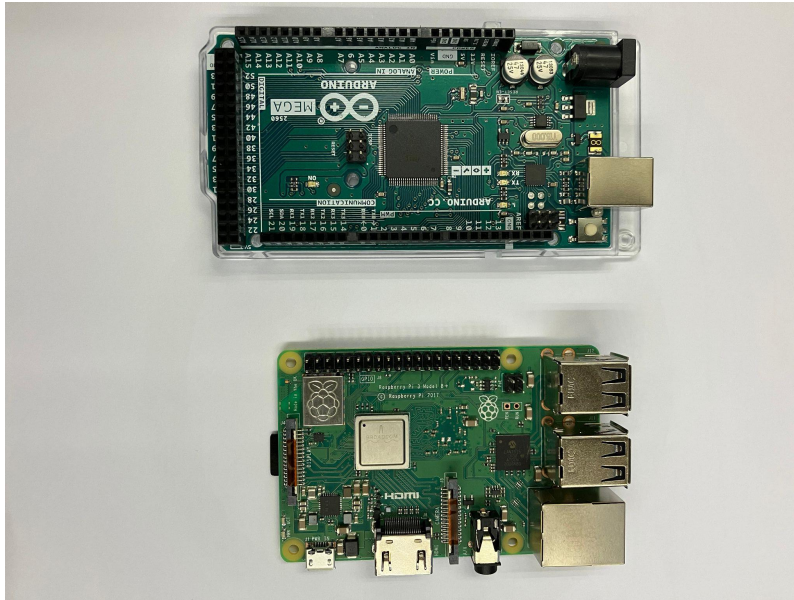
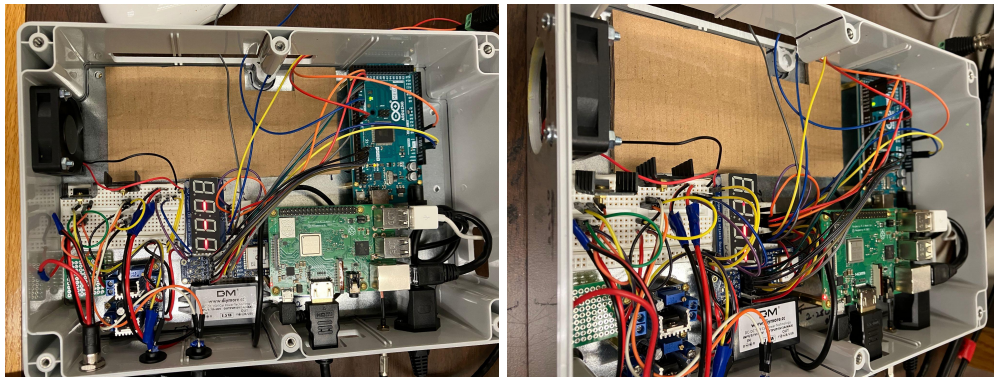


New DAQ board without front end

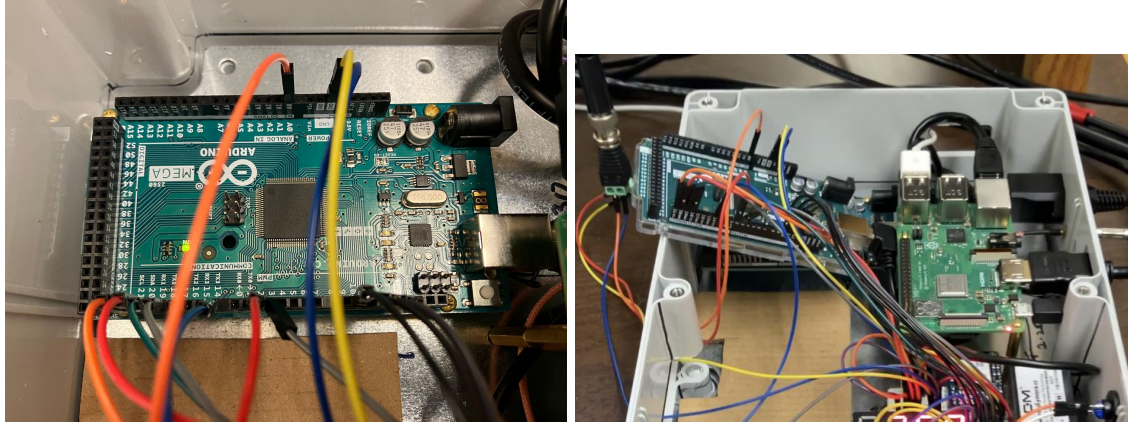
The New DAQ system was being tested using a scope and a pulse generator. My task was to swap out the current Arduino and Raspberry PI stepwise, replace them with new ones, and become familiar with the wiring and the operation of each.



