TECHNICAL SPECIFICATIONS

**GENERAL FEATURES**
- Height: 175 cm
- Weight: 95 kg

**32 DEGREES OF FREEDOM (DoF)**
- Legs: 6 (x2)
- Waist: 2
- Arms: 7 (x2)
- Neck: 2
- Gripper: 1 (x2)

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### MANIPULATION
- **Arm/Gripper payload**: 6 kg (arm stretched)
- **Workspace**: Large workspace for dexterous bi-manipulation

### CONNECTIVITY
- **Wi-Fi**: 802.11 a/b/g/n 5 and 2.4 GHz (Access Point or Client mode)
- **Ethernet**: Direct connection to PCs from user panel RJ45 port
- **EtherCAT**: Possibility to connect external Master to control the robot
- **Service Port**: For tethered Emergency button

### ELECTRICAL FEATURES
- **Power system**: Lithium-Ion battery
- **Nominal energy**: 1080 Wh
- **Maximum discharge**: +100 A
- **Battery autonomy**: 1.5h walking / 3h stand-by

### HRI INTERFACES
- **Speakers**: 5 W, Text to Speech in English included
- **LEDs**: 24 RGB, API for visual effects control

### SENSORS
- **Force/Torque sensors**: (x4) 6 axis F/T sensor (in both ankles and wrists)
- **Torque sensors**: FULL TORQUE SENSOR FEEDBACK IN ALL JOINTS*
- **AHRS - IMU**: 1 kHz filtered orientation, gryo, acceleration

### COMPUTERS
- **Intel Core i7**: (x2) control and multimedia PC (COM Express Type-6)

### SOFTWARE
- **OS**: Ubuntu LTS, Linux RT Preempt
- **Middleware**: ROS, OROCOS
- **Simulation**: Gazebo simulation and URDF model
- **Control**: Real-time ros_control loop at +1 kHz
- **Planning**: Movelt!

### VISION
- **Field of view**: 60° horizontal x 49.5° vertical x 73° diagonal
  - RGB: 1280x720 at 30 fps
  - Depth: 640x480 at 30 fps, 0.4-8m range

### HEAD
- **Specs**: 150° pan range in every head tilt position
- **Modular**: Fully customizable

### GRIPPER
- **Specs**: 3 fingers, 1 actuator with current limit control
- **Modular**: Fully customizable

*Except head, wrists and grippers