

EE/CprE/SE 492 STATUS REPORT sdmay25-29

February 28, 2025 - March 13, 2025

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

Bi-Weekly Summary

This week, the team continued to design our ABC. We made significant progress on our Verilog simulation, Java simulation, Android apps, and techniques for base-10 to base-2 conversion with EEPROMs. We now have EEPROMs in our Verilog simulation, we have a control panel in our Java simulation, and we have reliable communication between Android apps and ESP32. Overall, we got through a lot of important steps these past two weeks and our project goals are looking achievable.

Past week accomplishments

- Connor Hand: Programmed ESP32 to send random data to base-2 Android app for testing. Finalized and prototyped our method for reading values from the base-10 Android app into an ESP32.
- Zach Scurlock: Set up base-10 Android implementation to communicate with ESP32 and continued working as a group to develop a system design.
- Peter Hurd: Continued further circuit design in Quartus complete with full system simulations. Began mapping out circuits to chips for parts procurement and next design stage.
- William Mayer: Constructed a Control Panel in Java using Java Swing. Added functionality related to the 1986.pdf manual.
- Noah Butler: Continued working on quartus implementations, began memory mapping the EEPROMS

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	Set up ESP32 for base-10 and base-2 Android implementations	14	84
Zach Scurlock	Set up base-10 Android implementation to communicate with ESP32, continued developing overall system design.	12	78
Peter Hurd	Designed and built more hardware circuits in Quartus. Began mapping circuits to chips	14	91
William Mayer	Programmed 🤖	14	89
Noah Butler	Continued working on quartus implementations, began memory mapping the EEPROMS	13	82

Plans for the upcoming weeks

- Connor Hand: Program the read and write versions of the base-2 Android app and have them communicate with each other, and the ESP32 over bluetooth.
- Zach Scurlock: Start breadboarding components.
- Peter Hurd: Finish entire simulation of all hardware circuits. Order all necessary chips for early prototyping and start on KiCad schematics.
- William Mayer: Implementing full functionality of ABC in java program.
- Noah Butler: Fully implement the memory into the EEPROM

Summary of weekly advisor meetings

During our advisor meetings these past two weeks, we made significant progress on the design of our machine. We determined how to organize EEPROM data for our base-10 to base-2 conversion and we designed the circuit for doing so. We also determined the design for our base-2 read and write Android apps. We also decided to work on an entirely breadboarded version of our machine instead of PCBs because we are more confident in being able to finish a breadboarded implementation.