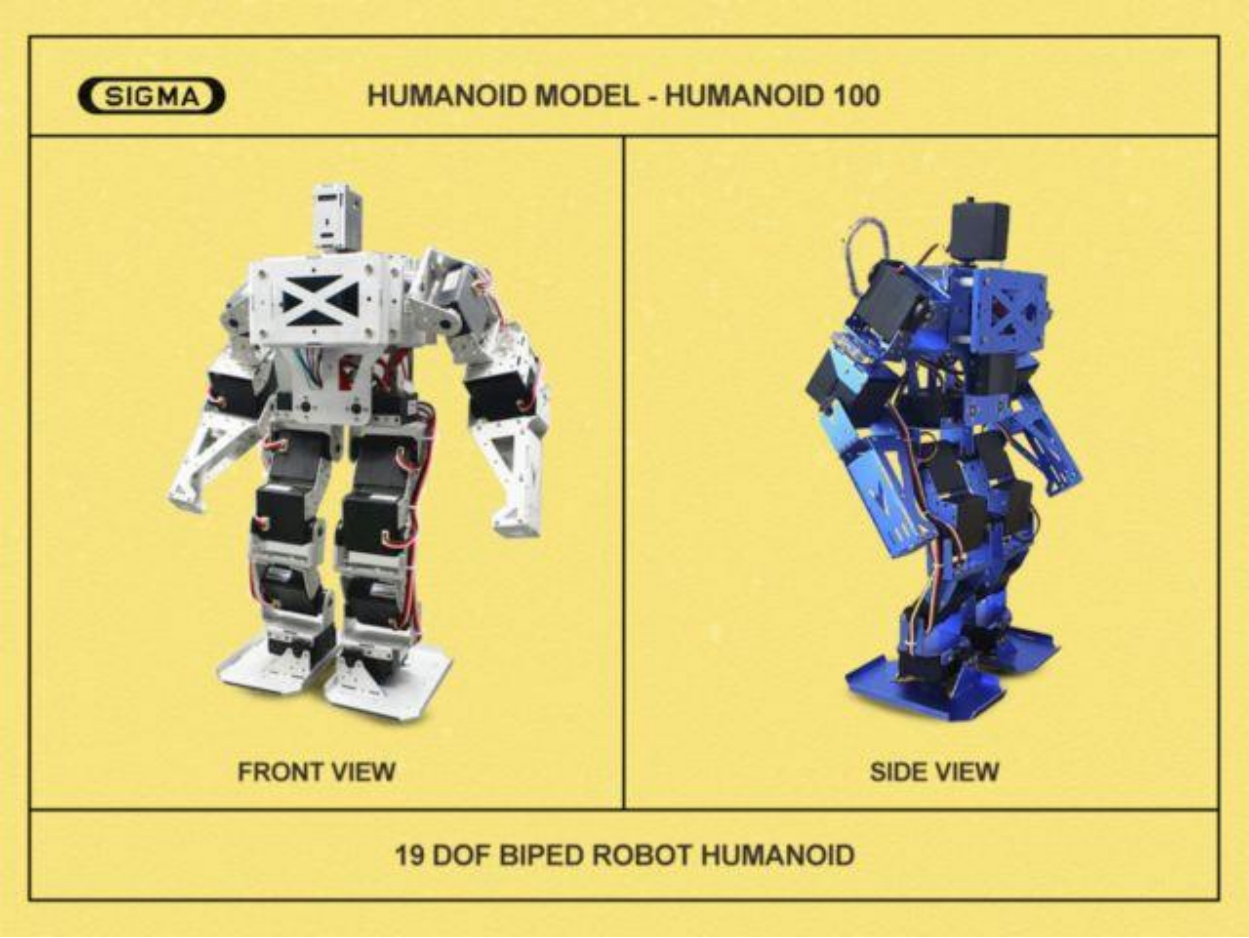
HUMANOID ROBOT

MODEL-HUMANOID100

This trainer has been designed with a view to provide practical and experimental knowledge of Humanoid robot.

SPECIFICATIONS



Hardware

1. Robot Features

1. Intelligent Robot Control test by 32bit Embedded System
2. Biped Robot Basic Control
3. Controlling Operation of Intelligent Robot
4. Optimized Robot motion program environment using ROBO Basic and ROBO Script
5. High-Resolution CCD camera (Robot Vision)
6. Electronic Iris : PAL : 1/50-1/100,000
7. Use of Robust frame / High-efficiency Motor Technology
8. Speed Control / RC motor compatibility by PWM technology
9. Linux 2.6.32 Program Development Environment
10. Real Time Image Acquisition and Pre-Processing using FPGA
11. Real Time Image Processing and Monitoring using Wireless LAN
12. Robot Vision Test using Open CV Library
13. Various Motion operations (Dance, Fighter, Game, Soccer, Obstacle mode)

2. Robot Hardware

A. Robot body

1. Digital Servo motors : 17 Nos
2. Control pulse Neutral : 1500ms/0~180 , ±1100 1900
3. Pulse cycle : 12~26ms (common: 21ms)
4. Dimension : 310 x 180 x 90mm approximately
5. Weight : 1.3kg.
6. Power : Ni-MH 1000mA charger

B. Operation Control Board

1. 24 servo motor simultaneous control and 32 Input / Output port
2. 3 PWM signal port and 8 channel A/D conversion
3. Serial Control (VB, VC++ controlled)
4. LCD module operating command and high-speed serial
5. Communication - UART
6. Program over ROBO Basic V2.5

7. Serial I.F cable downloading
8. RC wireless controller and wireless Remote Controller
9. Tilt sensor

C. Vision Module

1. Total Pixels : 542(H) x 492(V) (270,000 pixels)
2. Electronic Iris : PAL :1/50-1/100,000
3. Auto white balance and Digital Signal Processing
4. Applied lens : 3.6, option other lens
5. Imaging device : 1/3" interline transfer CCD
6. CCD Camera

D. Brain Board

1. HBE-Humanoid Robot
2. Use of FPGA for high-speed Image Processing and Image Recognition
3. Composite Video Input Port of External Camera
4. Conversion from Analog Video to Digital Video
5. UART communication port for Robot Control
6. Image Data check by Wireless LAN
7. CPU console check with Bluetooth wirelessly
8. Linux 2.6.32 Operating System

EXPERIMENTS

1. Introduction to Robot
2. Structure of Intelligent biped Robot
3. Development environment of Intelligent Robot
4. Brain of Intelligent Robot
5. Controlling Operation of Intelligent Robot
6. Vision of Intelligent Robot
7. Image Processing for Intelligent Robot
8. Robot Controlled by Brightness
9. Color Recognition Robot
10. Moving Object Tracking Robot
11. Shape Recognition Robot using Circularity
12. Position Finding Robot
13. TaekwonRobot
14. Webserver
15. Bootloader fusing with USB OTG
16. Robotic Software

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