

Quadruped-Master



DESCRIPTION

Four legs robot made by Edgar Gracia and Eduardo Flores. It's a robot that uses 12 servomotors to move it's 4 legs. It's controlled by a computer using the "Quadruped Controller Soft", through a Wi-Fi connection.

The Quadruped walks as commanded and move the camera also as commanded, the images recorded by the camera are send to the computer.

EXTRA STUFF NEEDED

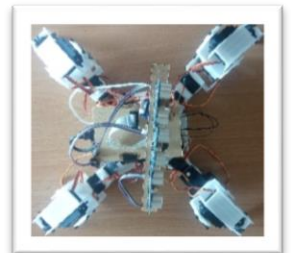
In order to use this robot some extra stuff is needed.

- 8 AA Batteries of 1'2V each to power the Servo motors.
- Power Bank Battery to power the Arduino and the Raspberry Pi.
- Laptop with the following:
 - Wi-Fi connection module
 - Python interpreter
 - The "Quadruped Controller Soft" program you'll find in GitHub, following the QR on the top of this page.

INSTRUCTIONS TO RUN AND PLAY

To switch on the quadruped

1. Be sure it is in the initial position. With all 4 legs looking on their diagonals and closed, as in the picture:
2. Plug the batteries to connect the servomotors. **There are 2 battery cases connected to the same connector.**
3. Plug the battery to connect the Raspberry and Arduino. This is a power bank battery, attached in the bottom belly of the robot.
4. Connect the laptop to the wifi "**RaspiAP**"
5. Then run the "Quadruped Controller Soft" called "**Controller.py**" in a terminal window. The following window will show up.
6. Now you should be able to control the robot following the instructions below.
7. Click on **Wake up** and the robot will be ready!!



The **Movement Box** controls all the move motion, rotate right and left made the robot rotate in the same spot. **Forward**, **Backwards**, **Left** and **Right** moves the robot in the direction described.

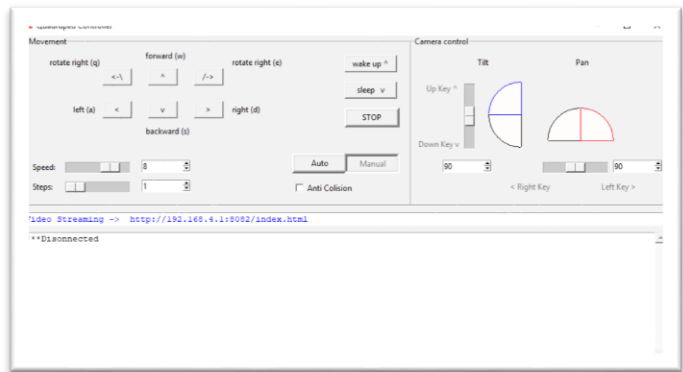
Speed controls the robot speed. **Steps** control how many steps in that direction the robot has to make. For example, if **Steps** is set to 5 and you press forward, it'll make 5 steps forwards.

Wake up makes the robot stand in its legs, and **Sleep** makes it rest its belly on the ground.

STOP, **Auto** and **Manual** are not implemented yet so they are of no use.

The **Camera control box** controls the orientation of the camera, **Tilt** and **Pan** control the vertical and horizontal angle respectively.

To see the video from the camera you have to go to your internet browser and type the address showed in the **Control screen (Video Streaming)**.



TECHNICAL SECTION

Known Issues

If the robot servos are not well powered they will make uncontrollable moves and you'll not be able to move it. To prevent this, make sure the batteries are well charged.

One of the pieces that makes the legs is not strong enough and it can brake easily. If it breaks it can be easily glued with superglue or some similar glue.

Possible Next Steps

It was thought to make the robot move by itself, using the ultrasounds distance sensors to detect the objects around, but for the moment it's not implemented, just the switch in the interface.

Build a new chassis for the Arduino, the batteries and the raspberry 3D printed and also new pieces for the camera and ultrasound sensors also 3D printed.