



## Robot Names

Espanto	(Goalkeeper)
Bodoque	(Striker)
Benito	(Striker)
Matute	(Bench)



## Specifications

**Physical specs:**

Height	41.5 cm
Weight	1660 g
Walking speed	10 cm/s

**Degrees of freedom:**

20 DOF	6 DOF on each leg
	3 DOF on each arm
	2 DOF on the head

**Servo motors:**

4 HS-8498HB digital servomotors	by HITEC (Karbonite gears)
	6V-7.4V operating range
	7.4 kg cm @ 6V (stall torque)
	300°/s @ 6V (max speed)

16 HSR-5498SG digital servomotors	by HITEC (Steel gears)
	6V-7.4V operating range
	11 kg cm @ 6V (stall torque)
	272°/s @ 6V (max speed)

**Sensors:**

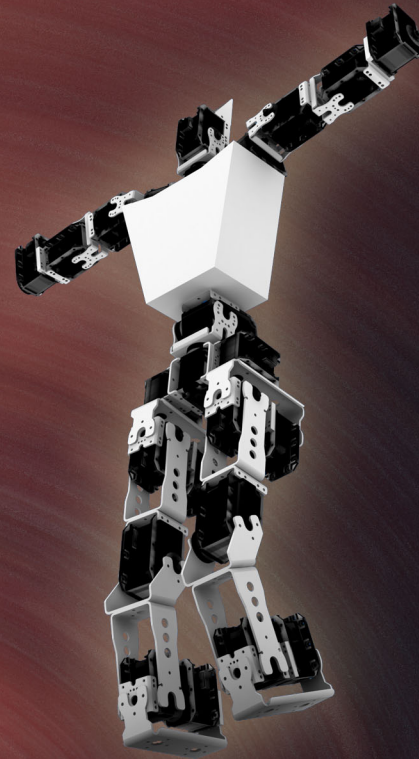
1 UI-1226LE-C USB 2.0 camera	by IDS (WVGA: 752×480), 72° aperture angle
	87 fps @ WVGA (max throughput)
	RGB, YUV, YC <sub>b</sub> C <sub>r</sub> (color spaces)

1 6 DOF IMU	3 accelerometer axes (analog outputs)
	300 mV/g sensitivity, ±3 g range
	3 gyroscope axes (analog outputs)
	0.83 mV/°/s sensitivity, ±300°/s range

1 CMPS03 digital compass	by Devantech (I <sup>2</sup> C interface)
	0.1° resolution

**Processing unit:**

Roboard RB-100	based on the 32-bit x86 Vortex86DX CPU
	1 GHz, 256 MB DDR2 RAM
	RS-485, 32 PWM channels, 3 USB 2.0 ports,
	RS-232, SPI/I <sup>2</sup> C bus, 8 10-bit ADC ports,
	mini PCI socket, microSD slot
	400 mA @ 5V (power consumption)
	96 mm x 56 mm, 40 g



# Robot Names

Cucho (Striker)

# Specifications

**Physical specs:** Height 60 cm  
 Weight 2400 g  
 Walking speed 15 cm/s

**Degrees of freedom:** 24 DOF  
 6 DOF on each leg  
 4 DOF on each arm  
 2 DOF on the head  
 2 DOF on the torso

**Servo motors:** 3 RX-64 digital servomotors by ROBOTIS (Metal gears)  
 12 V - 21 V operating range  
 64.4 kg cm @ 15V (stall torque)  
 320°/s @ 15V (max speed)

19 RX-28 digital servomotors by ROBOTIS (Metal gears)  
 12 V - 21 V operating range  
 37.7 kg cm @ 16V (stall torque)  
 476°/s @ 16V (max speed)

2 RX-10 digital servomotors by ROBOTIS (Metal gears)  
 10 V - 21 V operating range  
 12.1 kg cm @ 12V (stall torque)  
 504°/s @ 12V (max speed)

**Sensors:** 1 UI-1226LE-C USB 2.0 camera by IDS (WVGA: 752×480), 72° aperture angle  
 87 fps @ WVGA (max throughput)  
 RGB, YUV, YC<sub>b</sub>C<sub>r</sub> (color spaces)

1 6 DOF IMU 3 accelerometer axes (analog outputs)  
 300 mV/g sensitivity, ±3 g range  
 3 gyroscope axes (analog outputs)  
 0.83 mV/°/s sensitivity, ±300°/s range

**Processing unit:** Roboard RB-100 based on the 32-bit x86 Vortex86DX CPU  
 1 GHz, 256 MB DDR2 RAM  
 RS-485, 32 PWM channels, 3 USB 2.0 ports,  
 RS-232, SPI/I<sup>2</sup>C bus, 8 10-bit ADC ports,  
 mini PCI socket, microSD slot  
 400 mA @ 5V (power consumption)  
 96 mm x 56 mm, 40 g