-interface
ros-indigo-movect-ros-move-group-ros-indigo-movect-ros-perception
ros-indigo-movect-ros-planning-ros-indigo-movect-ros-planning-interface
ros-indigo-movect-ros-robot-model-ros-indigo-movect-ros-robot-model-visualization
ros-indigo-movect-ros-warehouse-ros-indigo-movect-ros-runtime
ros-indigo-movect-ros-warehouse-ros-indigo-movect-sim-controller
ros-indigo-movect-single-controller-manager
ros-indigo-movect-single-grasps
ros-indigo-movect-visual-tools-ros-indigo-object-msgs
ros-indigo-object-msgs-tools-ros-indigo-object-recognition-msgs
ros-indigo-object-recognition-msgs-tools-ros-indigo-navigation-msgs
ros-indigo-position-controllers-ros-indigo-pr2-arm-kinematics
ros-indigo-pr2-controllers-msgs-ros-indigo-pr2-mechanics-msgs
ros-indigo-pr2-models-ros-indigo-pr2-models-ros-plugins
ros-indigo-pr2-movect-tutorials-ros-indigo-pr2-movect-generated
ros-indigo-realtime-tools-ros-indigo-robot-model-visualization
ros-indigo-ros-control-bolterplate-ros-indigo-ros-controllers
ros-indigo-rosplan-controllers-ros-indigo-robot-joint-trajectory-controller
ros-indigo-robot-joint-trajectory-controller-ros-indigo-srdfcon
ros-indigo-transmission-interface-ros-indigo-urdfcon-p
ros-indigo-velocity-controllers-ros-indigo-warehouse-ros
ros-indigo-warehouse-115 new binary packages will be removed and 0 not upgraded.
Need to get 66.8 MB of archives.
After this operation, 338 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

## Conectarse al robot via Wifi



## Ubicación del Master!

[illegible]

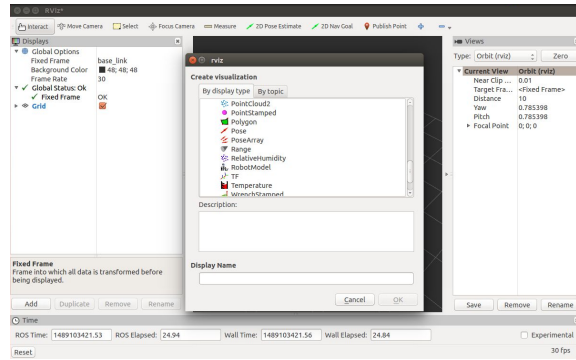
## Lista de tópicos

[illegible]

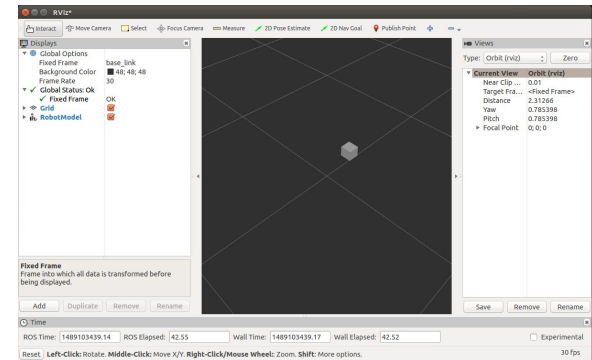
## Summit en Rviz

```
alex@alex-X55SLA: ~  
alex@alex-X55SLA:~$ export ROS_MASTER_URI=http://192.168.0.200:11311  
alex@alex-X55SLA:~$ roslaunch rviz rviz  
[INFO] [1489103395.274391391]: rviz version 1.11.15  
[INFO] [1489103395.274513693]: compiled against Qt version 4.8.6  
[INFO] [1489103395.274553333]: compiled against OGRE version 1.8.1 (Byatis)  
[INFO] [1489103395.274684545]: Stereo is NOT SUPPORTED  
[INFO] [1489103395.274472367]: OpenGL version: 3 (GLSL 1.3).
```

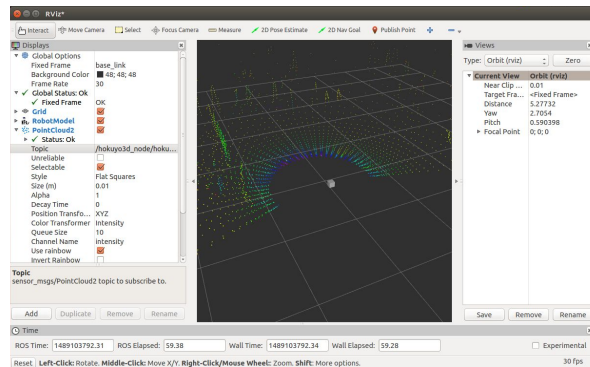
## Summit en Rviz



## Summit en Rviz



## Summit en Rviz



¡Gracias!

¡La única pregunta tonta es la que no se hace!