CSE 450

Important Links

Zoom Link:

https://buffalo.zoom.us/j/2038315334 (No Password)

Mid-Semester Presentation:

https://docs.google.com/presentation/d/1e1lnNiY8a3fjOx9wGKdbSnb4iKFf9bF_JQLFTGNARdo/edit?usp=sharing

Final Presentation:

https://docs.google.com/presentation/d/16HZLaL1wv5INKdL0CmlmcsSUy95-vqJqu1udfuXMsJc/edit?usp=sharing

Final Alden High School Documentation:

https://docs.google.com/document/d/18XKNtvEelwZaIb5q8aNJo3-TdZ8tuopz7k30NyGMJxw/edit?usp=sharing

Final Depew High School Documentation:

https://docs.google.com/document/d/1YMCZ5RkdiYcF9YwmSDN649VlqHIZSFfcTzwvDapFOzc/edit?usp=sharing

Link to Order the Parts List:

https://docs.google.com/document/d/1knZ-LeybY-ZRGfKtJfErB9QH_1LNqZCwPbPJ0jWA9p4/edit?usp=sharing

Engineering Notebook

Miscellaneous Notes

- Evan Brown (Previous Locker Project Team Member): epbrown@buffalo.edu
- Our Goal for this project:
    - Improve on the current development
    - Adding some new features according to students' feedback
    - Improve on the cost efficiency for mass production
- Thoughts for potential power solution:
    - Hand power generator:
        - https://www.walmart.com/ip/Mini-Hand-Crank-USB-Radio-Flashlight-Cell-Phone-Charger-Portable-Manual-Emergency-Power-Generator-Charger-for-Travel-Outdoor/142218069
        - A hand crank power generator that can generate electricity to charge a phone. I think it is enough to provide electricity for some usage of the locker. This can be used for manual override
    - Solar Panels
        - Cost efficient?

October 14

- Meeting with Rebecca and Allen for Alden High School locker project
- Student Email Addresses:
    - Josh Kwandrans:
        - jkwandrans21@aldenschools.org
        - kwandransj@gmail.com
    - A.Horst:
        - ahorst23@aldenschools.org
    - Lily Serra:
        - lkantor22@aldenschools.org
    - Ricky Kelchlin:
        - rkelchlin22@aldenschools.org
- Tasks (High School)
    - Find the lockers
    - Identify students who have attempted using the lockers
    - Take several photos of the current designs.
- Tasks (UB)
    - Develop file sharing protocol (documents, photos, …)
    - Find any physical prototypes from the past

    - Discuss prototyping abilities
    - Try to help high school students to have an intimate knowledge of professional project processing and lead them to accomplish this locker step by step
- Questions for Kris:
    - Requirements about involvement with their students in this project
    - Social media posts
    - When will the lockers be delivered?
    - Discuss the difficulty of getting into Alden school to observe about the current locker progress
    - Two prototypes at Alden high school. Can we see them?

October 21

- Meeting with Craig, Tracy, and Kris for Depew High School locker project
- Discussing the requirements
    - Visual and physical impairment.
    - Current design: RFID tag, speaker, and lock.
    - Current goal: implement the current design (from last year) and see what to go from there (improvement or doing new design for a new individual)
    - When will the lockers be delivered?
- Finishing up the Alden High School documentation

October 28

- Finishing up the Depew High School documentation

November 4

- First lab meeting
- Figuring out the available materials and examining the lockers
- Trying out the code from previous teams
- Designing the documentations for the two high schools
- Solar Panels as potential power solution for Alden High School?

November 6

- Meeting with Allen, Kevin, Frank and Kris
- Discussing on how to move forward

- Once the design is done, give detailed information on how the system works virtual or in person, depending on the circumstances, to all the high school students involved in this project

November 11

- Second lab meeting
- Determining any missing parts
- Removing the base from the locker for the implementation of a solenoid and lock system for the Depew Locker team
- No parts from Alden yet
- Determining any alternative parts for better implementation
- If the solar panel works for Alden locker, maybe try implementing it for Depew locker too?

November 17

- Third lab meeting
- Figuring out how to run the code from the previous team
- Continuation of determining any alternative parts for better implementation
- Cannot do anything else till we have the required parts
- Preparing the mid-semester presentation

November 22

- Finishing up the mid-semester presentation

November 23

- Mid-semester presentation
- Waiting on parts

December 9

- One locker part arrived
- Still waiting on the parts from Alden High School

December 13

- Working on the final documentations
- Emailing Kris for any feedback before the final presentation

December 17

- Fixing the documentation based on the guidelines provided by Kris
- Making the final presentation
- Preparing for the presentation

CSE 453

February 1

- First day of class
- Just met up with the team after the break and caught up on the progress so far

February 3

- Talked to Kris about the updates on the parts that arrived

February 5

- Waited for the scheduler to be up so that we can go to the lab

February 8

- Planned to meet on the 9th at the lab

February 9

- Met for the first time at the lab at 1 pm
- Examined the parts
- Got the RFID module working
- Got the code running
- Need a new button
- Ask Kris for lockers at Alden High School and if they will be different from Depew or not

February 10

- Planned to meet at the lab on the 11th at 1 pm
- Discussed the button and the locker issues with Kris
- The lockers are similar to the one from Depew High School
- https://www.adafruit.com/product/1400 this should work
- Tijmen sent an email to Kris to let him know that he should order this part

February 11

- Debugging the circuit
- The previous team's circuit schematic did not work
- Blew shit up!

