

Robots, Actuadores, Sensores y Simuladores

Clase 6
Ing. Alexander López

Plataforma Móvil

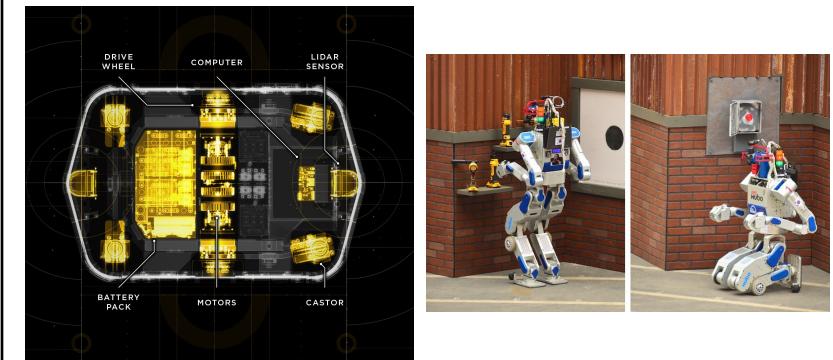


Plataforma Móvil



Differential drive

Plataforma Móvil



Differential drive

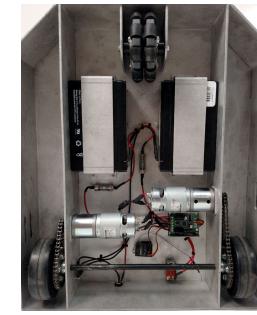
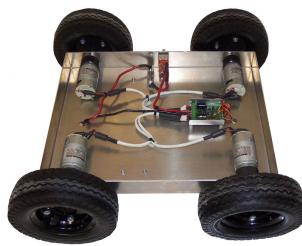
Plataforma Móvil



Differential drive



Plataforma Móvil



Differential drive



Plataforma Móvil

Balancing wheeled



Segway



Handle



Ampbot



Double Robotics

Plataforma Móvil

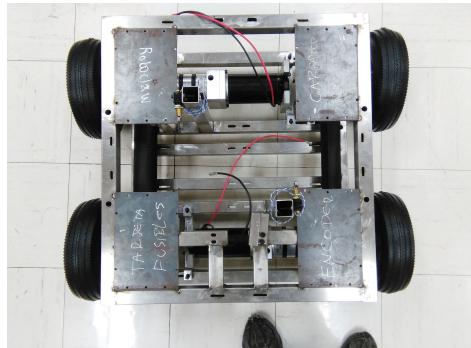
Skid Steering



Plataforma Móvil

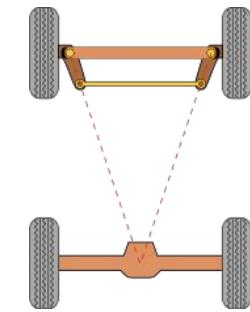


Skid Steering



Plataforma Móvil

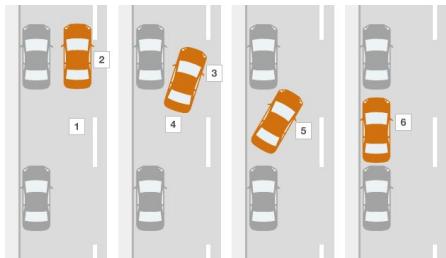
Differential drive



Plataforma Móvil

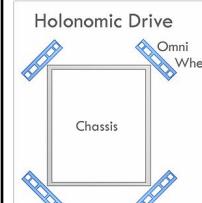
Non-holonomic

- Ackerman
- Skid Steering
- Balancing wheeled
- Differential drive

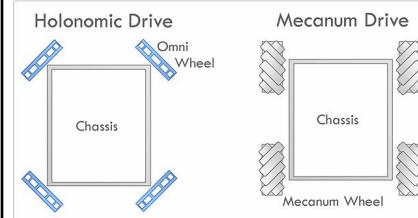


Plataforma Móvil

Holonomic Drive



Mecanum Drive



Plataforma Móvil

Legged locomotion



Plataforma Móvil

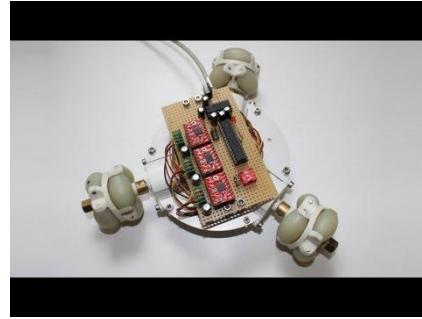
Legged locomotion

DRC Finals - Qualified Teams



Plataforma Móvil

Legged locomotion



Plataforma Móvil

Legged locomotion

Plataforma Móvil

Legged locomotion

ROBOTIS, the Most Widely Used Platform in Robotics?

