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)
- 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 Minarau stereo webcam
  - 640×480 @ 15fps, 320×240 @ 30fps
  - YC, C, (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/PC bus, 8 10-bit ADC ports,
  - mini PCI socket, microSD slot
  - 400 mA @ 5V (power consumption)
  - 96 mm x 56 mm, 40 g
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

**Servo motors:**
- 19 KRS-2555HV digital servomotors by Kondo (Metal gears)
  - 9 V - 12 V operating range
  - 14 kg cm @ 11.1 V (stall torque)
  - 429°/s @ 11.1 V (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
- 1 6 DOF IMU
- 1 9 DOF IMU

**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/IC bus, 8 10-bit ADC ports, mini PCI socket, microSD slot, 2 high-speed serial
  - 400 mA @ 5V (power consumption)
  - 96 mm x 56 mm, 40 g

- 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

Servo motors:
- 21 KRS-255SHV digital servomotors
- 9 V - 12 V operating range
- 14 kg-cm @ 11.1 V (stall torque)
- 42°/s @ 11.1 V (no load speed)

Sensors:
- Logitech C210 Webcam: 640x480 @ 30fps, YCbCr, (color space)
- 1 DOF IMU: 3 accelerometer axes, 300 mV/g sensitivity, ±3 g range (analog outputs)
  3 gyroscope axes, 0.83 mV/V/s sensitivity, ±300°/s range (analog outputs)
- 19 DOF IMU: 3 accelerometer axes resolution ±16g (I²C interface)
  3 magnetometer axes Magnetic Field range ±38 Oe (I²C interface)
  3 gyroscope axes range ±2000°/s (I²C interface)

Processing unit:
- Kondo RC84: based on the M16C/26A MCU by Renesas
  8 80 ports for two systems of ICS3.0 compliant device
  10 AD ports, 10 PIO ports, COM ports max speed 1.25Mbps
- 2 Gumaxx Ovreal Fire COM with Summit board: based on T1 OMAP 3530; ARM Cortex-A8 CPU + C64x+ DSP core
  DVI-D, USB, 6 PWM, PCI port, SPI bus, 6 A/D., 802.11g