February 12

- Discussing with Kris on how to use the switches without a design document

February 15

- Planning on meeting at the lab on Tuesday at 1 pm

February 16

- Still debugging the circuit but no luck
- Decided to use a simulator to see what was going on

February 17

- Getting updates from Kris on parts

February 18

- Figured out the circuit to work
- The solenoid was working with the battery
- Blew up Tijmen's motherboard!
- Do not forget to add DIODES in your circuit.

February 19

- Getting updates from Kris on parts
- Some parts have arrived from Amazon

February 22

- Planning on meeting at the lab on Tuesday at 1 pm

February 23

- Got the circuit working completely
- Examining the parts

February 24

- Planning on meeting at the lab on Thursday at 1 pm
- Latch is ours

February 25

- Latch is too big
- Field trip to Home Depot!
- Getting a small latch and spring hinges
- Ordered the spring hinges from Amazon

February 26

- Can we make changes to the locker?

March 1

- Spring hinges were delivered.
- Planning on meeting at the lab on Tuesday at 1 pm

March 2

- We can make changes to the locker
- The spring hinges affect the closing of the locker
- Spring hinges will not work without ripping the whole door apart first
- Electromagnets?
- We are designing two lockers for Depew?

March 3

- Planning on meeting at the lab on Thursday at 1 pm

March 4

- Making a list of parts we need for two lockers
- Planning on meeting at the lab on Tuesday at 1 pm

March 5

- Sending a list of parts, that we need, to Kris

March 8

- Planning on meeting at the lab on Tuesday at 1 pm

March 9

- Working on the locker design

March 10

- Planning on meeting at the lab on Thursday at 1 pm

March 11

- Working on the locker design

March 15

- Planning on meeting at the lab on Tuesday at 1 pm

March 16

- Presenting the progress to Kris (Mid-Semester Review)
- Working on the locker design

March 17

- Planning on meeting at the lab on Thursday at 1 pm

March 18

- Working on the locker design

March 22

- Planning on meeting at the lab on Tuesday at 1 pm

March 23

- The two RFID Readers came in.
- The red ones are useless!
- Battery Indicator LED implementation

March 24

- Planning on meeting at the lab on Thursday at 1 pm
- Letting Kris know about the demo with Rebecca on the 25th

March 25

- Demo with Rebecca and few Alden students in the morning
- D Flip Flops?

March 29

- No zoom meeting today

March 30

- Working on an efficient way to solder the circuit

March 31

- Battery Charger, Lock Core, Magnets, and PCBs arrived
- Planning on meeting at the lab on Thursday at 1 pm

April 1

- Electromagnets, battery, and Adafruit Switch Breakout arrived
- Electromagnets we ordered might not be useful
- Trying to break that thing open

April 2

- Ordered some other things

April 5

- Let the team know what was ordered to test
- Parts Arrived

April 6

- Tried out the different options to see which one is the best one

April 7

- Planned to meet on Thursday the 8th

April 8

- We tried to make our own electromagnet

April 9

- Discussion about the photographs in the class

April 12

- Planned to meet at the lab on the 13th

April 13

- Tried to improve our designed electromagnet but it takes up way too much ampage
- It is not even strong and will drain the battery
- How about a simple spring?
- That could potentially work

April 14

- Planned to meet on the 15th

April 15

- Worked on soldering the circuit onto the PCB.

April 16

- No Zoom meeting because there were photographs being taken today

April 19

- Arduino Uno, 1/2 RFID Readers, Solenoid, MOSFETs, and RGB LEDs arrived
- Asking Kris if Wednesday 1 pm on 4/21 works.

April 20

- The circuit worked at first
- But now it does not?
- DEBUGGING FOR 6+ HOURS!!!!!

April 21

- Met with Craig and Tracy to demo our progress so far
- Fully Implemented Locker works!
- Asked Kris for help on the PCB debugging
- Voltage Divider was the issue

April 22

- Worked on soldering the PCB
- Also worked on the documentation
- 3D printing the final design

April 23

- Planning to meet on the lab on Tuesday

April 26

- Planning to meet on the lab on Tuesday

April 27

- Trying to get the board implemented.

April 28

- Planning to meet on the lab on Thursday

April 29

- The cabinet lock is a little buggy. How can we fix that?
- Working on the documentation.

April 30

- Planning to meet on the lab on Tuesday

May 3

- Planning to meet on the lab on Tuesday

May 4

- Still trying to figure out the board
- Debugging for hours!
- New RFID arrived
- Working on the documentation

May 5

- Planning to meet on the lab on Thursday

May 6

- Got one chip working and locker implemented
- Took pictures and videos for the presentation
- Trying to finalize the lockers
- Planning to meet on the lab on Saturday and Sunday

May 7

- Finalize the presentation timing

May 8

- Got the second chip working and implemented the 2nd locker
- Trying to get the third one to work for Alden
- Debugging for hours again!!!

May 9

- The second locker stopped working for some reason!
- Worked on the assembly guide
- Got everything to work including the third chip
- Fixed the mechanical override issues
- Cleaned up the station entirely

May 10

- Tijmen went to the lab to check on the second locker
- It still works. Thank god!

May 11

- Finished up working on the presentation, documentations, and user manuals
- Initially planned to go to Alden but it did not work out

May 13

- Final Presentation
- Got that automatic A!!!
- Final Good Byes :’(

May 14

- Final Submission

May 15

- Graduation!!!