- 2015 DARPA Robotics Challenge: 8 of 15 teams who built their own platforms were using Dynamixel PROs (4 teams) or the THORMANG platform (4 teams)
- 2015 RoboCup: Over 90% of Humanoid League teams were using Dynamixels and ROBOTIS platforms
- 2014 The New York Times: ROBOTIS MINI, based on XL-320 Dynamixels, was recognized as one of "The Year in Robots" (10 Home Robots to Lighten Your Domestic Chores)

Along with the global developers, ROBOTIS is leading the way in the development of open-source platforms.



www.robotis.com



Brazo Manipulador

Industrial



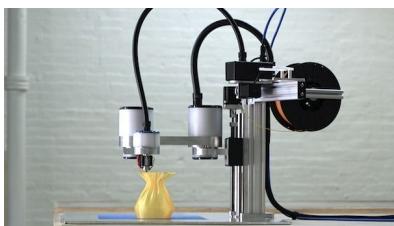
Brazo Manipulador

Pick and place



Brazo Manipulador

Maker



Sensors

On/Off



Sensors



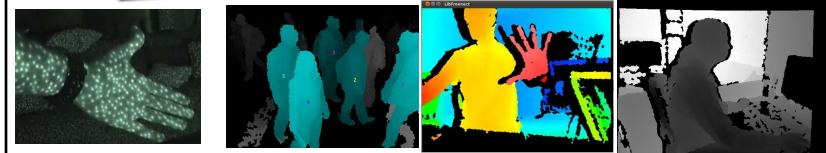
Camera



Sensors



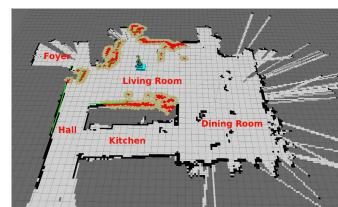
Depth sensor



Sensors



Laser Scan



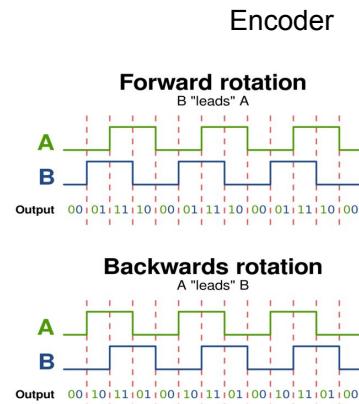
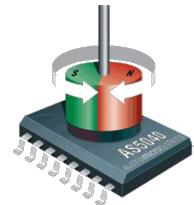
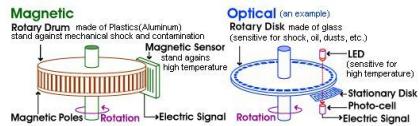
Sensors



