Assignment 3 - Controlling the Rover using RoboClaw

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1 Introduction

This is the third assignment in the MRT, which consisted of 2 tasks.

1. Task 1 - Understanding the Joystick
2. Task 2 - Interfacing the driver

2 Task 1

The first task consisted of going to the lab, correctly connecting and configuring the joystick and looking at the data published by the JOY node - in the form of an array of floating point numbers - on clicking the respective button.

The next step was to subscribe to the publisher JOY and write a function which printed out the commands 'LEFT', 'RIGHT', 'FORWARD', 'BACKWARD', when the following 4 buttons were pressed, using simple if-else blocks.

The following figure and table shows which buttons were mapped to the given 4 commands.

BUTTON	PRINTED COMMAND
X	LEFT
Y	FORWARD
A	BACKWARD
B	FORWARD

3 Task 2

The second task was to go through the data sheet of the roboclaw. The boiler plate code had been provided, and we had to implement the program for giving commands to the roboclaw for driving it LEFT, RIGHT, FORWARD, BACKWARD as per the command given.

The commands for launching the joystick (base-station):

```
<launch>
  <node name="subscriber" pkg="joystick" type="subscriber.py" output="screen"/>
</launch>
```

and of the on-board rover are:

```
<launch>
  <node name="roboclaw" pkg="rover" type="roboclaw.py" />
  <node name="full_drive_run" pkg="rover" type="full_drive_run.py" />
  <node name="autonomous" pkg="rover" type="autonomous.py" />
</launch>
```

4 Link to GitHub Repository

CLICK HERE