

CDR

Alfred

(Wifi-Enabled Automated Mixed
Drink Maker)

Team 15:

John Fouad, Ben Ivaldi, Chris
Wong, Pat Barron

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Team Member Roles



Chris



John

- Chris: In charge of Power/Control system
- John: In charge of rotating bases/serving door
- Ben: In charge of pouring mechanism, pumps
- Pat: In charge of Mobile Interface/Control system



Professor
Moritz



Ben



Pat

Problem Statement

- **Time-Saver:** People wait too long at bars trying to get the bartender's attention to order simple mixed-drinks
- **Eliminates Bartender Pouring Errors:** Bartenders can disproportionately pour drinks or provide the wrong drink
- **Alleviates Congestion:** The amount of people around the bar trying to order a drink is a nightmare



System Specifications

- Order through mobile device
- Pour a perfect drink in under 2 minutes
- Bartender can insert choice of alcohol (750mL) and mixers into dispensers
- Choice of 4 different drinks
- Does not spill the drinks
- Tab system to order drinks
- Drink served to correct customer using door system
- Rotatable base to access different cups to dispense the liquids

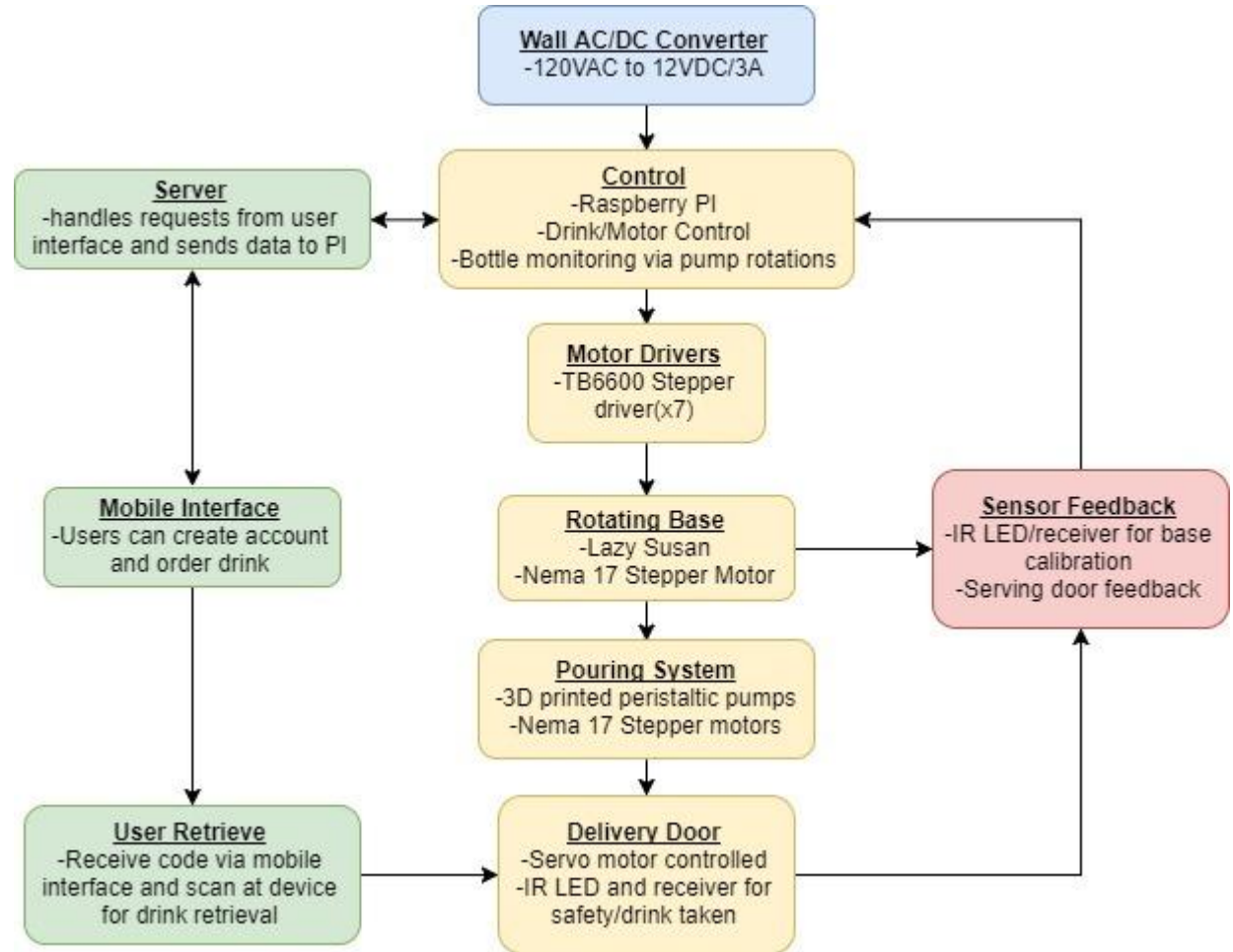


System Specifications (cont'd)

