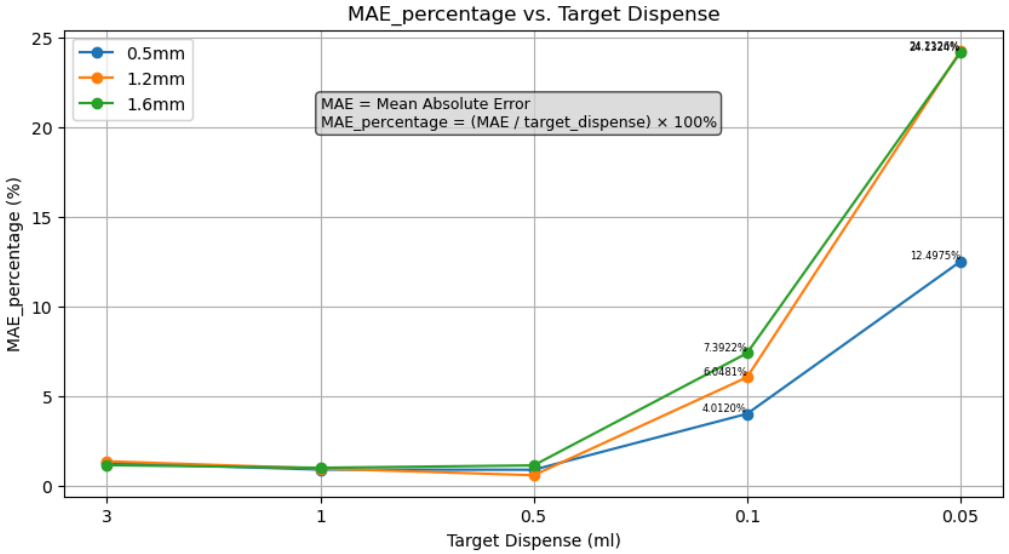
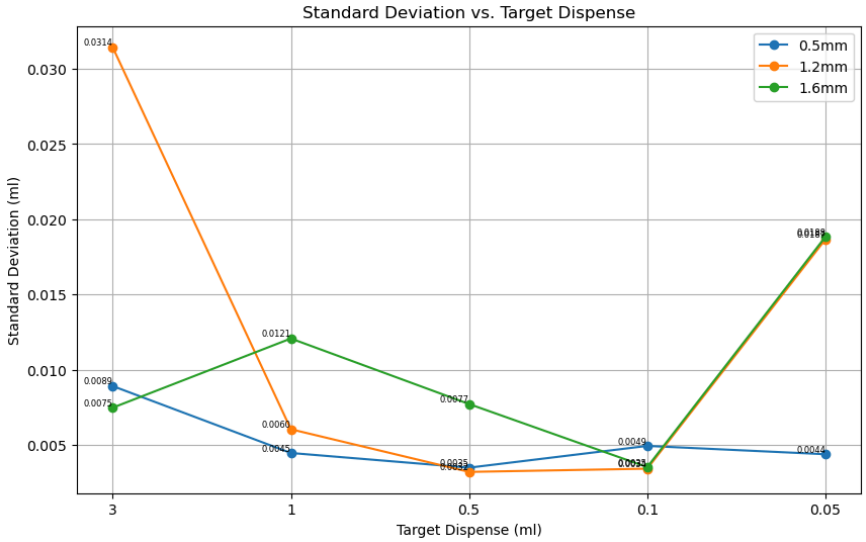
Progress

- **Lowest Dispense Test**
  - Completed the lowest dispense testing for the 0.5, 1.2 and 1.6mm needle types with mm_to_ml = 14.54

    Lowest_Dispense_Testing_Sy0_0.5mm.csv
    Lowest_Dispense_Testing_Sy0_1.2mm.csv
    Lowest_Dispense_Testing_Sy0_1.6mm.csv
  - Got the following results