First, pictures of the setup with all of the wiring was taken to avoid future problems.



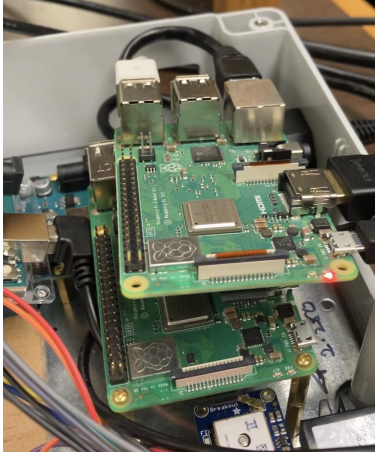
Arduino: Before anything was done, I confirmed the system was recording data and then it was powered down. I systematically moved each jumper from the old Arduino to the new one, leaving the old one attached in the case. After all the wires were moved, the system was powered up. The system was again recording data from the pulse generator.



Raspberry PI: With the new Raspberry PI I also received a new 16GB SD card. The original system has a 8GB card. My goal was to figure out how to make this run. I wanted to find the fastest and easiest way to get the software running while noting the issues that I might incur while doing so. The following are the steps that were taken in doing so;

- The contents of the original 8GB SD card was copied onto the desktop of a computer. This was done by removing the 8GB SD card from the original Raspberry PI and reading it directly into the computer. This file was then transferred directly to the new 16GB card. This card was inserted into the original Raspberry PI. This did not work. The program needed to be initialized.
- I Googled videos on how to initialize the Raspberry PI. I put the new 16GB SD card in the reader and accessed the Raspberry PI Imager website and downloaded the appropriate software onto the card. When this card was put back in the original Raspberry PI the system responded, and I was able to see the software running on the monitor. But of course the Arduino software was not on the card yet.
- Realizing that the Arduino software cannot just be dragged onto the card, I tried to download the program using the software that was now running on the Raspberry PI. This was also an issue. The Raspberry PI Linux browser was able to access the internet. I was able to browse and find the Arduino website. But an issue with the internal clock on the Raspberry PI system prevented me from downloading anything due to security issues. This was frustrating and I began to look into the file menu system of the Raspberry PI software. I was looking for ways of solving the clock issue when I found the SD Card Copier in the accessories menu.
- I clicked on the following; System Menu → Accessories → SD Card Copier. I decided to go this route. If it could make an exact copy and run, I would have the Raspberry PI software, the Arduino software, and the code that was needed all at the same time. In order to do this I put the new SD card in the reader and inserted it in the Raspberry PI's USB port. The software recognized the 2 different SD cards. I had it run the program and within 30 minutes it was complete. I powered down the system and swapped the cards. Powered it up and everything ran as normal with the new card. I swapped back and forth a few times just to confirm.

- The last step was to use the new Raspberry PI board, the new 16 GB SD card, with the new Arduino. I powered down the system and removed all the inputs into the board systematically. Repowered the system and again it worked correctly with the wave generator.



Last step was to remove the new Arduino and Raspberry PI and restore the system to its original condition. Ran and confirmed that it was again operating properly.

