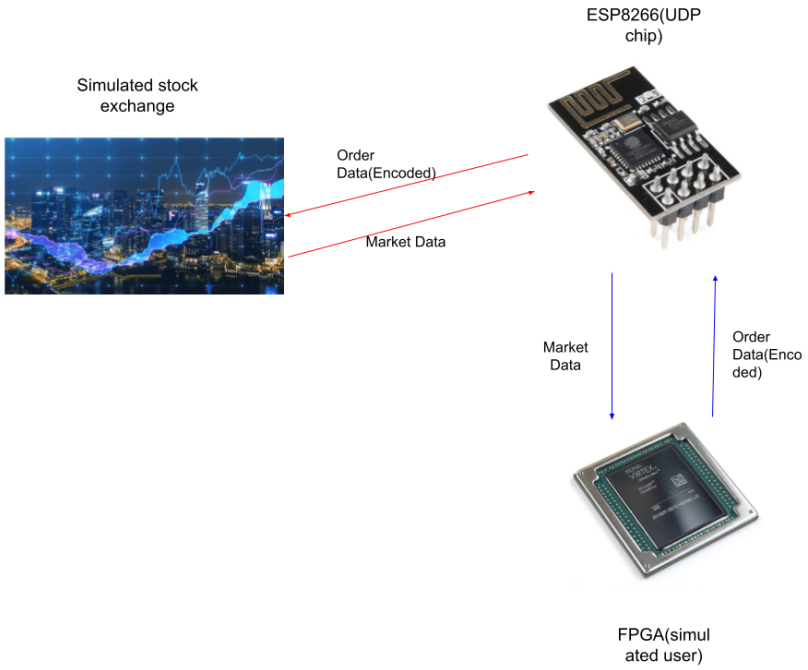
Sep 6th 2022 First meetup with TA
First meeting after forming the group, we discuss with TA on how to design the overall structure of this project. We came to the conclusion that a simulated stock exchange, a PCB with a network chip and a simulated user are all we need for this project as shown in the graph below.



We also discussed how we intend to implement these different parts. Since speed is the main concern for user, we choose to implement the algo on FPGA. Stock exchange can be implemented on computer use C code since that the most efficient method.

Sep 13th 2022 Investigate UDP Chip
I did some research with Richard on which UDP chip to use so that we could manage the budget as well as fullfill our goal. We came across ESP8266 chip online and chose it since it is easy to program and its size is small enough for the PCB board.
We will need to talk to Pro. Victor to make sure our design would work as intended

Sep 24th 2022 Power Supply Design
We discussed how to design the power supply unit for our project. Currently the only thing that needs to be supplied power is the UDP chip which has a 3.3V requirement. We are going to work on acquiring the parts needed.

Oct 4th 2022 Simulated Exchange design
Finished designing the simulated exchange, Richard has already completed a draft version of simulated exchange. Kevin and I will help finish implementing the rest and testing the simulated exchange.

Oct 10th PCB design

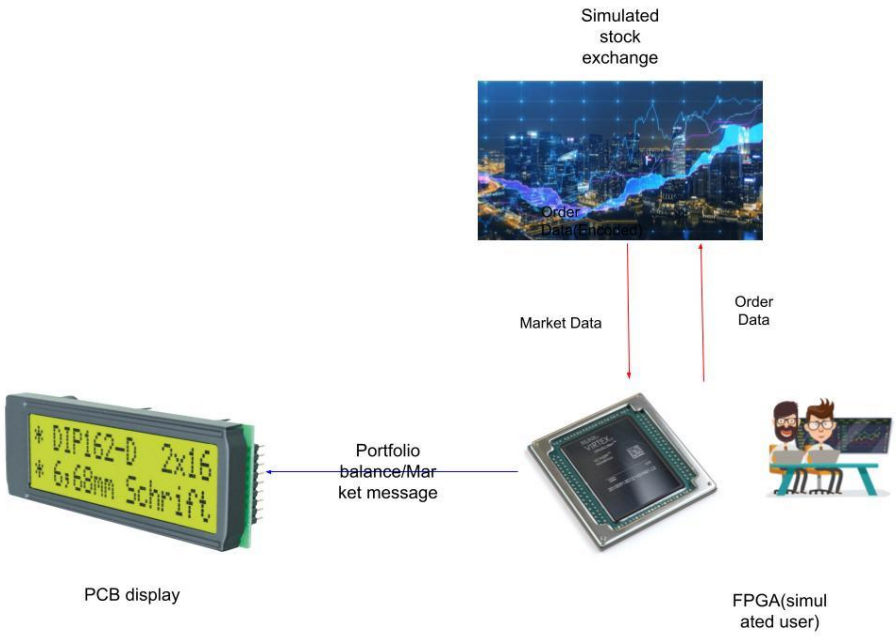
Professor has mentioned that we may want to change the design of our PCB board since the UDP network design seems to be a little bit complicated for us to complete on time. We explored several alternatives. We could add a switch onto the PCB board to control the on/off of the PCB board and add LED lights to the PCB board for display propose is also being considered. We will have further discussion with Professors on how to change our design.

