



## Robot Specification

Team Name: HERoEHS

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Organization: Hanyang University and AeiROBOT

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Robot Name:	ALICE 4th version (Artificial Learning Intelligent robot for Collaboration and Evolution)
Height of the robot:	160 cm
Weight of the robot:	48 kg
Materials:	AL6061, AL5051 for legs and body ABS, TPU 3D printed parts for external cover
Walking speed:	1.0 m/s* (Omnidirectional)
Number of degrees of freedom:	41 DoF [6 per leg, 7 per arm, 2 per head, 1 per waist, 6 per hand]
Type of motors:	AeiROBOT linear actuators & rotary actuators
Type of sensors used:	ZED X Stereo Camera Lord 3DM-GX4-25 IMU Sensor Force Sensor [4 per foot]
Computing units:	[Control Unit] i7-1370PE [AI Unit] Nvidia Jetson
Number and Type of Buses:	3 TCP/IP, 1 EtherCAT, 3 RS485, 3 CAN
Battery:	4x140.4Wh [120A Max Discharge Rate with Safety Protection]
OpenSource Software:	BehaviorTree.CPP 4.4 <sup>1</sup> / microstrain_mips <sup>2</sup> // RTAB-Map <sup>3</sup> / pinocchio <sup>4</sup> / crocodyl <sup>5</sup> / mujoco <sup>6</sup> / OSQP <sup>7</sup>

\* This specification is subject to change as it is still under development.

<sup>1</sup> <https://www.behaviortree.dev/>

<sup>2</sup> [https://github.com/ros-drivers/microstrain\\_mips](https://github.com/ros-drivers/microstrain_mips)

<sup>3</sup> <https://github.com/introlab/rtabmap>

<sup>4</sup> <https://github.com/stack-of-tasks/pinocchio>

<sup>5</sup> <https://github.com/loco-3d/crocodyl>

<sup>6</sup> <https://github.com/google-deepmind/mujoco>

<sup>7</sup> <https://github.com/osqp/osqp>