

Electrical Specifications 4-Wheeled Robot

Battery

2 set Lithium-Ion 18650 batteries

- Main Supply: 6s Li-Ion battery (24.6V)
- Motor Supply: 6s Li-Ion battery (24.6V)

Motor Specifications

Drive motors

- 4x PG45 DC Motor 24 V with 1:19.2k Gearbox
- 1x Incremental Encoder 7ppr
- 4x BTN7970 Motor Driver

Ball handling motors

Dribble Motor

- 2x PG36 24 V with 1:19.2k Gearbox
- 2x Incremental Encoder 7ppr
- 2x BTN7970 Motor Driver

Kicker Motor

BLDC Motor for Kicker

- Xerun 4274 2250kV Brushless
- Hobbywing Xerun XR8 Plus G2S Brushless ESC

Kicker Height Adjustment Motor

- 1x PG36 24 V with 1:19.2k Gearbox
- 1x Incremental Encoder 7ppr
- 1x BTN7970 Motor Driver

****Keeper Extend***

Dribble Motor

- 2x PG36 24 V with 1:19.2k Gearbox
- 2x Incremental Encoder 7ppr
- 2x BTN7970 Motor Driver

Sensor

Ball Receive Sensor

2x Sharp GP2Y0A41SK0F Analog Distance Sensor 4-30 cm

Odometry

2x Rotary Encoder Autonics E30S4-200-3-N-24

**Keeper Distance Sensor*

3x Devantech SRF-04 Ultrasonic Sensor

Main PC

Intel® NUC Kit NUC6i7KYK

6th generation Intel Core i7-6770HQ processor (2.6 GHz up to 3.5 GHz Turbo, Quad-Core 6MB cache, 45W TDP)

Dual-channel DDR4 SODIMMs, 32GB maximum

Intel Iris Pro graphics 580

One Thunderbolt 3 port, One Display Port via USB-C

Four total USB 3.0 ports with one SDXC slot

Two M.2 slots with flexible support for a 42 or 80mm SATA or PCIe SSD

Intel Dual Band Wireless-AC 8260 and Bluetooth 4.2

Consumer Infrared sensor on the front panel

Support for user-replaceable 3rd party lids

19V DC power supply

Linux (Ubuntu 20.04)

Vision

Omnivision Camera

Logitech C920 Webcam

Max Resolution: 1080 p/30 fps - 720p/ 30 fps

Camera mega pixel: 3

Focus type: Autofocus

Lens type: Glass

Built-in mic: Stereo

Mic range: Up to 1 m

Diagonal field of view (dFoV): 78°

Power requirements (DC): 5V

***Front Camera (Only Keeper Robot)**

Intel® RealSense™ Depth Camera D435i

Recommended range: about 10 m. (accuracy varies according to lighting, calibration and location)

Global shutter, 3 µm x 3 µm pixel size

Bosch BMI1055 IMU

IR stereo technology

Depth FOV: 86° x 57° (+/- 3°)

Minimum depth: 10.5 cm

Depth output resolution: up to 1280 x 720

Depth frame rate: up to 90 fps

RGB sensor technology: global shutter

Sensor resolution: up to 1280 x 800

RGB sensor FOV: 69.4 x 42.5 x 77° (+/- 3°)

RGB frame rate: up to 30 fps

Intel RealSense D430 camera module + RGB camera

Intel RealSense Vision Processor D4

Connectors: USB-C 3.1 Gen 1

Dimensions: 90 x 25 x 25 mm