Oct 18th PCB design discussion with Professor

We finally decided to put two 4-digit LEDs and one C0220BIZ screen for message display.

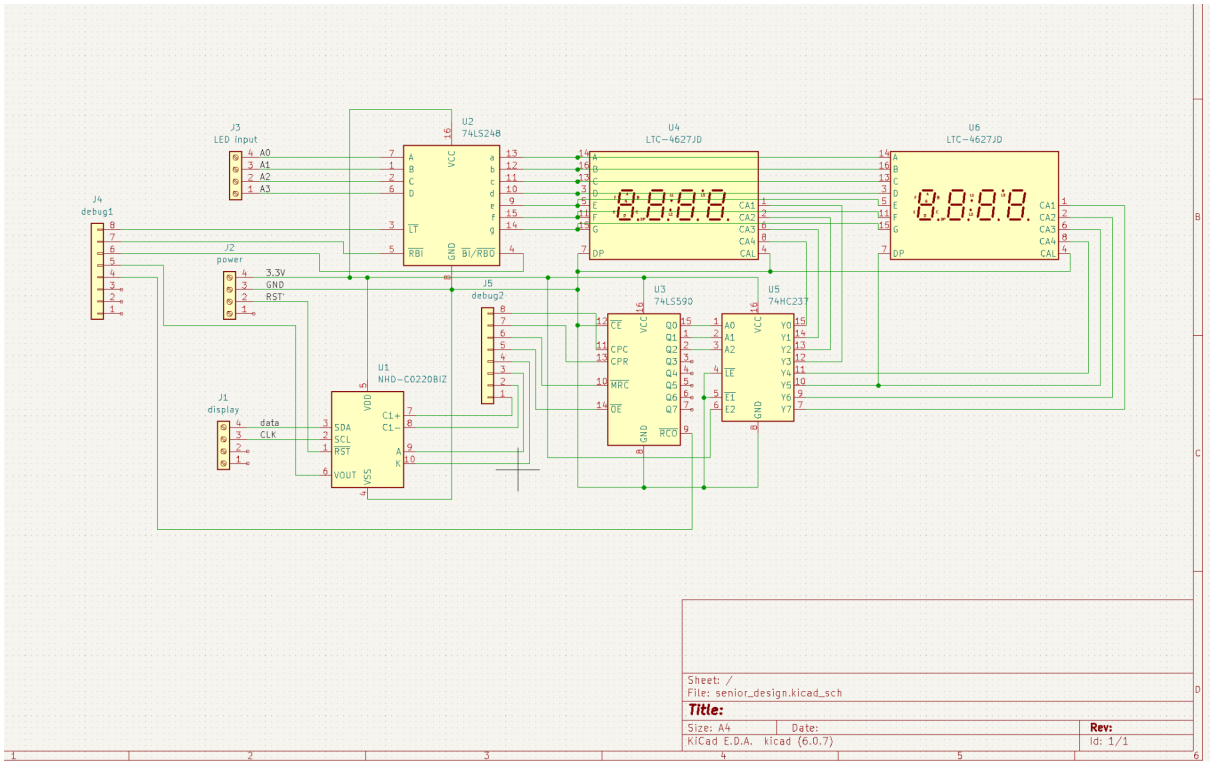
- LED will be displaying balance amount of our portfolio
- Message board will be used to display any market news or notifications generated by FPGA

The new visualization diagram is shown as below. We will start to implemente the schema and will work on parts selections.



Oct 24th Parts Selection

We have submitted PCB design as shown below and we are waiting for the printed PCB to arrive.We are buying the compenonments for our PCB board. Most of the decoder and counters can be found in ECE store. We have ordered the LED digit screen online. We will starting building PCB next week.

