

# EE/CprE/SE 491 WEEKLY REPORT sdmay25-29

November 1, 2024 - November 7, 2024

**Group number:** 29

**Project title:** Implementation of the ABC using modern technology

**Client &/Advisor:** Professor Alexander Stoychev

## **Team Members/Role:**

Connor Hand - Client Interaction and Team Organization

William Mayer - Meeting Time Tracking and Note-Taking

Peter Hurd / Noah Butler / Zach Scurlock - Testing and Individual Component Design

Peter Hurd - Budget Handling

## Weekly Summary

This week, the group split up and continued research into specific parts of the individual modules. We also worked on code simulations for the converted binary punch sheet and the Gaussian elimination algorithm. We also started working on making the full base conversion table in Excel to be placed onto the EEPROM. We started prototyping the base conversion circuit and looking into tablets to use as a punch card app and to display the converted binary punch sheet. We are still moving along as planned and are continuing to learn more about the ABC each day. No changes were made to the project this week.

## Past week accomplishments

- Connor Hand: Wrote the base-2 punch card simulation in Python. Started creating the base converter circuit in Digital (shift registers). I also started researching the carry/borrow drum, but was unable to find anything significant to us yet.
- Zach Scurlock: Explored tablets that can be used for user input/output and researched how the base-2 punch stored bits onto the letter-size paper.
- Peter Hurd: Built a mock, base 10 punch card template in Excel and used it to print out a simple system of equations. Ordered additional parts for a circuit surrounding the base conversion drum and a potential MCU-based solution for interfacing with the device.
- William Mayer: Looked into the control panel component of the ABC and found some information. Researched COMS 309 topics so that we can possibly get an emulation up and going. Also, read into past technical communication documents for the a possible user manual.
- Noah Butler: started creating the full base conversion table in Excel and began researching the memory circuit and control drum further

### Individual contributions

<u>NAME</u>	<u>Individual Contributions</u> (Quick list of contributions. This should be short.)	<u>Hours this week</u>	<u>HOURS cumulative</u>
Connor Hand	Made base-2 punch card simulator and made shift registers in Digital for base converter. Started research into carry/borrow drum.	6	32
Zach Scurlock	Explored tablets that can be used for user input/output and researched how the base-2 punch stored bits onto the letter-size paper.	6	31
Peter Hurd	Created a base 10 punch card template. Compiled and submitted a new parts order. Researched MCU-based interfacing solutions	6	33
William Mayer	Researched Components. Developed Code.	6	29
Noah Butler	Researched Memory circuit and control circuit, started creation of the base conversion table	6	30

### Plans for the upcoming week

- Connor Hand: Work on adding to base-2 punch card simulation to make it easier to understand how the numbers are formatted. Will also research how the carry/borrow drum was used on the original ABC.
- Zach Scurlock: Learn how to use KiCad so we can start creating PCB designs. Create a prototype for tablet UI.
- Peter Hurd: Organizing a KiCad tutorial for fellow group members, start breadboarding new base conversion circuit. Submit first PCB design for manufacturing.
- William Mayer: Finish Ed Thelen's half-written control panel user guide. Keep going with the Gaussian Java program. Research more components and learn some KiCAD
- Noah Butler: Piece together the rest of the base conversion table, continue researching the memory circuit and control drum, start learning KiCAD

### Summary of weekly advisor meeting

This week at our advisor meeting, we discussed the progress we made on our simulations and the new knowledge that we gathered. We discussed how ordering PCBs will work and what we need to do to learn how to create PCBs. We also discussed the possibility of making a team logo to put on our PCBs. We then ran through how we would actually operate the original ABC to help get a better idea of how we want to design our machine's control.