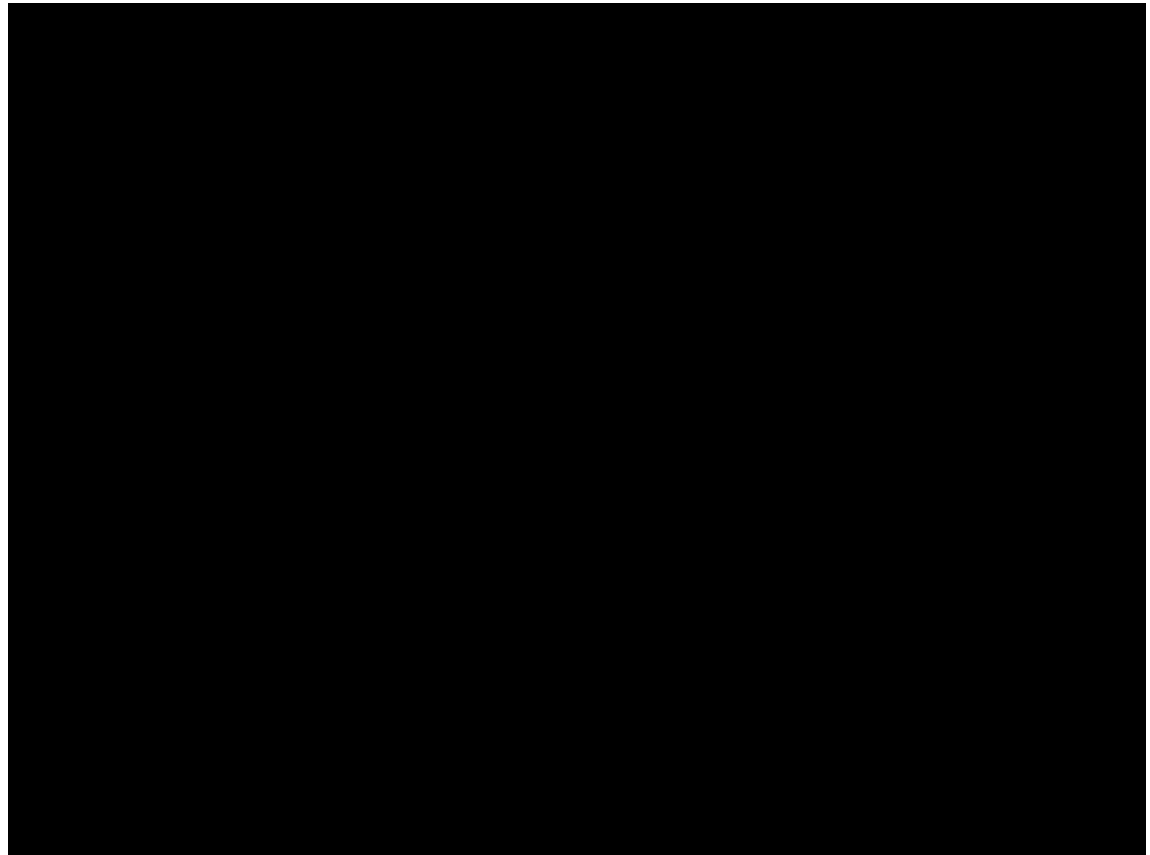
- 8 cups with ice placed onto base
- 15.9" diameter base
- Dispenses correct proportions of liquids into each specific drink
- Failsafes:
 - Sensor to make sure cup is removed before closing door
 - Sensor to detect correct orientation of base



