



Robot Model Name

T1

Specifications

Physical specs:

Height	40 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)
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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)
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Sensors:

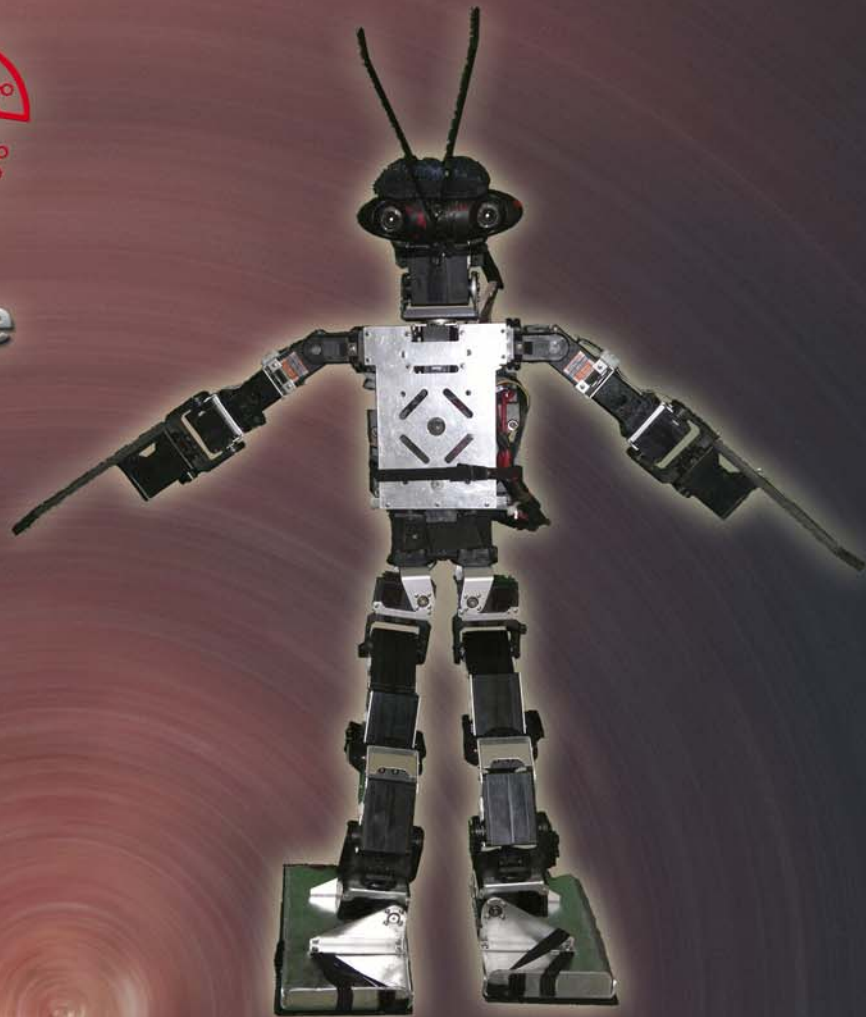
1 Minoru stereo webcam	640×480 @ 15fps, 320×240 @ 30fps Y _C C _R , (color space)
1 6 DOF IMU	3 accelerometer axes (analog outputs) 300 mV/g sensitivity, ±3 g range 3 gyroscope axes (analog outputs) 0.83 mV/°/s sensitivity, ±300°/s range

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 ² C bus, 8 10-bit ADC ports, mini PCI socket, microSD slot 400 mA @ 5V (power consumption) 96 mm x 56 mm, 40 g
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Robot Model Name

T2



Specifications

Physical specs:

Height	53 cm
Weight	2020 g
Walking speed	15 cm/s

Degrees of freedom:

21 DOF	6 DOF on each leg 3 DOF on each arm 2 DOF on the head 1 DOF on the hip
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Servo motors:

19 KRS-2555HV digital servomotors	by Kondo (Metal gears) 9 V - 12 V operating range 14 kg cm @ 11.1V (stall torque) 429°/s @ 11.1V (no load speed)
2 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)

Sensors:

1 Minoru stereo webcam	640×480 @ 15fps, 320×240 @ 30fps, YC _o C _r (color space)
1 6 DOF IMU	3 accelerometer axes, 300 mV/g sensitivity, ±3 g range (analog outputs) 3 gyroscope axes, 0.83 mV/°/s sensitivity, ±300°/s range (analog outputs)
1 9 DOF IMU	3 accelerometer axes resolution ±16g (I ² C interface) 3 magnetometer axes Magnetic Field range ±8 Oe (I ² C interface) 3 gyroscope axes range ±2000°/s (I ² C interface)

