UNIVERSIDAD DE MÁLAGA

CUADRIGA-II

The CUADRIGA-II mobile robot is a redesigned of our CUADRIGA robot as a member of a group of robots in the frame of RAMBLER project. Cuadriga-II is a 4-wheel skid-steer mobile robot.

THE CUADRIGA-II MOBILE ROBOT

General characteristics:

-Dimensions: 0.82m length, 0.64m width, 0.81m height.

-Vehicle weight: 83.1 kg.

-Payload: 120 kg.

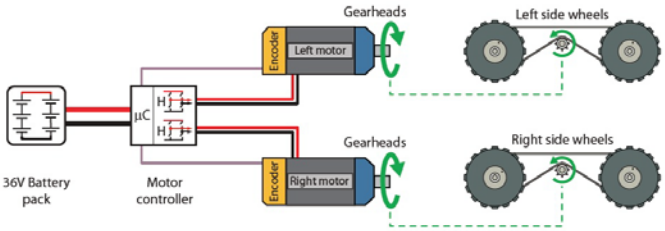
-Distance between the front and rear wheel contact points is 0.475m.

-Wheels: pneumatic tires of 35.5 cm diameter. Rigid suspension.

-Distance between left and right wheel contact points is L = 0.5m.

-Maximum linear speed: 1.2m/s.

Motors are controlled by an embedded board that integrates a microcontroller (µC) and two independent H-bridge power stages. Power is supplied by a 36V battery pack, which is composed of six 12V lead-acid batteries connected in a series-parallel configuration.



Data acquisition and high level motion control are performed by a compact onboard computer using a LabVIEW program. This computer interfaces with the embedded motor controller and the current sensors through two serial links. Manual operation is possible through a wireless joystick.

The Quadriga's sensorial system also includes hall Effect current sensors to measure the instantaneous power consumption of each motor, a three-axis inertial measurement unit, a 3D thirty meter range laser finder, an ethernet camera and a RTK GPS receiver,

Communication with a teleoperation station is done using a wireless router (2.4Ghz), bluetooth, zigbee, 3G and 900Mhz radio.

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