EE/CprE/SE 491 WEEKLY REPORT 3

03/04/25 – 03/11/24

Group number: 6

Project title: Wireless Data Acquisition (wDAQ)

Client &/Advisor: Avisehk Das and Manojit Pramanik

Team Members/Role: Rocco Yassini, Sam Foster, Jerry Liu, Merrick Czaplewski

- **Weekly Summary**

We were able to successfully make the STM BluePill work as our AC/DC converter as well as solidify what we would be needing to work on for the next couple of weeks. We were able to have code with no errors that communicated properly with our computer, as well as show that our AC input was being translated correctly to the DC output. We were also able to change the output placement on the chip to use the USB-OTG-FS which is a high speed data transfer.

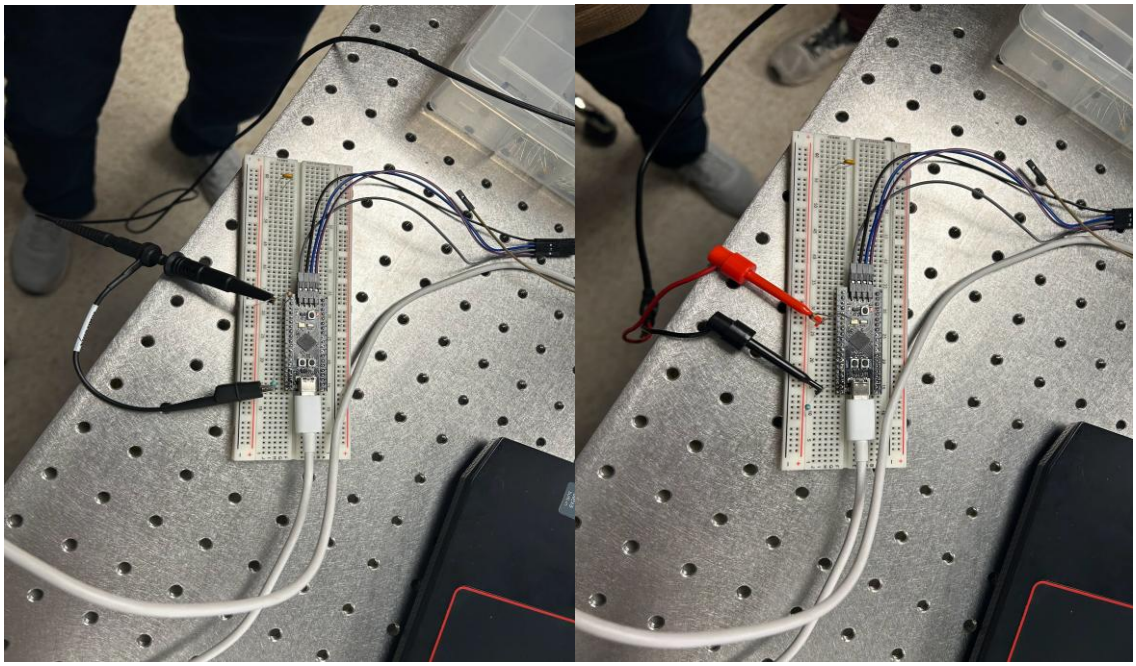
- **Past week accomplishments**

Rocco Yassini: Coded most of the program, by finding a good source that wa s able to guide us with the correct steps for the program. Code was able to properly perform ADC.

Merrick Czaplewski : Helped with the hardware issues that were faced as well as setting up the board and figuring out other good places for information as well as the big picture.

Samuel Foster: Experimented with the code, able to explain the process and helped with the program that worked.

Jerry Liu: Continues working with the IDE APP, Try to find the relationship between pin board and computer system connections.



The above two images are the working circuit with connection to a DC voltage supply and then moving onto the AC voltage supply. This circuit was used for the DMA ADC, the one we are currently working to fine tune.

- **Pending issues**

  · Rocco Yassini: Alter the DMA ADC code (different code from the one I wrote). The code works but the way it represents the data is very poor and insufficient.

  · Jerry Liu: Sometimes there are error connections with STM microcontroller pin board display and wrong debug for ADC coding.

  · Samuel Foster:

  · Merrick Czaplewski: Get another STM-Link for the second BluePill, figure out how to connect the BluePill to the main bluetooth chip and use it's clock properly for the conversion rate to be high enough.

- **Individual contributions**

NAME	Individual Contributions	Hours this week	HOURS cumulative
Member 1: Rocco Y	-Wrote functional code to perform an ADC using the STM microcontroller. ADC worked successfully. Received DMA ADC code from Avishek, which is a faster, more accurate way to perform ADC which is essential to our project.	2-4	6-8

Member 2: Sam F	-Attempted to write code for ADC and learned how the microcontroller functioned	2-3	6-7
Member 3: Jerry L	-Still trying to fix connections between the IDE app and Pin board error.	2-3	6-7
Member 4 Merrick C	- Worked with the datasheets to figure out the hardware issue and was able to fix it. Worked in the lab with Rocco, Sam and Avisehk to get the device up and running.	3.75	7.75

- **Plans for the upcoming week**

Samuel Foster: Collaborate with team to work on formatting of code output, ideally printing results to a well-framed graph that shows at least two to three wavelengths of measurements.
Merrick Czaplewski : Work on Tuesday with the group to finish out the code for our first step, making sure the screen displayed the proper graph along with making more graphs and schematics for our final project and for our own uses.
Jerry Liu: Doing more code for ADC simulations and trying to figure out the correct connection with the pin board and STM microcontroller.
Rocco Yassini : Continue to play around with the DMA ADC code. The code works but the way it plots the data is very poor, the waveform is smooshed on the right side of the screen. Avishek instructed us to alter a few specific lines of code to attempt to resolve this issue.

- **Summary of weekly advisor meeting**

We didn't have a meeting with our client, but we did meet with one of our advisors to get some help with our code and debugging. We had some issues as this is mostly a new ballpark for all of us but we were able to get the code to work for our first step. We were also able to set up for the next steps of our project and how we would be able to complete our goals. We will not be focusing on getting the communication properly through the channels which will allow us to have faster communication with the outside system.