Processing unit:

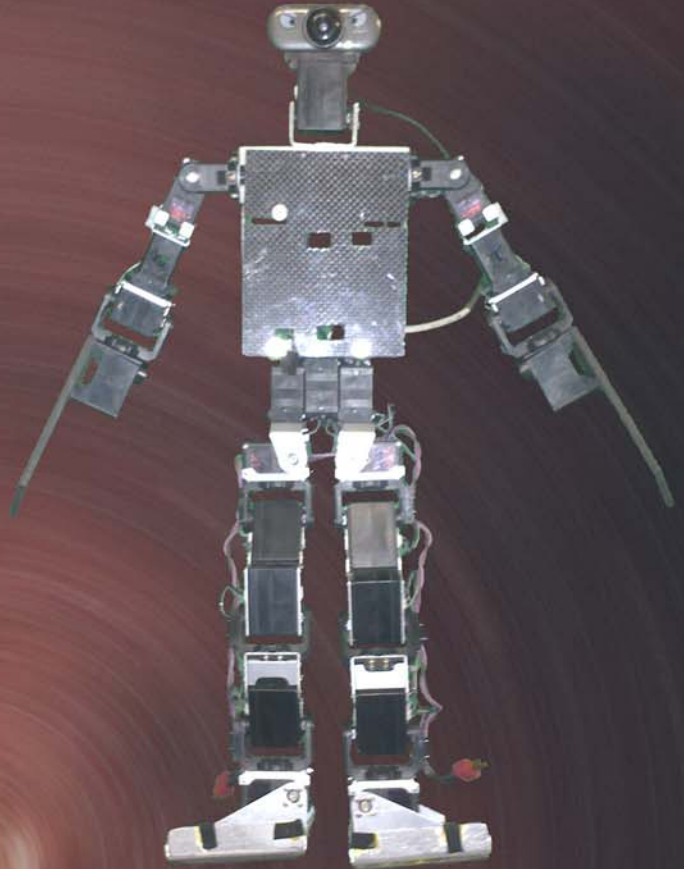
Roboard RB-110	based on the 32-bit x86 Vortex86DX CPU 1 GHz, 256 MB DDR2 RAM RS-485, 16 PWM channels, 1 USB 2.0 ports, RS-232, SPI/I ² C bus, 8 10-bit ADC ports, mini PCI socket, microSD slot, 2 hi-speed serial 400 mA @ 5V (power consumption) 96 mm x 56 mm, 40 g
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Kondo RCB4

based on the M16C/26A MCU by Renesas
8 SIO ports for two systems of ICS3.0 compliant device
10 AD ports, 10 PIO ports, COM ports max speed 1.25Mbps

Robot Model Name

T3



Specifications

Physical specs:

Height	53 cm
Weight	2060 g
Walking speed	15 cm/s

Degrees of freedom:

21 DOF	6 DOF on each leg 3 DOF on each arm 2 DOF on the head 1 DOF on the hip
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Servo motors:

21 KRS-2555HV digital servomotors	by Kondo (Metal gears) 9 V - 12 V operating range 14 kg cm @ 11.1V (stall torque) 429°/s @ 11.1V (no load speed)
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Sensors:

1 Logitech C210 Webcam	640×480 @ 30fps, YC _b C _r , (color space)
1 6 DOF IMU	3 accelerometer axes, 300 mV/g sensitivity, ±3 g range (analog outputs) 3 gyroscope axes, 0.83 mV/°/s sensitivity, ±300°/s range (analog outputs)
1 9 DOF IMU	3 accelerometer axes resolution ±16g (I ² C interface) 3 magnetometer axes Magnetic Field range ±8 Oe (I ² C interface) 3 gyroscope axes range ±2000°/s (I ² C interface)

Processing unit:

Kondo RCB4	based on the M16C/26A MCU by Renesas 8 SIO ports for two systems of ICS3.0 compliant device 10 AD ports, 10 PIO ports, COM ports max speed 1.25Mbps
2 Gumstix Overo Fire COM with Summit board	based on TI OMAP 3530: ARM Cortex-A8 CPU + C64x+ DSP core DVI-D, USB, 6 PWM, I ² C port, SPI bus, 6 A/D, 802.11g