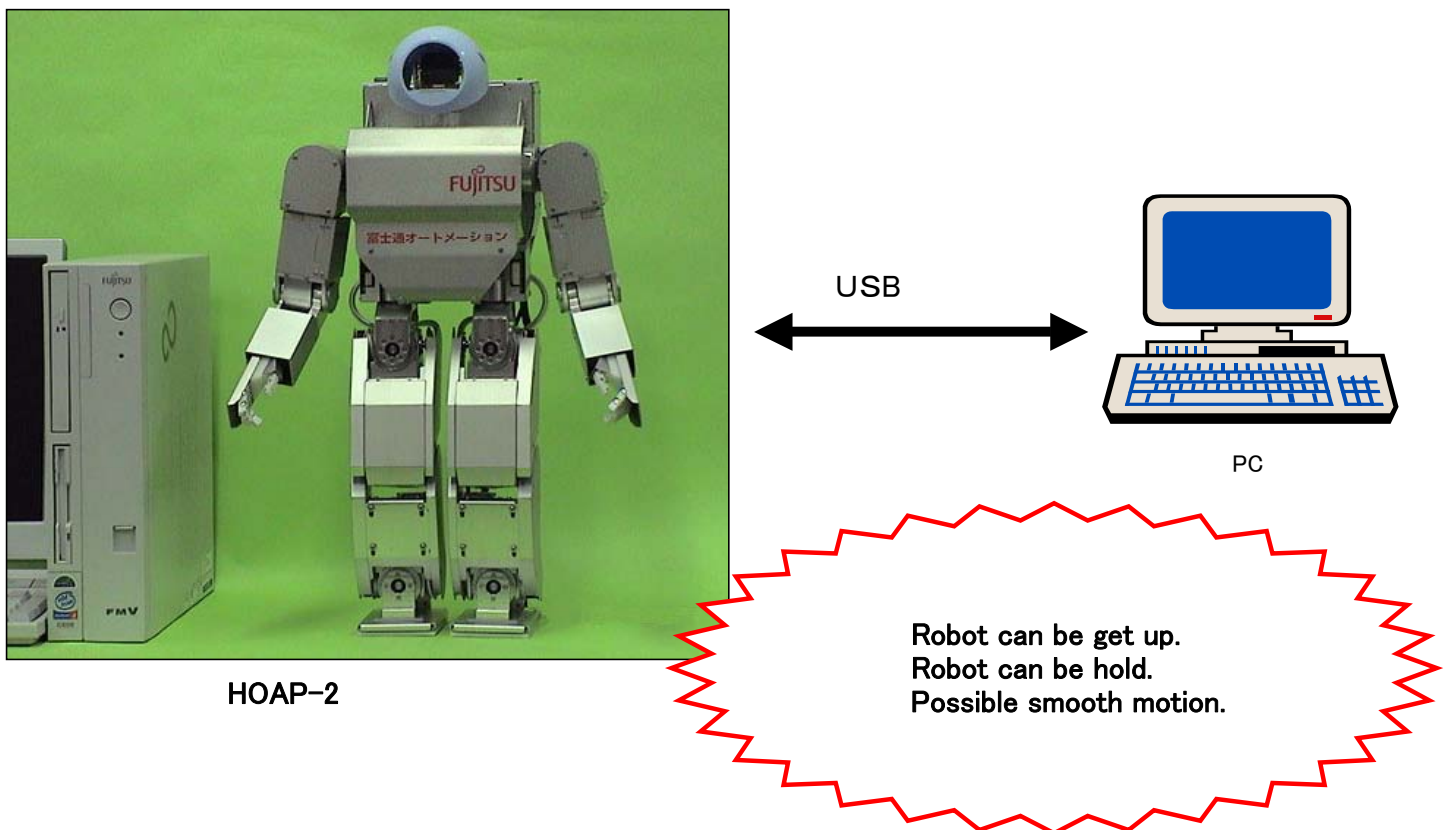# MINIATURE HUMANOID ROBOT HOAP-2

HOAP-2 : Compact・light weight real Humanoid Robot with 2 hands/2 foots that is easy handling.
A neck, a waist and a hand become motion newly, smooth movement can be realized
due to motor current control (except neck and hand) and the expression increased.
It is easy connection with PC, so that it can have it use widely as research tool of Humanoid Robot.
like motion control and communication with human being.

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

USB

PC

HOAP-2

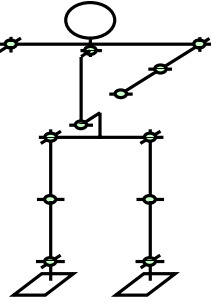Robot can be get up.
Robot can be hold.
Possible smooth motion.

Features

◆It is the compact system configuration which consists of robot body,PC and power supplies.

◆Only 50cm,7kg that can be handled by one person.

  The motion control of the robot and development of application can be done easily.

◆Since PC OS is adopted by RT-Linux(open C/C++language),software development is easily with open circumstance.

◆Due to the decrease in backlash of motor. Smoothmotion became stable.

◆Smooth movement became realized because the electric current control of motor was possible(except neck and hand).

◆Since USB interface for LAN internally is adopted, modification or additional of new actuator and sensors are easily done.

◆It allows easy to program and energize to use sample program which is packing with Robot when purchasing.

・Robot Body

Height	50cm
Weight	7kg

Joint Mobility	6DOF／foot×2
	4DOF／arm×2
	1DOF／waist×1
	1DOF／hand×2
	2DOF／neck×1
	(Total 25DOF)

Sensors	Joint angle sensor
	Optical two-phase incremental encoder
	Angle encoder resolution :
	0.01 degree/pulse or less
	Foot load sensor : 4 ch/foot

Extention port	USB port 6 port
Communication I/F	USB conformity 1.0 12Mbps
Control cycle	1ms
Control mode	Position command control
	Electric ampere command control
	Control firmware rewritable (note 1)

・Motion command PC

OS	RT-Linux
CPU	Equivalent Pentium 3 700MHz

・Power Supply

DC24V×6.2 A (150W) output (AC100V input)

Note 1) Firmware development environment is not included in the set.

・Basic accessories

Robot body (with standard cace)
PC (Fujitsu FMV series)
Power supply
Lifting jig
Initialize setting jig
Instruction manual
Basic data CD
Linux CD

・Option

Wireless option

Battery	NiMH battery 24V, 2100mAh
Charger	AC100V input, charging time 1 hour(approx)
Data radio	IEEE802.11b Wireless LAN, Transmission and reception 1pair
Central	OS RT-Linux
Control	CPU Geode GX1 Processor
unit	Memory RAM32MB(Main memory) 128MB compact flash user territory 16MB

Camera option

Color CMOS sensor	1/4 inch CMOS sensor ×2 (Non-synchronism)

Extention option

TYPE-2 motor unit	Standard output 4.5W motor＋control board
TYPE-3 motor unit	Standard output 6W motor＋control board
TYPE-2 motor	Standard output 4.5W motor
TYPE-3 motor	Standard output 6W motor
Motor control board	Board for HOAP motor contral
Sensor control board	Load sensor control
USB HUB board	7 port HUB

＊ The specification may change without a proir notice.

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