FALCONBOTS

Robot Specification Humanoid Robot for Robocup 2013

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1 ROBOT MODEL:

Name TEC-04

SPECIFICATION:

Physical specs:  
Height 40 cm  
Weight 1.6 g  
Walking speed 13 cm/s

Degrees of freedom: 20 DOF  
6 DOF on each leg  
3 DOF on each arm  
2 DOF on the head
Servo Motors:  
16 Dynamixel AX-12+ by Robotis (plastic gears)  
Digital servomotors 9V - 12V operating range  
15 kg cm @ 12 V (stall torque)  
360°/s @ 10V (max speed)  
Dimensions: 40x34x47 mm

4 Dynamixel AX-18+ by Robotis (plastic gears)  
Digital servomotors 9V - 12V operating range  
18 kg cm @ 12 V (stall torque)  
360°/s @ 10V (max speed)  
Dimensions: 40x34x47 mm

Sensors:  
1 C210 HD webcam: by Logitech, HD 640x480 @ 30fps (max rate) YUV (color space)

1 IMU: 2 accelerometer axes (analog outputs)  
2 gyroscope axes (analog outputs)

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/I2C bus,  
8 10-bit ADC ports, Mini PCI socket, microSD slot, 2 hi-speed serial 400 mA @ 5V (power consumption)  
96mm x 56 mm, 40 g

1 ROBOT MODEL:

Name TEC-05

SPECIFICATION:
**Physical specs:**
- Height: 45.5 cm
- Weight: 2.8 Kg
- Walking speed: 24 cm/s

**Degrees of freedom:**
- 20 DOF
- 6 DOF on each leg
- 3 DOF on each arm
- 2 DOF on the head

**Servo Motors:**
- 20 Dynamixel MX-28+ by Robotis (plastic gears)
- Digital servomotors
  - 9V - 12V operating range
  - 24 kg cm @ 12 V (stall torque)
  - 360°/s @ 10V (max speed)
- Dimensions: 40x34x47 mm

**Sensors:**
- 1 C905 HD webcam: by Logitech, HD 1280x720 @ 30fps (max rate) YUV (color space)
- 1 6 DOF IMU: 3 accelerometer axes, 3 gyroscope axes

**Processing unit:**
- FitPC 2i by CompuLab, based on the Intel Atom Z530 microprocessor 1.6 GHz @533MHz
- FSB L2-512KB, 1GB DDR2 RAM, 2 USB, 4GB NAND flash disk, 802.11 b/g/n, 1 Gigabit Ethernet 5-7 W (power consumption)
- 104 mm x 96 mm x 23 mm, 92 g
- CM-730 by Robotis, based on STMicroelectronics 32F103RE ARM Cortex 32-bit CPU 72MHZ, 512KB Flash, 64KB SRAM
- 5 LED, 2 RGB LED, 3 push buttons, 1 buzzer, 13 ADC,
- 5 TTL serial ports 80 mm x 75 mm x 20 mm
1 ROBOT MODEL:

Name TEC-06

SPECIFICATION:

Physical specs:
- Height: 45.5 cm
- Weight: 2.8 Kg
- Walking speed: 24 cm/s

Degrees of freedom:
- 20 DOF
- 6 DOF on each leg
- 3 DOF on each arm
- 2 DOF on the head

Servo Motors:
- 20 Dynamixel MX-28+ by Robotis (plastic gears)
- Digital servomotors
- 9V - 12V operating range
- 24 kg cm @ 12 V (stall torque)
- 360°/s @ 10V (max speed)
- Dimensions: 40x34x47 mm

Sensors:
- 1 C905 HD webcam: by Logitech HD 1280x720 @ 30fps (max rate) YUV (color space)
- 1 6 DOF IMU: 3 accelerometer axes
- 3 gyroscope axes

Processing unit:
- FitPC 2i by CompuLab, based on the Intel Atom Z530 microprocessor 1.6 GHz @533MHz
- FSB L2-512KB, 1GB DDR2 RAM, 2 USB, 4GB NAND flash disk, 802.11 b/g/n, 1 Gigabit Ethernet 5-7 W (power)
CM-730 by Robotis, based on STMicroelectronics 32F103RE ARM Cortex 32-bit CPU 72MHZ, 512KB Flash, 64KB SRAM 5 LED, 2 RGB LED 3 push buttons, 1 buzzer 13 ADC, 5 TTL serial ports 80 mm x 75 mm x 20 mm

1 ROBOT MODEL:

Name TEC-06

SPECIFICATION:

Physical specs: Height 45.5 cm  
Weight 2.8 Kg  
Walking speed 24 cm/s  

Degrees of freedom: 20 DOF  
6 DOF on each leg  
3 DOF on each arm  
2 DOF on the head  

Servo Motors: 20 Dynamixel MX-28+ by Robotis (plastic gears)  
Digital servomotors 9V - 12V operating range  
24 kg cm @ 12 V (stall torque)  
360°/s @ 10V (max speed)  
Dimensions: 40x34x47 mm  

Sensors: 1 C905 HD webcam: by Logitech, HD 1280x720 @ 30fps (max rate) YUV (color space)
16 DOF IMU: 3 accelerometer axes
3 gyroscope axes

**Processing unit:**

*FitPC 2i*
by CompuLab, based on the Intel Atom Z530 microprocessor 1.6 GHz @533MHz FSB L2-512KB, 1GB DDR2 RAM, 2 USB, 4GB NAND flash disk, 802.11 b/g/n, 1 Gigabit Ethernet 5-7 W (power consumption) 104 mm x 96 mm x 23 mm, 92 g

*CM-730*
by Robotis, based on STMicroelectronics 32F103RE ARM Cortex 32-bit CPU 72MHZ, 512KB Flash, 64KB SRAM 5 LED, 2 RGB LED 3 push buttons, 1 buzzer 13 ADC, 5 TTL serial ports 80 mm x 75 mm x 20 mm
1 ROBOT MODEL:

Name Mylito

**SPECIFICATION:**

**Physical specs:**
- Height: 40 cm
- Weight: 1.6 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:**
- 10 HSR-8498HB by HITEC (Karbonite gears)
  - Dimensions: 40x20x47 mm
  - Max. Angle of rotation: 180
  - Degrees 6V-7.4V operating range
  - 7.4 kg cm @ 6V (stall torque)
  - 300°/s @ 6V (max speed)

- 10 HSR-8498HB by HITEC (Steel gears)
  - Dimensions: 40x20x47 mm
  - Max. Angle of rotation: 180
  - Degrees 6V-7.4V operating range
  - 11 kg cm @ 6V (stall torque)
  - 272°/s @ 6V (max speed)
Sensors:

1 C210 HD webcam: by Logitech, HD 640x480 @ 30fps (max rate) YUV (color space)

1 IMU: 2 accelerometer axes (analog outputs)
2 gyroscope axes (analog outputs)

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/I2C bus, 8 10-bit ADC ports, Mini PCI socket, microSD slot 400 mA @ 5V 5V (power consumption) 96mmx56mm, 40g