The iCub robot

The iCub is a humanoid robot designed to support research in embodied AI. At 104 cm tall, the iCub has the size of a five year old child. It can crawl on all fours, walk and sit up to manipulate objects. Its hands have been designed to support sophisticate manipulation skills. The iCub is distributed as Open Source following the GPL licenses. The entire design is available for download from the project's repositories (http://www.iCub.org). Four robots are available in the iCub Facility at the Istituto Italiano di Tecnologia. The iCub is one of the few platforms in the world with a sensitive full-body skin to deal with the physical interaction with the environment including possibly people.

Key Features

- Middleware: YARP, ROS
- Height: 104cm
- Degrees of freedom: 53
- Weight: 25kg – 29kg with battery
- Sensors: cameras (2), microphones (2), joint encoders (76), inertial sensors (linear, angular, compass), capacitive tactile sensors (4000), 6-axis force/torque sensors (6)

Possible Applications

- Artificial Intelligence
- Study walking/whole-body control
- Vision – including stereoscopic vision, object recognition, visuo-tactile
- Manipulation – 9 degree of freedom hands
- Human-Robot Interaction

Access information

Corresponding infrastructure	Instituto Italiano di Tecnologia iCub Facility
Location	Via Morego, 30, 16163 Genova GE, Italy
Unit of access	Working day

Technical specifications

Head	7 DoF
Hands	9 DoF
Skin sensors	Capacitive, ~4000 sensing points
Max force at the hand	ca. 1kg
Cameras	640x480 RGB @30fps
Torso	3 DoF
Legs	6 DoF
Weight	29kg (with battery)
DoF	53
Power supply	48V/onboard battery
Interface	EthernetEthernet
Arms	7 DoF

Additional information

https://www.iit.it/research/lines/iCub