

Introduction

The following is a brief guide to controlling multiple functions with one joystick axis. When deciding how the co-pilot will control the many functions your robot has, your main choices are buttons, joysticks, and thumb wheels. Joysticks provide the most accurate control for arms and fast moving mechanisms. The difficulty starts when you want multiple functions controlled with a joystick. Controlling two functions with both the X-axis and Y-axis is difficult.

Multi-Use Axis

Your co-pilot can easily control two functions with one joystick axis, provided they are controlled at different times. You can use one of the buttons on the joystick to define which function the joystick axis controls. By using the trigger and thumb buttons, you can control up to four functions with one joystick axis and one hand.

The following code is an example of using of using sw1 (Joystick #1 buttons) and joystick y1 to control PWM5, PWM6, and PWM7 (wheel1, wheel2, tx_pot1 outputs by default). The code passes the input axis position to the selected output. The code also sets the non-selected outputs to 127 to ensuring they stop moving.

Example Code

```
Wheel1 = 127
wheel2 = 127
tx_pot1 = 127

if sw1_fwd = 1 then jump1
if sw1_rev = 1 then jump2

Wheel1 = y1
goto JumpEnd

jump1:
wheel2 = y1
goto jumpEnd

jump2:
tx_pot1 = y1
jumpEnd:
```

Code additions that effect the PWM channels should be added in the code just before "STEP 3: PERFORM ACTIONS" in the default code.

Changing the Default Software

Changing software in the receiver is not complicated. Section 2.6 of the 1999 Manual in "The Robot" section described the process in depth. The default code provided by FIRST already contains all the basic code needed. Many teams only make small additions and changes to the default code. It is not necessary to start from scratch!