This is a manual about how to operate the robot using the gamepad

This manual refers to the Logitech F710 Gamepad.

Manual - Autonomous

Switch between the manual and autonomous modes by using the buttons A, B, Y and START.

To switch to manual mode, press B.
To switch to the autonomous mode line_following, press A.
To switch to the autonomous mode turning, press Y.
To switch to the autonomous field changing mode, press START.

Steering in manual mode

Driving

You drive by giving twist commands using the gamepad. Please be aware, that some inputs can not be fulfilled by the currently active high-level controller. For example in the ackermann steering mode, can not have an angular velocity, but no linear velocity in x-direction. In this case, the robot prefers the linear inputs.

- Linear twist in x-direction

  There are two possibilities to give a forward speed.

  1) Press the RT trigger to drive forward and the LT trigger to drive backwards.
  2) Move the right mini joystick up to drive forward and down to drive backward.

  If the trigger and the mini joystick give inputs, the trigger input is prefered.

- Linear twist in y-direction

  Move the right mini joystick to the left, to drive sidewards to the left and to the right to drive to the right.

- Angular twist in z-direction

  To turn the robot, you can give an angular velocity to it. Move the left mini joystick to the left for a positive angular velocity and to the right, for a negative angular velocity.

Switching between high-level controllers

Press X to switch between the different high-level controllers in the order:

ackermann - swerve

Backward Ackermann Steering

Press the BACK button, to change to the backward ackermann steering. You have to be in ackermann steering mode and in manual mode, to do so. To switch back, press BACK again.

The backward ackermann steering controller is the same as the normal ackermann steering controller, with the difference, that the controller suggests the back of the robot as front and vice versa. This means, that if one gives forward command, the robot actually drives backward and steers with the back wheels. This is very useful when driving backwards.

Additional features

Emergency stop

To stop the robot immediately, no matter in which mode it is, press the RB button. The robot switches to the emergency controller and to manual mode.

To resume with driving, press X again. This switches back to the last high-level controller before the emergency controller was activated.

Ethercat

To reset the ethercat, press the LB button.

Further features

Geese feet

Press key UP to lift the geese feet.
Press key DOWN to lower the geese feet.

Overview

B manual mode
A autonomous line detection mode
Y autonomous turn mode
START autonomous field changing mode

X switching between high-level controllers (only in manual mode possible)
RB activate emergency controller to stop the robot and switch to manual mode
STOP activate/deactivate backward steering controller
LB reset the ethercat

Left and right trigger/vertical axis right minijoy drive forward and backward

Horizontal axis right minijoy drive sidewards (only in swerve steering mode possible)

Horizontal axis left minijoy angular velocity for turning

Key UP/DOWN lift/lower geese feet