**Bogie Runt Rover Progress Documentation**

This document outlines the progress that has been made with the rover. It will broken down into weeks and will try to include all details about the project.

October 25th – November 2nd 2020

* Around October 28th, I started putting together the components of the roboclaw and how it would interact with the Raspberry Pi to control the rover
* Needed a few things at first: install Basic Micro Motion Studio to set up the roboclaw motor controller, setting the control mode to packet serial and the baudrate and serial address to 38400 and 128 respectively.
* The wiring configuration is written in the “test.py” document and is also stated in the website description <https://resources.basicmicro.com/packet-serial-with-the-raspberry-pi-3/>
* The standard program worked the first on the raspberry pi, the motors moved backwards and forwards in order. The next step I took was to connect the PS4 controller to the Pi to mobilize the rover through input commands instead of written commands
* I followed a Github page and a youtube tutorial to setup the controller. Pretty simple setup for the most part but here where the troubles come in
  + When setting forward motion with the up arrow, an error would occur where the bytes of the address (0x80) would say “unicode strings not supported, please encode to bytes.” This is apparently a Python 2 → 3 issue that they had changed with the updated versions.
  + I went straight to google to figure out what to do to fix this issue. Found a few things with serial commands but none of them worked.
* Faced with this dillema, I tried to switch to simple serial control mode, where an address is not necessary to declare to avoid this problem
  + This worked a bit better, the same issued occurred but I was able to temporarily fix with the .encode() function. With high hopes, I tried with the PS4 class and motor 1 worked but motor 2 worked only in reverse direction and not forward.
* Exhausted all options, I went back to google and found the simple fix that I knew it was: instead of importing “roboclaw.py” to the main file, we needed to import “roboclaw\_3.py” that works for Python 3
  + From this point on, the rover is now controllable with the PS4 controller