***EE/CprE/SE 492 BIWEEKLY REPORT 05***

**Date:** November 9th, 2022 – November 22nd, 2022

**Group number:**  Dec2022-20

**Project title:** i281 CPU Hardware Implementation

**Client &/Advisor:** Dr. Alexander Stoytchev

**Team Members/Role:**

Alex Kiefer (Hardware Team)

David Vachlon (Software Team)

Joseph De Jong (Hardware Team)

Saffron Edwards (Software Team)

Patrick O’Brien (Hardware Team)

**Summary**

As the semester is wrapping up, so is our project. The main focus of the hardware team for the past two weeks has been debugging issues with the breadboards. Many issues have been caused by a lack of good wiring standards forcing us to document and fix numerous wiring errors. On the other side, the software team is wrapping up the website, documenting their code, and preparing readme files. Additionally, we have delegated a team member to prepare the final presentation, poster, and a binder containing our team’s work.

**Past Week Accomplishments**

* **Alex Kiefer:** Helped wire the busses between modules on the breadboard implementation of the CPU. I also worked on the presentation for the PIRM meeting.
* **David Vachlon:** Made sure to order the supplies needed to finish the breadboard implementation. Additionally, worked to make a high-level diagram of the full implementation, created slides for our PRIM, and started gathering together and documenting the software used/created for this project. Provided general wiring assistance to those who needed it as well.
* **Joseph De Jong:** Worked with Alex and Patrick to finish wiring for the CPU. The team worked with our advisor to complete basic debugging and plan the remainder of the semester. Writeups were made, and photos were taken as required.
* **Saffron Edwards:** Continued progress on the website and binder. Started pulling documents together to look at final poster and presentation. Assisting David with EEPROM code and the hardware team with wiring when needed.
* **Patrick O’Brien:** Worked with Alex and Joe to wire up many of the remaining bus connections on the breadboard. Worked on debugging several of the modules along the data path. Added control switches and a multiplexer to choose between manual and autonomous controls. Helped Joe find and sort datasheets and assisted him in planning out the final report.

**Pending Issues**

* **David Vachlon:** Will need to look into updating our in-house written software for further EEPROM programming. Our client potentially wants all programs he developed stored on EEPROMS for running on our implementation, so I will need to look into how to get the proper hex values for those programs.
* **Alex Kiefer:**

Still need to connect some of the busses on the breadboard. Also was requested to finish the PCBs.

* **Joseph De Jong:** Need to finish the graphics processor PCB and layout. Need to start on the module reports for the next senior design group.
* **Patrick O’Brien:** Need to finish up the PCB layouts on KiCAD. Need to add some of the final bus connections and debug the remainder of the breadboard PCB.
* **Saffron Edwards:** Need to finish the binder for the client and get final poster board designed. Looking to make more website updates to make it more conducive to our project.

**Individual Contributions**

| **NAME** | **Individual Contributions** | **Hours this**  **week** | **HOURS**  **cumulative** |
| --- | --- | --- | --- |
| Alex Kiefer | Wired busses on the breadboard implementation | 12 | 72 |
| David Vachlon | Ordered requested parts, made a high-level diagram of our project, started gathering and documenting our software, and made slides for our PRIM. | 4 | 58 |
| Joseph De Jong | Wiring breadboard. Photos, writeups, documentation, final booklet. Collection of datasheets used. | 12 | 76 |
| Saffron Edwards | Binder, website, and PIRM work. | 3 | 35 |
| Patrick O’Brien | Wiring the breadboard bus connections. PIRM meeting presentation. Collection of datasheets. Rewiring control signals. | 12 | 74 |

**Plans for the Coming Week**

* **Hardware:**

1. Finish debugging to get working datapath
2. Fix data display [7..0]
3. Bundle wiring

* **Software:** Continue to document and gather our software into a single package. Additionally, look into updating our EEPROM programming software so that we can load other client-requested programs into new EEPROMs. Finally, continue to update the website.

