EE/CprE/SE 491 WEEKLY REPORT sdmay25-29

September 27, 2024 - October 3, 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 / Zachary Scurlock - Testing and Individual Component Design, Peter Hurd - Budget Handling

- **Weekly Summary**

  This week we started researching individual components and brainstorming ideas on how to implement these components using modern technology. We came up with a few ideas on controlling I/O. We also came up with ideas on how to implement the memory and adders.

- **Past week's accomplishments**

  • Connor Hand: Read more of the Burks book and did research into the adder-subtractor units. Made a digital logic diagram modeling a minimal boolean algebra equation based on Atanasoff's truth table.

  • Zach Scurlock: Researched the Base-2 and Base-10 reader and brainstormed ideas for the Base-2 punch

  • Peter Hurd: Compiled a parts repository for future breadboard/PCB solutions, compiled and submitted a purchase order for initial components and materials, and further researched the control interface and memory components of the ABC

  • William Mayer: Working on algorithm with human input and multiple equations separately. Also storage drums and relation to modern day ram.

  • Noah Butler: Researched the Base-2 and Base-10 reader and brainstormed ideas for the Base-2 punch

- **Individual contributions**

NAME	**Individual Contributions** *(Quick list of contributions. This should be short.)*	**Hours this week**	**HOURS cumulative**
Connor Hand	Researched adder-subtractor	4	9
Zach Scurlock	Research components	3	7
Peter Hurd	Researched components, compiled parts list	4	9
William Mayer	Research components	3	7
Noah Butler	Research components	2	7

- **Plans for the upcoming week**
  - Connor Hand: Model Atanasoff's vacuum-tube logic using modern digital logic gates and confirm that it will work as intended. Ensure that we are ordering all of the necessary parts for building a 4-bit adder.
  - Zach Scurlock: Come up with of list of components to order and start putting things together once they arrive. Also, figure out how flip-flops were implemented.
  - Peter Hurd: Keep tabs on purchase order to ensure everything needed arrives, build out initial prototype circuits in KiCad of memory drum modules
  - William Mayer: Finish the Gaussian elimination come up with data storage and ram
  - Noah Butler: Read more on the Adder Subtractor module in preparation for putting it together when the parts come in

- **Summary of weekly advisor meeting**

  This week at the meeting we went over our ideas of I/O to the machine. We also talked about the adder-subtractor implementation that we are going to use. We discussed how we can order parts for our machine prototype and will be doing so soon.