Rhoban Football Club – Robot Specification

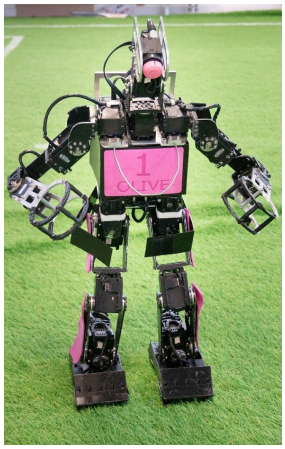
Humanoid Kid-Size League, Robocup 2025

J. Allali, M. Daniel, K. Deflesselle, W. Dequiret, C. Dobigeon, M. Duclusaud
C. Gaspard, L. Gondry, O. Ly, S. N'Guyen, G. Passault, A. Pirrone

julien.allali@enseirb-matmeca.fr, melodie.daniel@u-bordeaux.fr,
kohio.deflesselle@u-bordeaux.fr, william.dequiret@u-bordeaux.fr,
celine.dobigeon@u-bordeaux.fr, marc.duclusaud@u-bordeaux.fr, clement.gaspard@u-bordeaux.fr,
loic.gondry@free.fr, olivier.ly@u-bordeaux.fr, steve.nguyen.000@gmail.com,
gregoire.passault@u-bordeaux.fr, antoine.pirrone@u-bordeaux.fr

CNRS, LaBRI, University of Bordeaux and Bordeaux INP,
33405 Talence, FRANCE

Sigmaban+ (2019-2025)



- **Robot name:** Sigmaban+
- **Height:** 70 cm
- **Weight:** 7.8 kg
- **Walking speed:** 32 cm/s
- **Motors:** 20 DOF
  - Neck: Dynamixel MX-64 (2 motors)
  - Upper Body: Dynamixel MX-64 (3 per arm)
  - Lower Body: Dynamixel MX-106 (5 per leg) and Dynamixel MX-64 (1 per leg)
- **Sensors:**
  - Camera: Point Grey Blackfly GigE
  - IMU: BNO055
  - Foot Pressure: 4 Strain Gauge Sensors per foot
- **Computing units:**
  - Low-level: ARM7 (stm32) 72MHz (Maple mini)
  - High-level: Intel NUC
    - Intel Core i5 AMD 1.2 GHz
    - 8GB RAM
    - SSD 256Go
- **Battery:** LiPo 4S (14.8v), 30C, 3200mAh
- **Operating System:** Ubuntu 22.04
- **Materials:**
  - Aluminium 2017, 3mm to 6mm, CNC Milled (main structure parts)
  - TPU, 3D Printed (protection bumpers)
  - HDPE 300mm, 1mm, laser cut and bent (body and feet protection)
  - PLA, 3D printed (cleats)