Warthog Robotics HSL Hardware Specification for RoboCup 2026

João V. B. Benedetti, Fábio R. A. F. Júnior, Felipe V. de Oliveira, Caio O. Godinho, Pedro A. G. Pizarro, Rafael G. Lang, Ivan N. da Silva, and Roseli A. F. Romero

Warthog Robotics
University of São Paulo at São Carlos
400 Trabalhador São-carlense Ave, São Carlos, Brazil
info@wr.sc.usp.br
https://www.wr.sc.usp.br

1   Hardware Specification

Warthog Robotics's Humanoid team uses the unmodified HSL (Humanoid Soccer League) standard platforms T1 model from Booster company. Table 1 presents the technical specifications directly available from the manufacturer's documentation [1].

Table 1: Humanoid Robot Booster T1 Technical Specifications

Category	Specification
Size and Weight	
Dimensions	$118 \times 47 \times 23$ cm
Leg Length	57 cm
Arm Length	45 cm
Weight	$\sim$30 kg
Degrees of Freedom (DoFs)	
Total DoFs	23
DoFs per Leg	6
Waist DoF	1
DoFs per Arm	4 (extendable)
Head DoFs	2
Joint Movement Space	
Waist	$\pm 58°$
Hip Pitch (P)	$+118°$
Hip Roll (R)	$-21° \sim +88°$
Hip Yaw (Y)	$\pm 58°$
Knee	$0° \sim 123°$
Ankle Pitch (P)	$-50° \sim +20°$
Ankle Roll (R)	$\pm 25°$

Additionally, the Booster T1 model is comprised of a Nvidia AGX Orin, a 200 TOPS AI performance GPU, a Depth Camera, a 9-axis IMU, and a circular 6-mic array with a speaker. The robot is powered by a 10.5 Ah LiPo battery, offering a battery life of 2 hours on walking mode or 4 hours on standing mode. Furthermore, it has support for WiFi 6 and Bluetooth 5.2. It is worth remembering that the Warthog Robotics' T1 robots are from a previous version, differing from the new Booster's version only by head shape and camera. Figure 1 shows the Warthog Robotics Humanoid Team, and Figure 2 shows the 2D drawing from the Booster T1.

Fig. 1: Warthog Robotics Humanoid Team. Three Boosters T1 are arranged side by side at their respective supports.
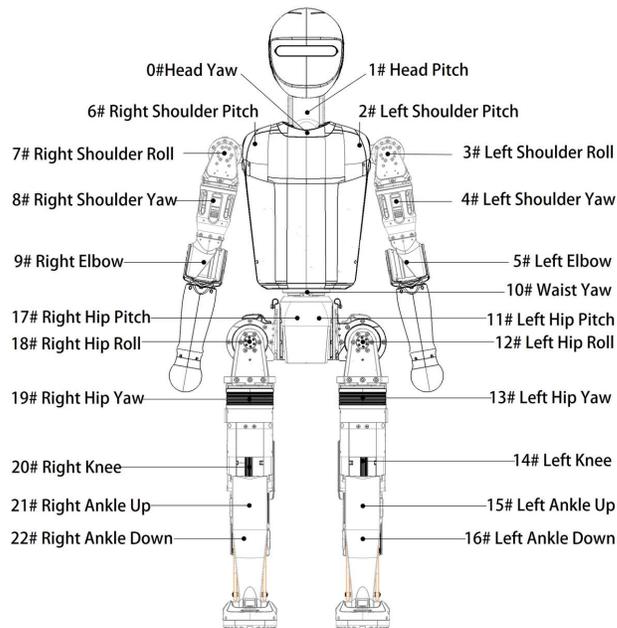

Fig. 2: Booster T1 2D drawing. Each DoF is highlighted by an arrow and subtitle, enumerated from 0 to 22.

References

1. Booster: Booster t1 specifications, https://www.booster.tech/booster-t1/, last accessed 2026-01-30