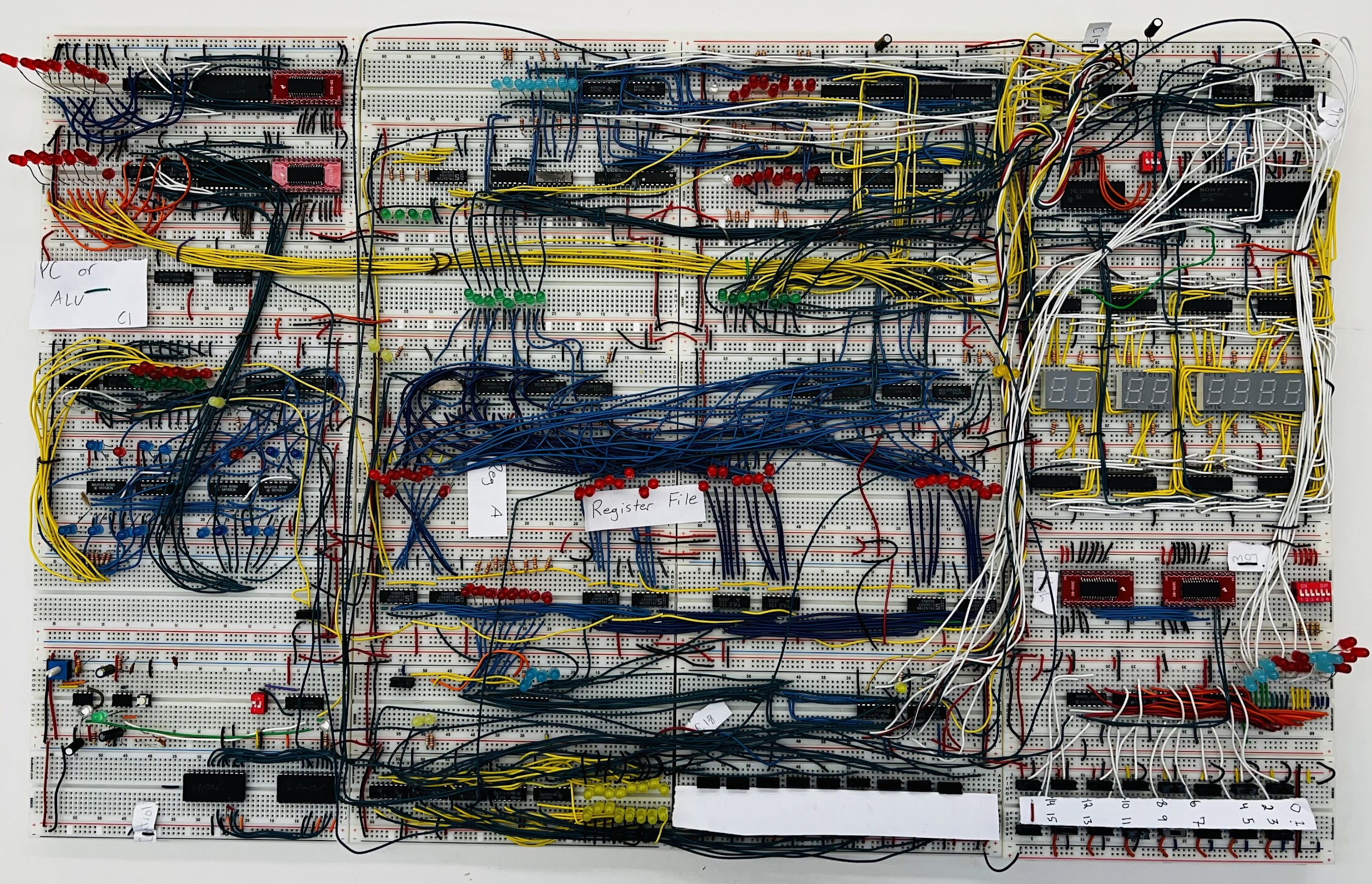
**Summary of Weekly Advisor Meeting**

The last two weeks of advisor meetings covered various issues. These include:

* Read/ Write addresses
* Debug Switches/ Bits
* Organization of final report
* Passing the project to a new group
* Finalizing PCB designs

Each member discussed their concerns on the topics listed above. Eventually, a consensus was found, and design choices were implemented.

**Breadboard Design as of 11/20/2022:**

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