RedbackBots Robot Hardware Description

We confirm our use of an **unmodified standard platform**, the Booster K1 robot, which is an **automatically pre-approved** standard platform under HSL rules. The full K1 manual is available online on the Booster website[1]. In accordance with the HSL rules for standard platforms we *"provide information directly available from the manufacturer's documentation to confirm they are using an unmodified standard platform"*, and note we are not required to provide information not directly listed in the manual.

Type	**Specification Parameters**	**Description**
Robot Name		Booster K1
Basic Parameters	Height (Standing Upright) Weight (without battery)	0.95 m Approx. 19.5 kg
DoFs	Total DoFs Single Leg DoFs Single Arm DoFs Head DoFs	22 6 4 2
Operational Parameters	Walking Speed Turning Speed	0.5 m/s 1.0 rad/s
Actuators	Model Name and Wattage Manufacture information	*N/A - Not provided by manufacture manual* Max Peak Torque: 60Nm, with Dual Joint Encoders
Sensors	Camera Microphone Speaker IMU Part numbers	Stereo Depth Camera (manufacturer proprietary) Circular 6-Microphone Array 1 (internal) Internal 9-axis IMU, details not provided by manufacture manual *N/A - Not provided by manufacture manual*
Interaction Interface	Buttons Indicator Light	Interaction Button ×3 RGB LED ×1
Safety Function	Auditory Alerts	Low Battery Alert, Joint Overheat Alert
Computing Platform	Processor Memory Storage	Jetson Orin NX 8GB, 6-core Cortex-A78AE CPU@2GHz, Tensor Cores GPU@1173MHz, AI Performance 117 TOPS 16GB 512GB
Materials		*N/A - Not provided by manufacture manual*
Electronics		*N/A - Not provided by manufacture manual*
Battery		5Ah, (manufacturer proprietary)
Open Source Link		*N/A - Not provided by manufacture manual*
Communication Methods	Wired Connection Wireless Connection Bluetooth Certification	Gigabit Ethernet Wi-Fi 6 Bluetooth 5.2 CE / FCC
Noise	Walking Noise	$\leq$ 70 dB
Environmental	Temperature Range Operating Humidity	$-10\,^{\circ}$C to $45\,^{\circ}$C 5%–90% (No Condensation)

[1] `https://booster.feishu.cn/wiki/E3q5wF5SnitXZgkY18Uc8odBnXb`

Robot Picture

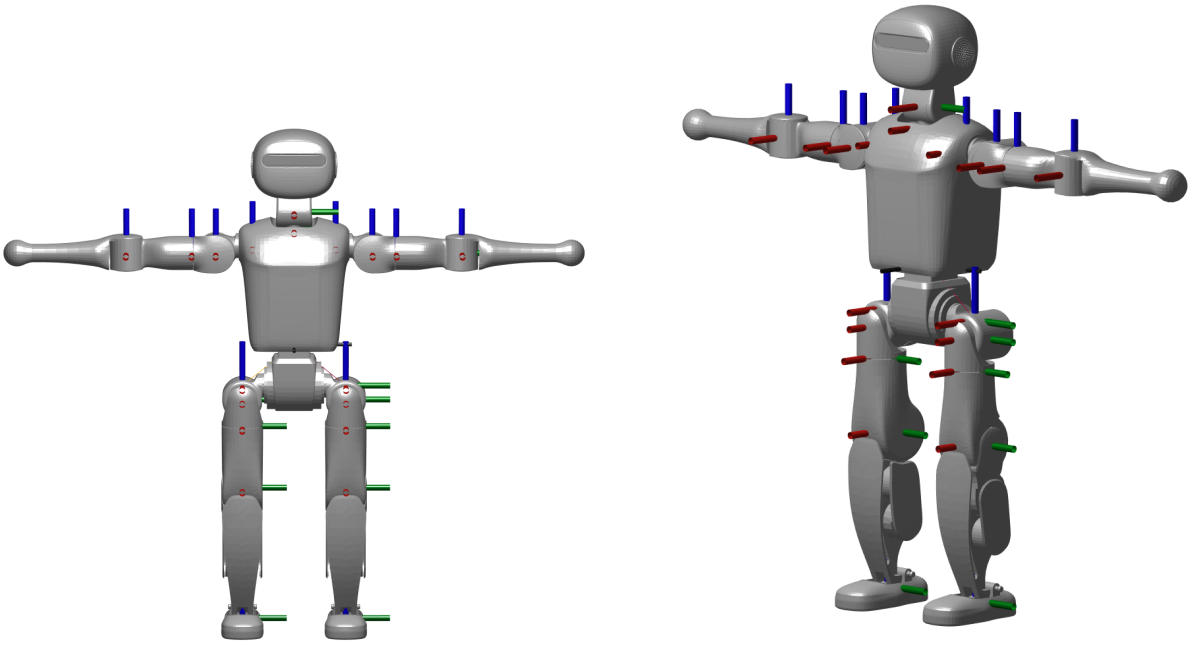

Figure 1: Image Source: Booster K1 Manual, 3D model and kinematics

Figure 2: Image Source: K1 Booster in RMIT AI Innovation Lab