Block Diagram



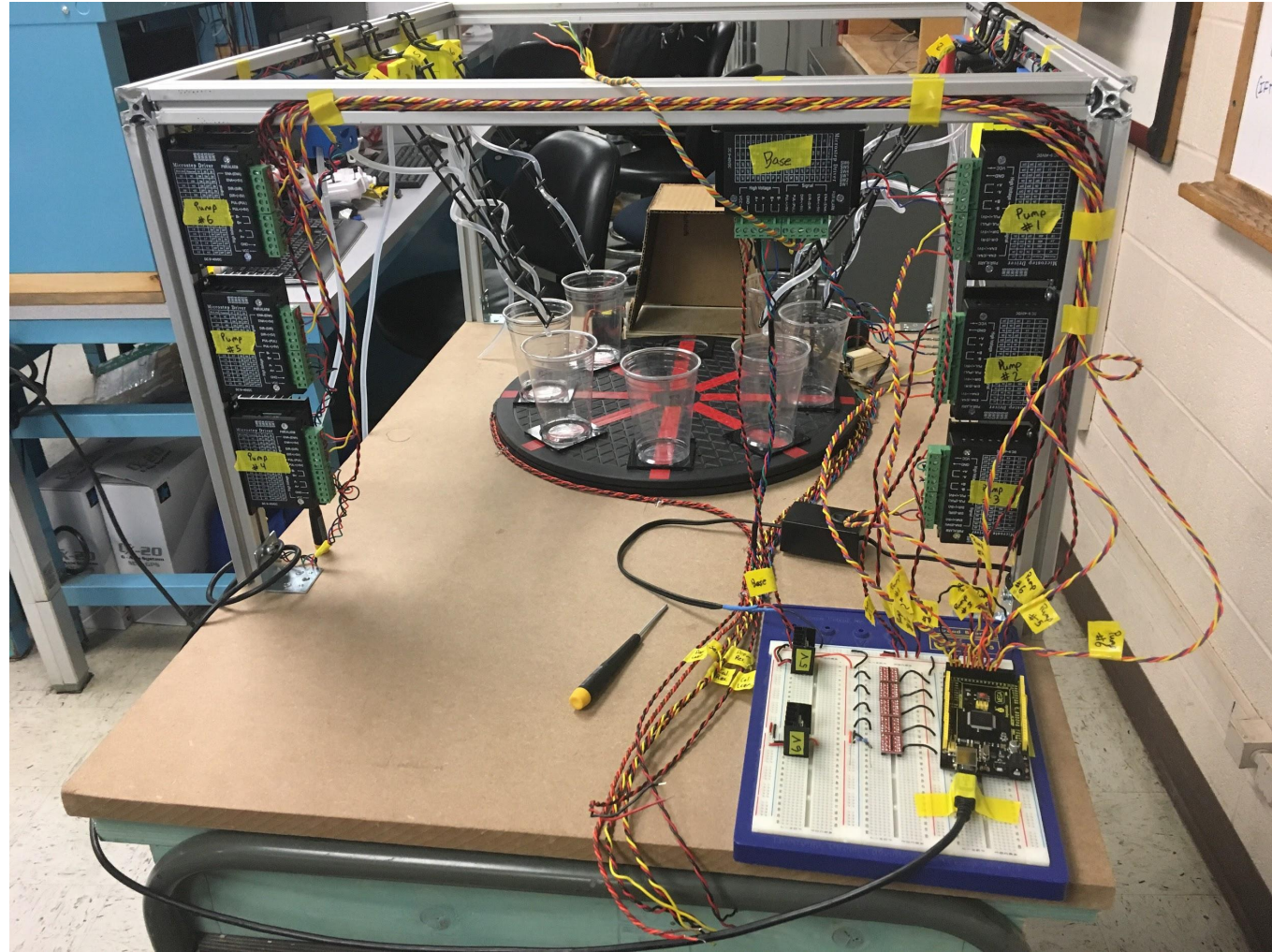
What was completed at MDR



Alfred Now - Bird's Eye View



Alfred Now - Back View



CDR Deliverables

1. Users can access our website and order a drink
2. User will receive an updated status when their drink is complete, along with a personal identification code
3. Server system and bartender system are fully integrated
4. Failsafes are implemented
5. Upscale pump system to 6 pumps
6. Serving Door added



CDR Deliverable #1

- Users can access our website and order a drink
- Website implemented using Django, a high-level python Web framework
- Users can access our site, create an account, and proceed to order drinks
- The site is coded in python and HTML along with the use of bootstrap and css



CDR Deliverable #1

- Users can access our website and order a drink
 - Our site uses Redis, an open source data structure that we use as our queue, to improve scalability
 - The site is live through Amazon's EC2 web service
 - Mobile site is cross-platform



CDR Deliverable #2

- User will receive an updated status when their drink is complete, along with a personal identification code
- Upon completion of the drink being poured, the user will receive a completion notification with their personal code
- Currently using Twilio which sends an SMS message to the user (may change due to Twilio needing user verification for a number to receive a message)



CDR Deliverable #3

- Server system and bartender system are fully integrated
 - Bartender system receives every drink order
 - User can order drink from website
 - Transfer from arduino to Pi needs to be completed



