EE / CprE / SE 4920 – sdmay26-12
ABC with Modern Components
Report 15

03/27/2026 – 04/09/2026
Client: Alexander Stoytchev
Faculty Advisor: Alexander Stoytchev

Team Members:

Gavin Bunker — *Technical Manual Lead*
Ryan McFadden — *Client Liaison, Recorder*
Samuel Schroeder — *Team Leader*
Vance Arnold — *Team Facilitator, Purchasing*
Bryan York — *PCB Lead*
Kyle Koch — *VHDL Lead*

Summary

At this stage, we have begun finishing up the major hardware modules, so we have started work on the operating software and continued testing of our replica. The memory drum and clock module were finalized and ordered; the control module PCB is in its final development stage; and the control panel was assembled and tested. Work began on the card reader PCBs and on adapting the previous team's software to work with our designs for these modules. We also continued system testing in VHDL, testing the binary output and decimal input processes.

Past Weeks Accomplishments

- Gavin
  - Initial layout of card reader PCB pending pin programming scheme
  - Schematic & Footwell importation for several ESP's from Github
- Bryan
  - Finalized Layout and routing for Memory Drum Module with the full team and advisor
  - Submitted PCB layout for production to ETG
  - Worked on ordering some parts, including charging cords and blocks for full system
- Ryan
  - Soldered and tested Control Panel PCB
  - Investigated ESP32 code and Android app for decimal card reader
- Samuel
  - Completed the PCB layout for the control system module
  - Updated the schematic with changes for the PCB
  - Started routing the PCB
- Vance
  - Worked with Kyle on final VHDL testing
  - Decimal card (CSV) to EEPROM to drum working, with some last-minute bug fixes still needed
  - Writing drum to binary card (CSV) working, with some small fixes needed.
  - Added new clock module to to match hardware, with 6-bit counter and read/write cycles

- Kyle
  - Worked with Vance on the final VDHL testing
  - Looked into all the fixes we had to do to fix me and Vance's misunderstanding
  - Worked on fixing all the cycles and making sure we are accumulating correctly and not overwriting like we were

Pending Issues

- No pending issues

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Gavin Bunker	Initial layout of card reader PCB, Schematic & Footwell importation	5	64
Ryan McFadden	Soldered and tested Control Panel PCB, decimal card reader code	15	67
Samuel Schroeder	Control system PCB work	12	84
Vance Arnold	Decimal and binary card VHDL testing	18	74
Bryan York	Finalized and submitted routing for Memory Drum Module	12	87
Kyle Koch	worked with Vance on new clock module and working on csv's	10	60

Plans for Coming Week

- Gavin
  - Finish PCB layout for card reader module
  - Order card reader PCB
- Bryan
  - Start laying out and routing the full motherboard, including adding input and output pins for module boards
  - Start a schematic of the motherboard's power architecture.
- Ryan
  - Continue testing and debugging Control Panel PCB
  - Write new code for the decimal card reader ESP32 to fit our system
  - Investigate decimal card reader Android app further and get it to properly send values over bluetooth
- Samuel
  - Complete and order the control system PCB
  - Start work on more documentation
- Vance and Kyle
  - Completely integrate new simulation clock module into VHDL and tests
  - Fix CSV loading issue, and ensure writing to binary card works fully
  - Move onto transferring drum contents to the other drum, then loading a new decimal card