MINIATURE HUMANOID ROBOT 　『ＨＯＡＰ－３』

■ "HOAP(*)-3" is a compact and light weight Humanoid Robot.
■ We added movable axis for the head and hands. .
■ Also added are CCD cameras, a microphone , a speaker and LEDs to show expression
■ Distance measuring sensor and a grasp force sensor enhances capabilities as an advanced research
■ A Simulator, which allows prior verification of the operation of a program, is included as standard.
■ Easily connects with a PC, for use as a robot research tool in the areas of the movement, communication
■ Speech recognition, speech synthesis, image recognition, and motion control are possible in the Wireles

(*) **HOAP** : **H**umanoid for **O**pen **A**rchitecture **P**latform

"HOAP" series was awarded
The 9th (2004) Technical Innovations Award
 of the Robotics Society of Japan.

・Standard equipment includes cameras, microphone, and speaker.
・Somes equipment with the speech recognition, speech synthesis, and image recognisiton.
・Sensors for Distance and Grasp allow HOAP-3 to grasp an object
・All function can be controlled in the wireless mode.

HOAP-3
(The standard configuration is the wired mode.)

Standard Features

◆A compact system configuration which consists of the robot body, PC, and the power supply.

◆Only 60cm,9kg - Can be handled by one person, Easy development of motion control applications.

◆Operating System of the PC is RT-Linux, software development is made easy due open source C/C++language

◆CCD cameras, microphone, speaker are all standard equipment.   Ideal for communication research

◆The USB interface for the internal LAN, lends for easy modification or addition of new actuators and sensors.

◆Two way control for the wired and the wireless mode.

◆Smooth motion made possible by current control mode.

◆Begin immediately with use of the included sample motion program.

・Robot Body

Height   60cm
Weight   8.8 k g

Degree of freedom	6DOF／foot × 2
	5DOF／arm × 2
	1DOF／waist × 1
	1DOF／hand × 2
	3DOF／neck × 1
	Total : 28DOF

Sensors Joint angle sensor (without hands and neck)

Optical incremental encoder
Angle encoder resolusion : 0.01deg/pulse or less

3-Axis Acceleration Sensor
Range ±2G
Sensitivity 0.005G

3-Axis Gyro Sensor
Range ±60deg/s
Sensitivity 0.25deg/s

Foot sensor
Force Sensing Resistor   4ch/foot ×2

Distance measuring sensor
Infrared rays   head×1

Grasp force sensor
Force Sensing Resistor   1/hand ×2

Camera   CCD×2 (asynchronous)
VGA 30fps

Sound   Input   : Microphone ×1
Output   : Speaker ×1

LED   4point／eye ×2

Extention port USB port : 4port
Communication I/F USB 1.0 conformity , 12Mbps
Control Cycle 1ms
Control mode Position control , Current control
Control firmwere rewritable (note 1)

・Control PC
OS   RT-Linux
CPU   Equivalent Pentium Ⅳ

・Power Supply
DC24V×10 A (240W) output
(Input AC100V)

note1)Environment of Firmware development is not included in this set.

・Basic set

Basic set	Contents
	Robot Body (with standard case)
	PC (FUJITSU FMVseries)
	Power Supply
	Hanging jig
	Instruction Manual
	Basic Data CD
	Simulator CD

・Option

Wireless Option

Description	Specification
Battery	NiMH-24V,1950mAH High-rate discharge
Charger	Input AC100V. Charge time about 1 hour
Wireless LAN	IEEE802.11g WirelessLAN
Controller	OS RT-Linux
	CPU PentiumM 1.1GHz (equivalent)
	Main memory RAM 512MB
	1GB Conpact Flash Memory

Extention Option

Description	Specification
TYPE - 2 Motor Unit	Rated output 4.5W+Motor control board
TYPE - 3 Motor Unit	Rated output 6W+Motor control board
TYPE - 2 Motor	Rated output 4.5W
TYPE - 3 Motor	Rated output 6W
Motor Control Board	Motor Control Board for HOAP
Sensor Board	Load sensor signal
USB HUB Board	7 port USB-HUB

※Please remember that specifications etc may be changed without not