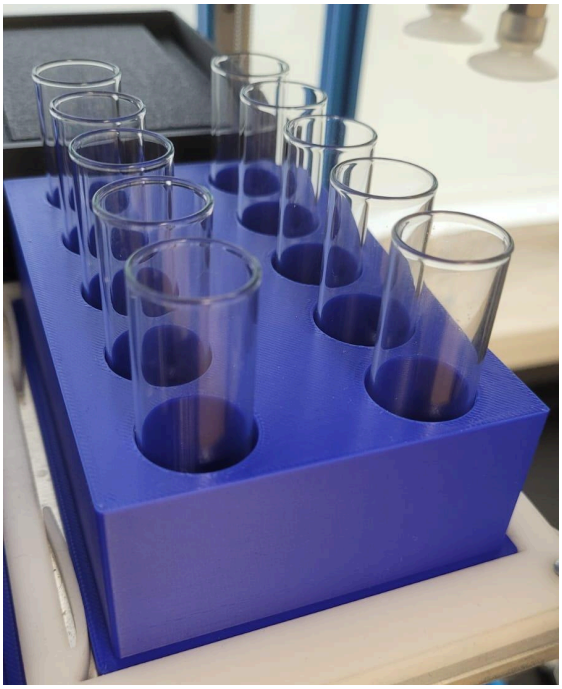




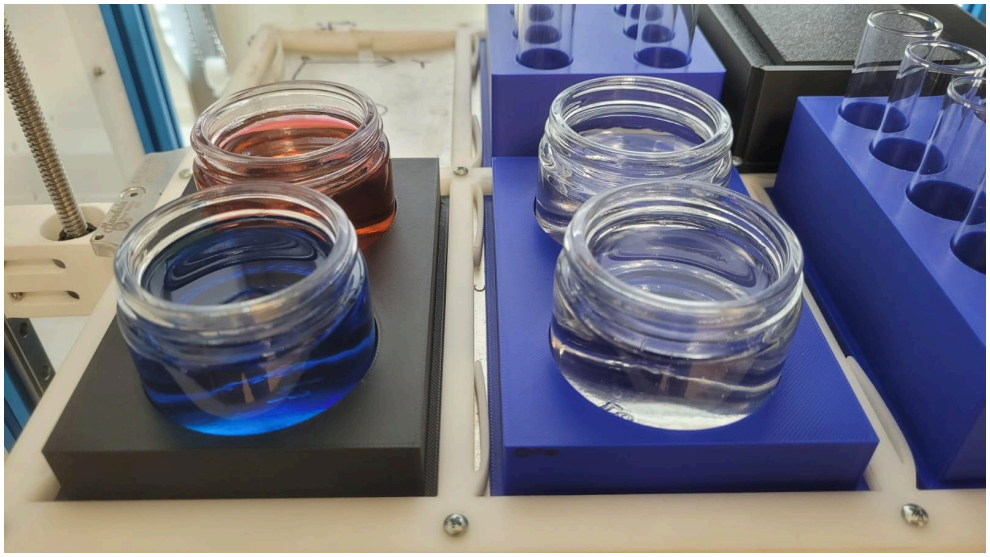
  - The 0.5mm needle has low water retention and has more accuracy.

- **Configured Jubilee for wide vials**
    - Got the new vials
      New vials have a max volume capacity of 14ml

    - Printed new well plates with batch size of 10 per plate



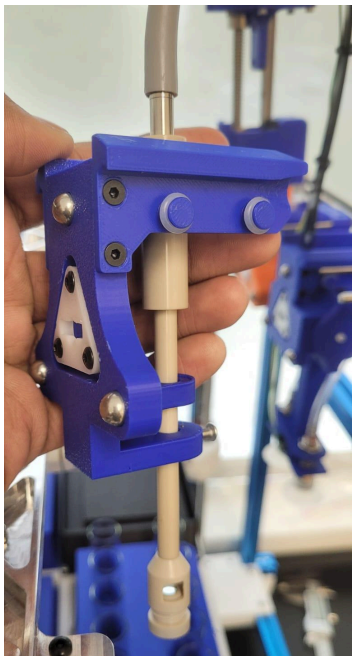
    - Printed new well plates for methanol solvent and methanol cleansing liquid



    - Configured Jubilee for the new well-plates

- **Axo tool testing**
    - Dual Syringe side holder
      Fixed the side holder to ensure that the tool is tightly locked.

    - New tool holder for spectrometer
      We made a new tool holder for the spectrometer tool. Now we can dip the probe to a greater depth inside the vial.

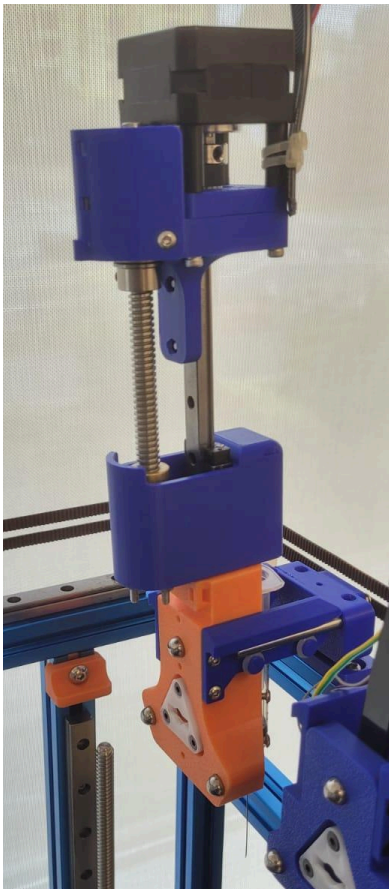


    - Spectrometer API changes
      We wrote and tested the plot_spectrum, compute_absorbance, wash_probe functions.
    - Dual Syringe API changes
      Fixed the dispense function.

    - Configured heights of all the tools wrt the labwares

    - Fixed the heat inserts of all the tools properly to ensure stability

- **Single Syringe**
    - Assembled the Syringe Syringe hardware



    - Calibrated its position wrt to the tool holder
    - Calibrated its position wrt labware locations
    - Wiring management with a ziptie

    - Developed Single Syringe API
      We made a new set of functions in the syringe.py file and tested each one of them.
        - Dispense
        - Aspirate
        - Refill
        - Reset position
        - Mix

      syringe.py file has been uploaded on github repo

- **Dye Test**
    - In this test, we made two solutions using two different dyes.
      The is the procedure:
      0. Initialise machine
      1. Home Jubilee
      2. Load tools
      3. Fill Dual syringe with dye
      4. Place lid on precursors
      5. Fill vial with solvent
      6. Fill vial with precursors
      7. Mix the solutions in the vials
      8. Record vial spectrometer data 2 times to ensure data consistency

    - All tools working perfectly

    - Time for measuring data with the spectrometer and washing the probe ~34 seconds

    - Uploaded the dye_test.ipynb on github repo

Plan for upcoming days

- Complete the orchestration notebook (started already)
- Wiring management of the U axis limit switches
- Redesign the lids of the beakers and vials
- Try to improve the holder for the dual syringe
- Create a data management plan - naming, where everything is being saved, hierarchy of the data, data log info
- Visualisation of the vials (A1, A2, C1, D1 etc)

Next week plan

- Single Synthesis
- Do another repetition for consistency
- 20 vials, every 15 mins for 180 mins - run one cycle of this

- Based on the model output, do another batch of 5 (keep adding this data to the model). Do this 4 times