i281/e Hardware Implementation

Reporting Period: Winter Break through January 27th

Attendance:

| Dr. Alexander Stoytchev (Advisor/Client)	Daryl Damman
Logan Lee	Grant Nordling
Braxton Rokos	Gavin Tersteeg

Progress Summary

Returning from the Winter Break, all members and advisor/client joined on January 22nd to discuss agenda items and begin formulating the semester's plan. Gavin and Dr. Stoytchev immediately before Winter Break to reassemble and test the current hardware implementation. This was confirmed to be a satisfactory build and we have been given the greenlight to continue our progress with the breadboards and begin PCB designs.

Gavin was able to beta test some ideas and flesh out new features for the i281 processor; however, the required design choices have officially deviated far enough from the original processor design leaving us with an extension and designation: i281/e.

Several decisions were made regarding PCB design and how the semester should be lined up. We'll aim to finish the breadboard implementation first and foremost as the full "proof-of-concept" with the potential to interface PCB implementations. The team will also resume technical discussions regarding design/implementation starting during the next client meeting to return to full working order.

Hopefully, a PCB will be designed and ordered soon but the breadboard remains our priority.
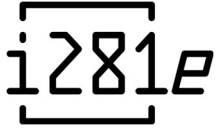
Decisions Made

1. Breadboard implementation must be finished first and foremost.
2. PCBs are going to be done and begun ordering after the Chinese New Year for JLCPCB.
3. We must order more IDC DIP-16 connectors for the breadboard implementation.
4. PCBs must be covered with a clear material for longevity (polycarbonate).
5. Dedicate time where possible and pick up the slack from Winter Break.

Upcoming Actions

1. Resolve conflicts and differences with schematics for breadboard implementations.
2. Breadboard installation and framing needs to be accomplished as soon as possible.
3. Fix branding issues with new name, etc. (low priority)
4. Obtain a locker key or way to lock up equipment in the new locker.
5. Budget needs to be analyzed to see where we are at with our spending and ensure we are not burning money.

Plans for Next Reporting Period

- Get a multiplexer designed in PCB form so that we can get it printed and tested.
- Begin technical discussions with Stoytchev regarding PCB placement and design.
- Prepare for presentation and poster.
- Determine if we need to purchase a larger surface for the breadboard installation.
- Confirm the type of IDC connectors we'll use for the PCB implementation.
- We should revisit the discussion of how this project can be used in a classroom environment when possible.
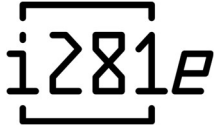
Meeting Agenda

Primary items:

- Review of previous semester (and implementation accomplished);
- Discuss "necessary" changes or improvements;
- Requirements;
- Tentative Schedule for Deliverables;
- Team Workflow and Morale;
- New Team name (i281/e versus i281).

Additional notes:

- Update and fix schematics (high priority)
- New memory module features
- Breadboard frame and installation
- Documentation updates
- Presentation information
- Stoytchev's Binder
- Merging components
- i281/e Emulator
- Budget analysis
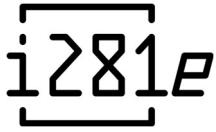
Raw Meeting Notes

-Gavin showing off the simulator he made over break

-Stoytchev is amazed by Gavin (and all of us)

-Stoytchev bought us a $30 wooden board to fit our breadboard design

- We haven't tried using the 3M Dual-Lock on the board yet, unsure if it's the path to take

-Could use screws/bolts instead!

-problems addressed with current breadboard design: wiring errors, debouncing

-Team needs to figure out how to keep the board from sliding out of the cabinet.

-Additionally, we need to add the full design onto that board by the end of the week

-Need to create pcb for the multiplexer and use it as a dry run for the manufacturing.

-Additionally, we will use it as practice for the rest of the board

-The board we bought doesn't fit the desired dimensions required for our design,

considering looking for other resources at the Univeristy to fit our desired dimensions

-Could go to lowes to get a bigger slice of wood, potential warping of wood with this option

    -Considering other wood options from different stores

- Discussing about the changes to the ALU, including adding the nor gate

    - Chose to the only update the PCB design to ensure the breadboard works

-The PCB and breadboard cpu's will be different

- Updating CPU name to i281e for the PCB design

-We need to have a deep talk about lowercase letters

-Logan is assigned to write back model implementation

-Potential to add a soundcard onto the design with joysticks???

- updated design to the data memory

    - started to make breadboard (gavin)

- serial input using putty on the data memory chip

    - explain how putty will be used to communicate with the processor

    - putty can upload program to it

    - Stoytchev wanted this but never knew how to

-"you already have it implemented" (Stoytchev)
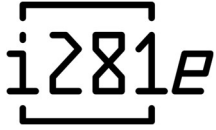
- Mounting on a whiteboard???

- going ahead with putting the breadboards on the wood backdrop in order to ensure it always assemble

- discussing how to attach the breadboards to the Plexiglas and how to attach the plexiglas to the wood backboard

     - using over sized plexiglas to bolt down the breadboards

     - breadboards are taped to the plexiglass

- We need to order some more parts

- new wires are being used for the PCB

- The goal is use this in a class, but that has not been thought of yet, and with the current ban for a while

- need to redraw the boundaries of each island for the PCB