Lidar



Sensors



Sensors



Encoder

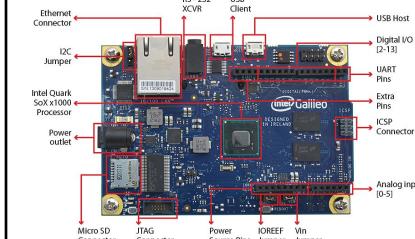
Computación



Embedded

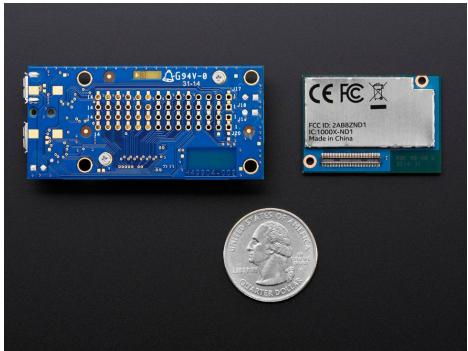


Computación



Embedded

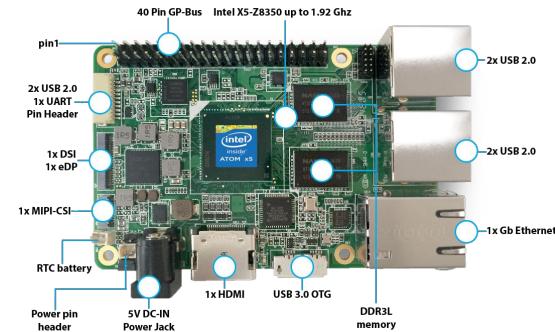
Computación



Embedded

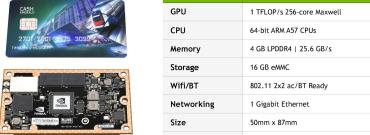


Computación

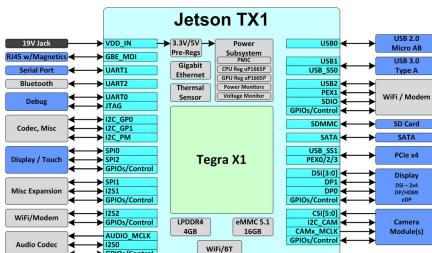


Embedded

Computación



With GPU

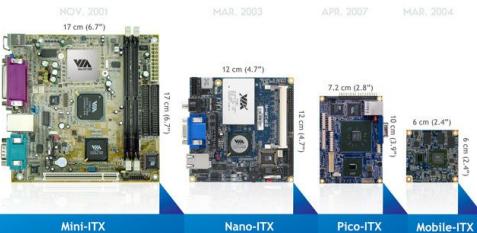


Computación



With GPU

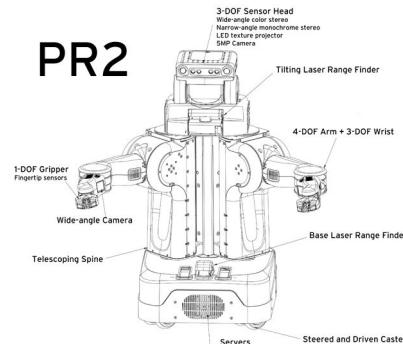
Computación



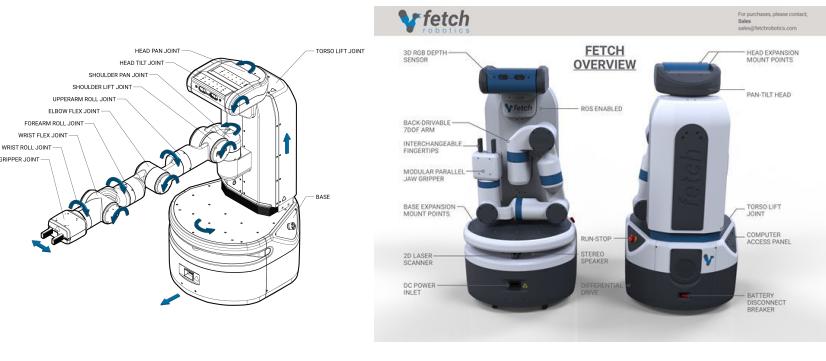
Massive computing



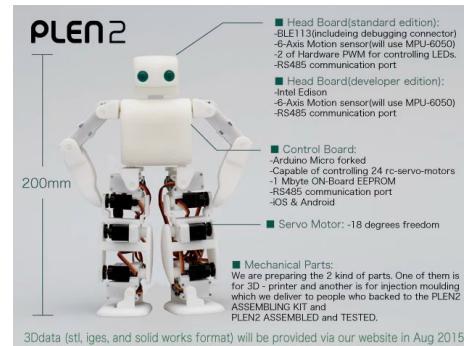
Robots: PR2



Robots: Fetch



Robots: Plen 2



Robots: Robonaut 2



Meet Robonaut 2: NASA's Space Droid

Robonaut 2, the first humanoid robot ever sent to space, is part of NASA's STS-133 mission, the last voyage of the space shuttle Discovery. R2 will become a permanent part of the International Space Station, where astronauts will test its ability to serve as a robotic helper on space missions.

