

Description of ROS Packages

Package	Node	Description	Subscribes to	Publishes to
joystick	joystick_ros2	<ul style="list-style-type: none"> - Connects to the xbox360 controller - Reads data (axis, buttons..) from the controller 		/joy
	joystick_to_cmd_node	-Interprets/ Converts joystick and buttons values into car orders (throttle, steering, manual/auto ...)	/joy	/manual_car_control /system_check
car_control	car_control_node	-Controls the car : Calculates and sends motors order (in percent of PWM) to move the car	/manual_car_control /motors_feedback /steering_calibration	/motors_order /steering_calibration
can	can_rx_node	-Reads and transforms data from CAN bus		/us_data /imu/data_raw /imu/mag /gnss_data /motors_feedback /general_data /steering_calibration /system_check
	can_tx_node	-Transforms and sends data to CAN bus	/motors_order /steering_calibration /system_check	
simulation	simulation_node	-Sends data (pwm ...) to carla_simulator	/motors_order /motors_feedback (only for demo)	/carla/ego_vehicle/ vehicle_control_cmd
imu_filter_madgwick	imu_filter_madgwick_node or imu_complementary_filter	-Converts IMU data into quaternions	/imu/data_raw /imu/mag	/imu/data
rplidar_ros	rplidar_ros	-Reads data from the LIDAR		/scan
usb_cam	usb_cam_node_exe	-Reads data from the camera		/image_raw

system_check	system_check_node	-Checks that the system is working properly. Publishes and/or displays reports	/system_check /imu/data_raw /imu/mag /scan /image_raw /us_data /gnss_data /general_data	/system_check
geicar_start		-Includes launch files for Raspberry nodes		
geicar_start_jetson		-Includes launch files for Jetson nodes		
Interfaces		-Includes all custom messages and services (i.e. not present in ROS by default)		
carla_msgs		-Includes all CARLA messages (only used in simulation)		

Sources :

- joystick_ros2 : https://github.com/FurqanHabibi/joystick_ros2
- imu_filter_madgwick : http://wiki.ros.org/imu_complementary_filter
- rplidar_ros : https://github.com/babakhani/rplidar_ros2/tree/ros2/
- usb_cam : http://wiki.ros.org/usb_cam