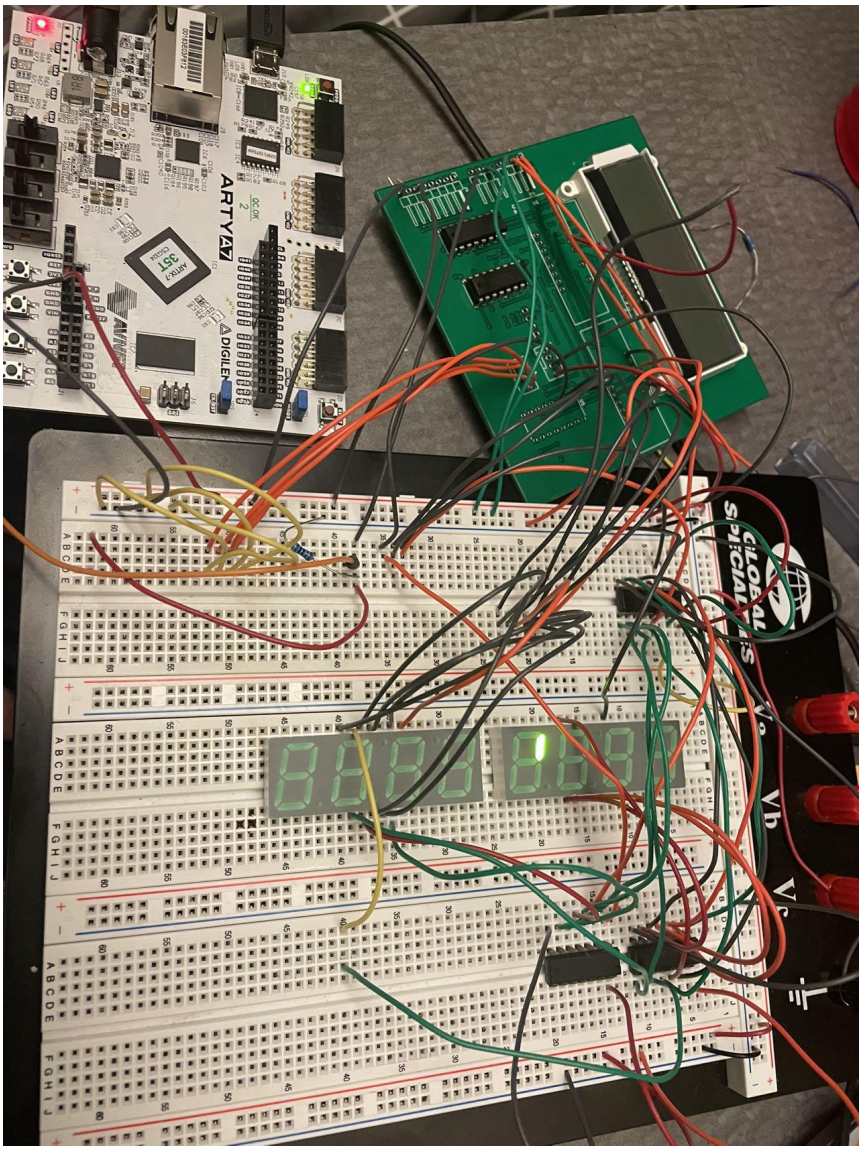


Oct 31st Parts Arrvied

The parts we ordered last week have arrived. However, we found out there is a miss match between the pins number&layout of the LED on the PCB board and the LED we bought. We will use a bread board to fix this issue. We also have our simulated exchange completed and is now ready for mock demo. We are trying to finish at least part of the PCB board before mock demo.

Nov 8th Building PCB

We have finished building the PCB&bread board. We encountered some issues when trying to integrate LED into the circuit since there is no datasheet available online. However, we tested out the corresponding pin numbers and verified that the LED lights are working. An overview is provided in the picture below. We will be working on the LED driver and message board driver from now on.

