DARwin-OP Humanoid Robot by Robotis, Korea

1. Characteristics
   A. Open Platform (H/W, S/W source shared through community)
   B. Standard PC-based robot with convenient interfaces
   C. Fully autonomous humanoid with on-board image processing capability
   D. Default walking speed: 24.0 cm/sec (9.5 in/sec) 0.25 sec/step
   E. Default standing up time from ground: 2.8 sec (from facing down) and 3.9 sec (from facing up)
   F. Actuators with durable metallic gears (Dynamixel RX-28M)
   G. 3Mbps high-speed Dynamixel bus for joint control
   H. Battery replaceable without shutting down by plugging in external power source

2. Components
   A. Fully-assembled DARwIn-OP robot x1
   B. LiPo battery pack x3
   C. LiPo battery charger x1
   D. DC power supply x1
   E. USB flash drive (with installed recovery software) x1
   F. QuickStart manual x1

3. Specifications
   A. Dimensions
      ● Weight 2.9kg (6.39lb)
      ● Total height: 454.5mm (17.90in)
   B. Degrees of freedom
      ● 6 DOF leg x2
      ● 3 DOF arm x2
      ● 2 DOF head & neck
   C. Main PC (fit-PC2i)
• Intel Atom Z530 CPU (clocked @ 1.6GHz)
• 1GB RAM
• 4GB SSD storage
• Networking (gigabit LAN 802.3, Wi-Fi 802.11 b/g/n)
• Connectivity (2 external USB ports, 1 HDMI port, 1 audio line-out port, 1 audio/microphone line-in port)

D. Sub Controller (CM-730)
• STMicroelectronics 32F103RE ARM-based Cortex-M3 32-bit CPU (clocked @ 72MHz)
• Actuator Interface (TTL port x5)
• USB-to-Serial converter
• ADC converters

E. Actuator (Dynamixel RX-28M)
• Stall torque 24kgf.cm (333ozf.in) at 12V
• Maxon coreless DC motor with contactless magnetic potentiometer
• Reduction ratio: 193:1
• TTL interface (daisy-chain capable up to 3Mbps bandwidth)
• Metallic gears

F. Sensors
• 3-axis accelerometers x1
• 3-axis gyroscope, x1
• 2MP HD camera x1
• MIC Microphones x3

G. Displays
• Head : RGB LED x1
• Eyes : RGB LED x2

H. Software
• OS : Linux Ubuntu v9.10
• Programming Language : C++
• Compiler: GNU C++ compiler (g++)

I. Power
• Battery (Li-Po 3CELL 11.1V 1000mAh)
• DC power (in 100V-240V 50/60Hz / out 12V 5000mA)