R2 FAST FACTS

BASIC TASKS Intercept and assist crew members

COST \$2.5 million

MATERIALS Plastic, aluminum with steel

WEIGHT 330 pounds (149.69 kg)

HEIGHT 3 feet 4 inches (1.01 m) (when seated in the seat)

SHOULDER WIDTH 2 feet, 7 inches (0.79 m)

SENSORS More than 350

PROCESSORS 36 PowerPC processors

DEXTRE: Canada's two-armed robot on the International Space Station.

Human to scale

SOURCES: NASA, GENERAL MOTORS

ROSS TORO, SPACE.com

HEAD houses four cameras to provide stereo vision for the robot and its operators. A depth infrared camera is mounted in the mouth area for depth perception.

BACKPACK holds its power conversion system or batteries.

MIDSECTION contains 36 PowerPC processors controlling R2.

HANDS have articulating fingers and thumbs. R2 has the ability to use internal/external ISS interfaces and tools designed for astronauts.

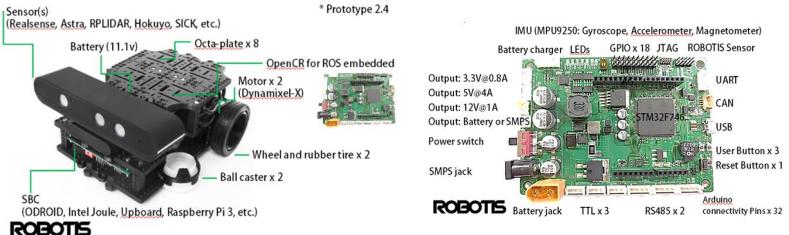
TOTAL REACH of R2 is about 2.43 m). Each arm is about 2 feet, 0.81 m) long and can hold 20 lbs.

BASE of the R2 is a stationary part at this phase of the program.

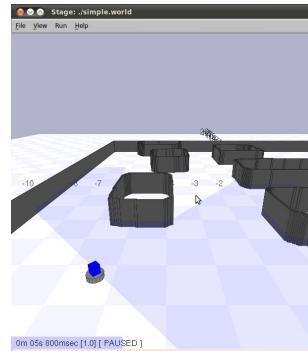
Robots: TurtleBot



Robots: TurtleBot 3

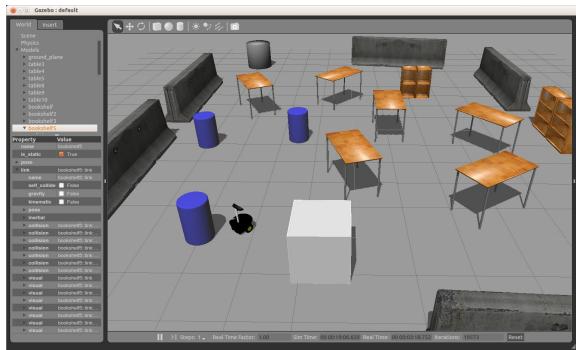


Simuladores: Stage



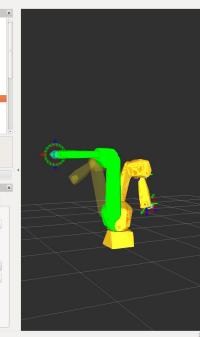
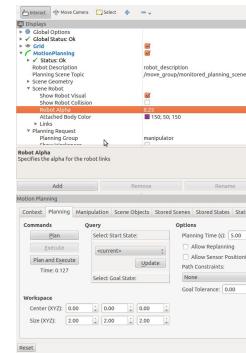
Simuladores: Otros

Gazebo

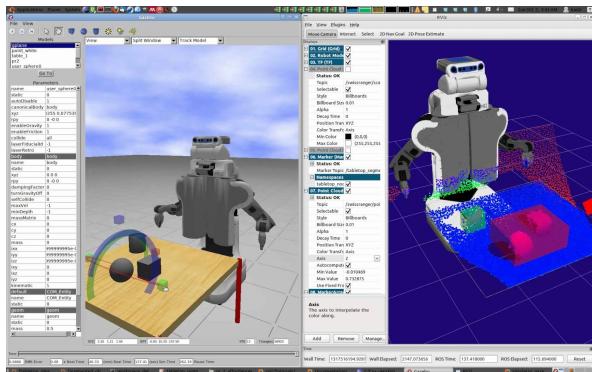


Simuladores: Otros

Move It



Visualizador Rviz



¡Gracias!

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