

Robocon-OS ROS2 Humble Planner Packages

Action Animation Database

Local Vertex Animations

Robocon-OS ROS2 Humble Controller Packages

Dynamic LiDAR Point Cloud Interpolation

Communication = TCP/IP

base_link

coordinate frame attached to the mobile base

TF2 Transform Frame Trees

coordinate frames over time

Trajectory Processing

Articulation Controller
moveit::trajectory_processing::TimeOptimalTrajectoryGeneration

sensor_msgs::msg::PointCloud2

TF2 Frame

Odometry Server

LIDAR
wheel encoders
IMUs
Visual Inertial Odometry (VIO)

TF2 Frame

Differential Controller

ros_controllers::ackermann_steering_controller
Convert vehicle speed to wheel speed

TF2 Frame

Joint Trajectory

Joint Encoders

Robocon-OS ROS2 Humble Hardware Packages

Arm_BORUNTE-BRTIRUS2030A-V11

Communication = TCP/IP

Depth Camera_Botu TM815-IX-E1

Communication = TCP/IP

RS485 Bus Host_Waveshare RS485

Raspberry Pi 5
Waveshare RS485 Hat

CAN Bus Host_Waveshare CAN bus

Raspberry Pi 5
Waveshare CAN bus Hat

ROS2

ROS2

ROS2

ros2_control::
hardware_interface::HW_IF_VELOCITY

RS485

RS485

CAN Bus

CAN Bus

End Effector_Jodell RG75-300

Grip Force = 40-300 N
Communication = Modbus RTU(RS485)

Sensor_BW-IMU50

Communicatuion = RS485

Lidar_Hinson SE-1035

Communicatuion = CANOPEN, TCP/UDP

Motor Controller_ZAPI DUALPMX&HP

Drive Motor #1 = 24 V / 80 Amp
Drive Motor #2 = 24 V / 80 Amp
Hydraulic Pump = 280 Amp