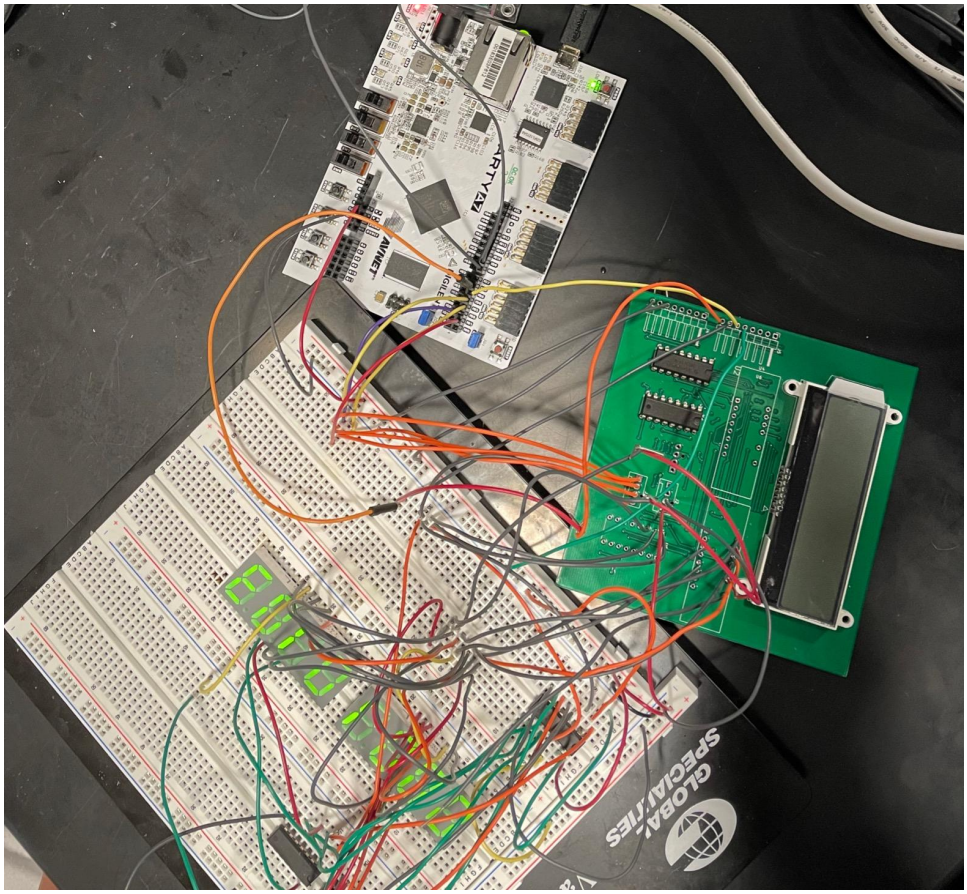


Nov 16th Mock Demo

We had a mock demo with TA. We demoed the simulated stock exchange we have completed and explained our progress on PCB board. TA is satisfied with our progress so far. She also noted that we should focus on getting each subsystem to work in case our Network communication fell short. We will test the LED driver for our next meeting and see how it goes.

Nov 18th LED testing

We met up to test the LED driver. It is a success since we have our number displayed on the LED as intended. We also discussed how we are planning on demoing. We came to the conclusion that we can initialze our balance to $10000. Then sell some stock to make money so that the value displayed will increase and then buy stocks to make the value decrease. One of the cases is shown in the picture below.

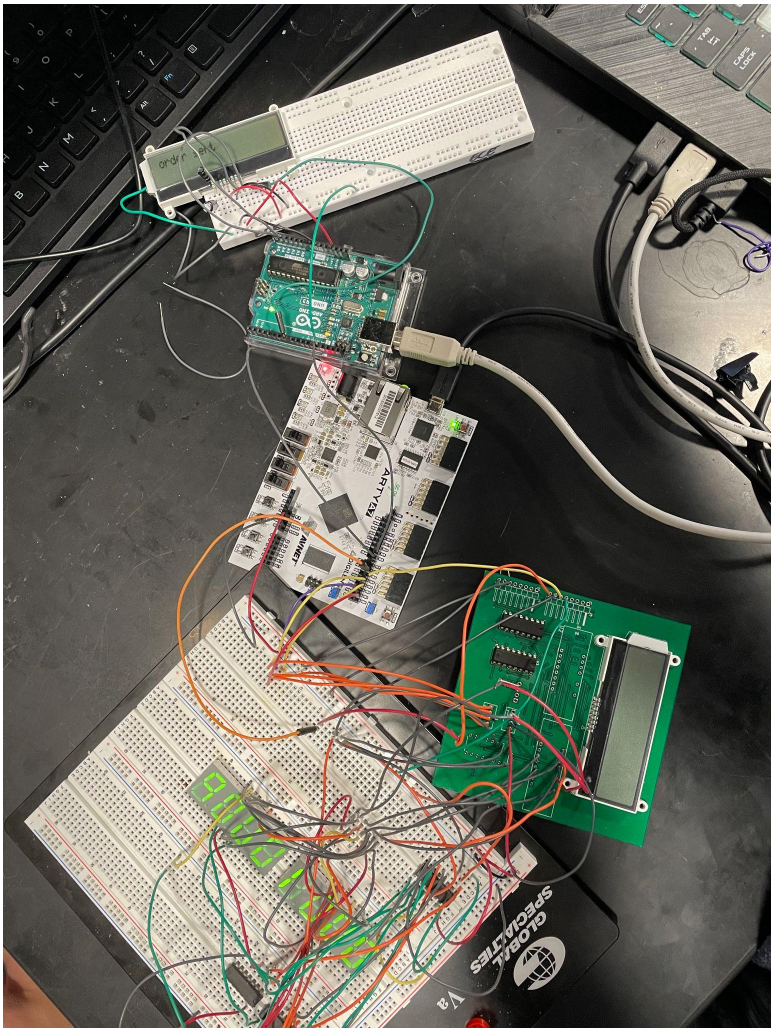


Nov 24th Message board driver

There is some issue with the driver of the message board. It seems to be a little bit hard to implement the driver on FPGA. After taking a look into the data sheet, we found out there is existing Arduino code. However, we do not have Arduino on hand so we decided to acquire one from ECE shop after the break.

Nov 28th Final testing

We have acquired the Arduino and successfully setted up as shown below. We decided to let message board display Waiting after initializing and displayed order sent when an order is generated.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