

EWS Bascorro Robots Hardware Specification

Muhammad Farhan Suri, Muhammad Fayyadh Ilham, Banar Pambudi,
Muhammad Fauzi Isnanto, Hanadia Aulia Nisa,
Maria Vincentia Evellyn Widhianto, Alifyah Afindina, and
Muchammad Yuda Tri Ananda

Diponegoro University
Jl. Prof. Soedarto, Semarang 50275, Indonesia
ewsbascorro@gmail.com, frhnsuri@gmail.com

Robot 1



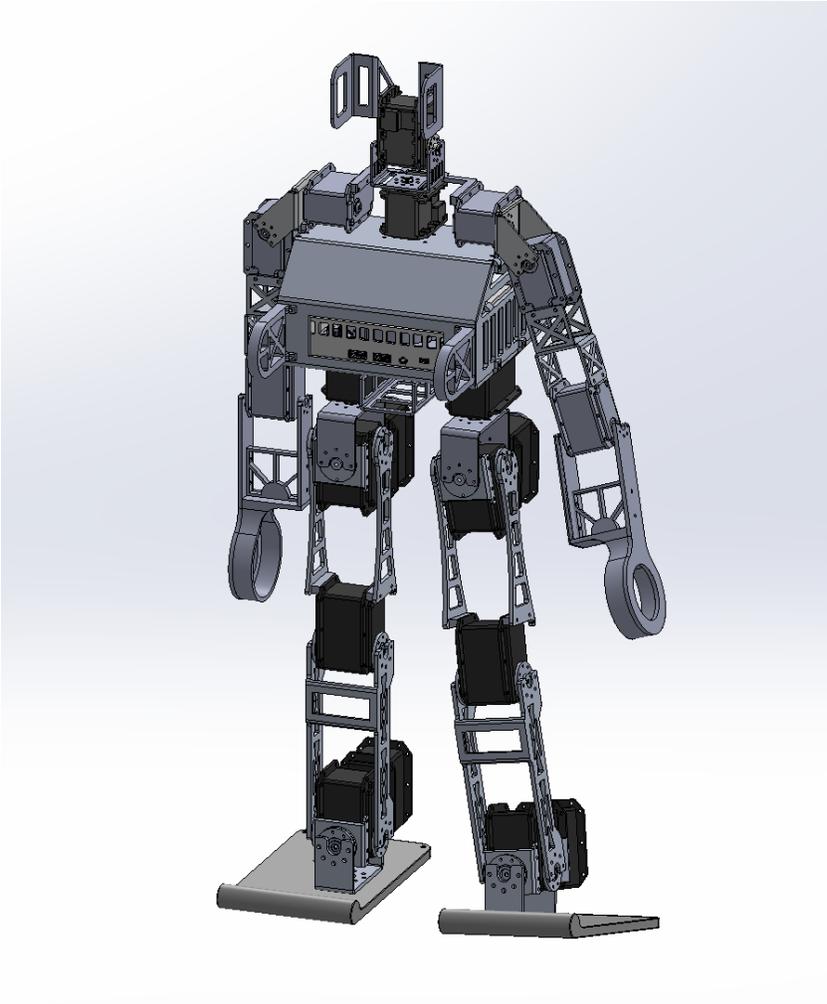
Height	690 mm
Foot (L x W)	140 mm x 85 mm
Leg Length	288 mm
Arm Length	330 mm
Weight	5.1 kg
Degrees of Freedom	20
Head	2 Dynamixel MX 28
Hip	2 Dynamixel MX 540
Arm	3x2 Dynamixel MX 28
Leg	5x2 Dynamixel XM 540
Walking Speed	17 cm/s
Camera	Logitech C920
IMU	MPU 9250
Main-Controller	Intel NUC I5 Gen 13
Sub-Controller	OpenCR 1.0
Materials (Head)	Aluminum 1060 and PLA+ Filament
Materials (Arm)	Aluminum 1060 and PLA+ Filament
Materials (Hip)	Aluminum 1060 and PLA+ Filament
Materials (Leg)	Aluminum 1060 and PLA+ Filament
Electronics (OpenCR 1.0)	Communicating with servo
USB to Dynamixel	The interface between the main controller and sub-controller
Operating System	Ubuntu 20.04
Battery	LiPo Battery 4 cell 2200 mAh; LiPo Battery 3 cell 4000 mAh

Robot 2



Height	690 mm
Foot (L x W)	140 mm x 85 mm
Leg Length	375 mm
Arm Length	380 mm
Weight	5.8 kg
Degrees of Freedom	20
Head	2 Dynamixel MX 28
Hip	2 Dynamixel XM 540
Arm	3x2 Dynamixel MX 64
Leg	5x2 Dynamixel XM 540
Walking Speed	19 cm/s
Camera	Logitech C920
IMU	MPU 9250
Main-Controller	Intel NUC I5 Gen 10
Sub-Controller	OpenCR 1.0
Materials (Head)	Aluminum 1060 and PLA+ Filament
Materials (Arm)	Aluminum 1060 and PLA+ Filament
Materials (Hip)	Aluminum 1060 and PLA+ Filament
Materials (Leg)	Aluminum 1060 and PLA+ Filament
Electronics (OpenCR 1.0)	Communicating with servo
USB to Dynamixel	The interface between the main controller and sub-controller
Operating System	Ubuntu 20.04
Battery	LiPo Battery 4 cell 2200 mAh; LiPo Battery 3 cell 4000 mAh

Robot 3



Height	631.9 mm
Foot (L x W)	140 mm x 85 mm
Leg Length	358.2 mm
Arm Length	314 mm
Weight	4 kg (Estimated)
Degrees of Freedom	20
Head	2 Dynamixel MX 28
Hip	2 Dynamixel MX 64
Arm	3x2 Dynamixel MX 28
Leg	5x2 Dynamixel MX 64
Walking Speed	19 cm/s
Camera	Logitech C920
IMU	BNO055
Main-Controller	Jetson Orin Nano
Sub-Controller	OpenCR 1.0
Materials (Head)	Aluminum 1060 and PLA+ Filament
Materials (Arm)	Aluminum 1060 and PLA+ Filament
Materials (Hip)	Aluminum 1060, PLA+, and TPU Filament
Materials (Leg)	CFRP, Aluminum 1060, and PLA+ Filament
Electronics (OpenCR 1.0)	Communicating with servo
USB to Dynamixel	The interface between the main controller and sub-controller
Operating System	Ubuntu 22.04
Battery	LiPo Battery 4 cell 6000 mAh