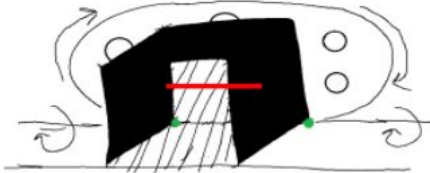

CDR Deliverable #4

- Failsafes are implemented

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Failsafe Sensors

- Infrared tripwires are distributed to increase confidence in the system
 - AIRSUNNY three Leg Infrared Diode LED IR Emission and Receiver
 - Operating Distance 18~20m
 - Placed at serving door to see if cup is retrieved
 - Placed at base for position calibration

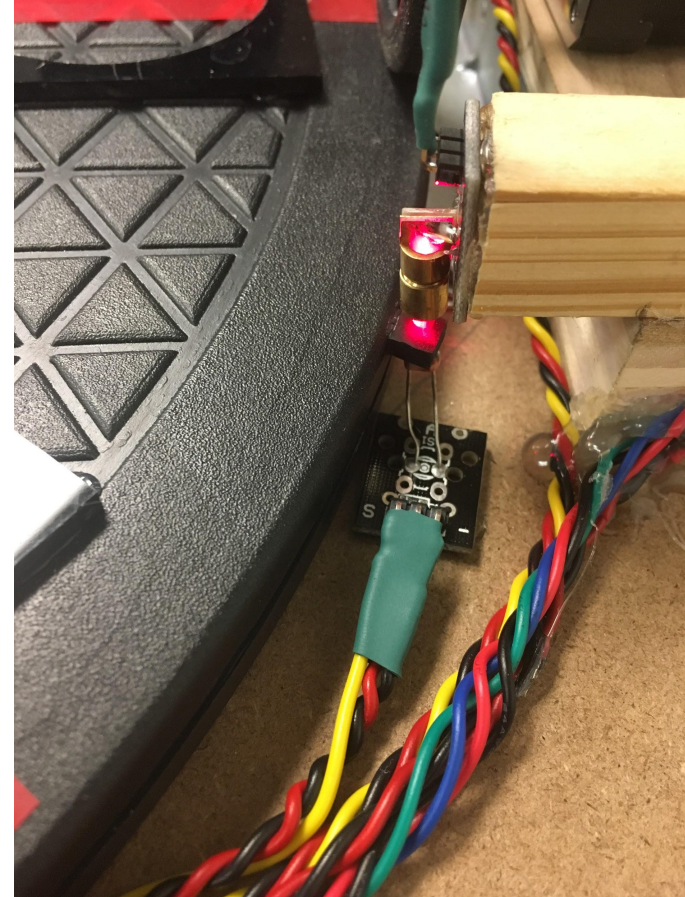
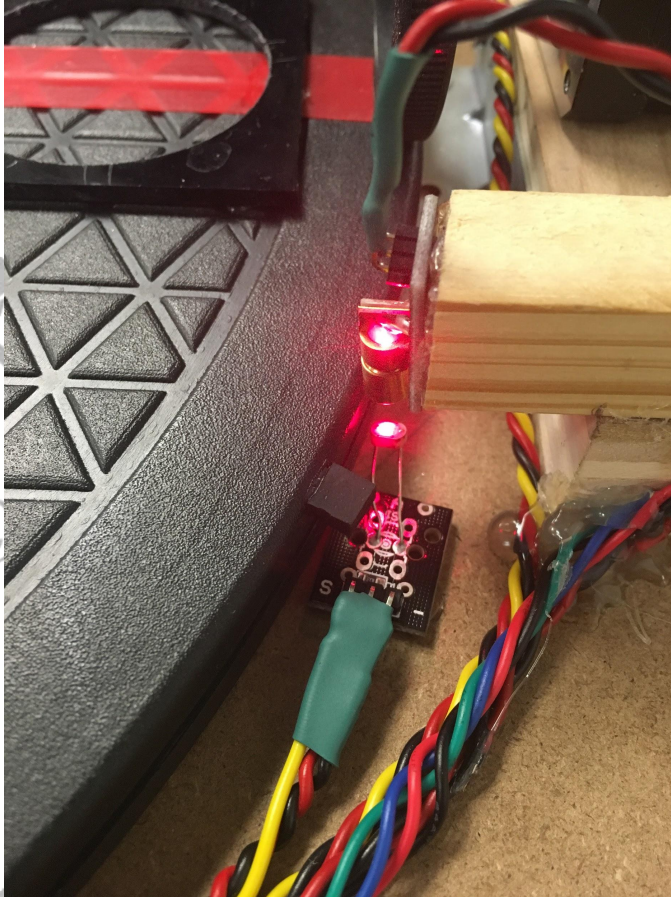


Department of Electrical and Computer Engineering

Advisor: Professor Moritz

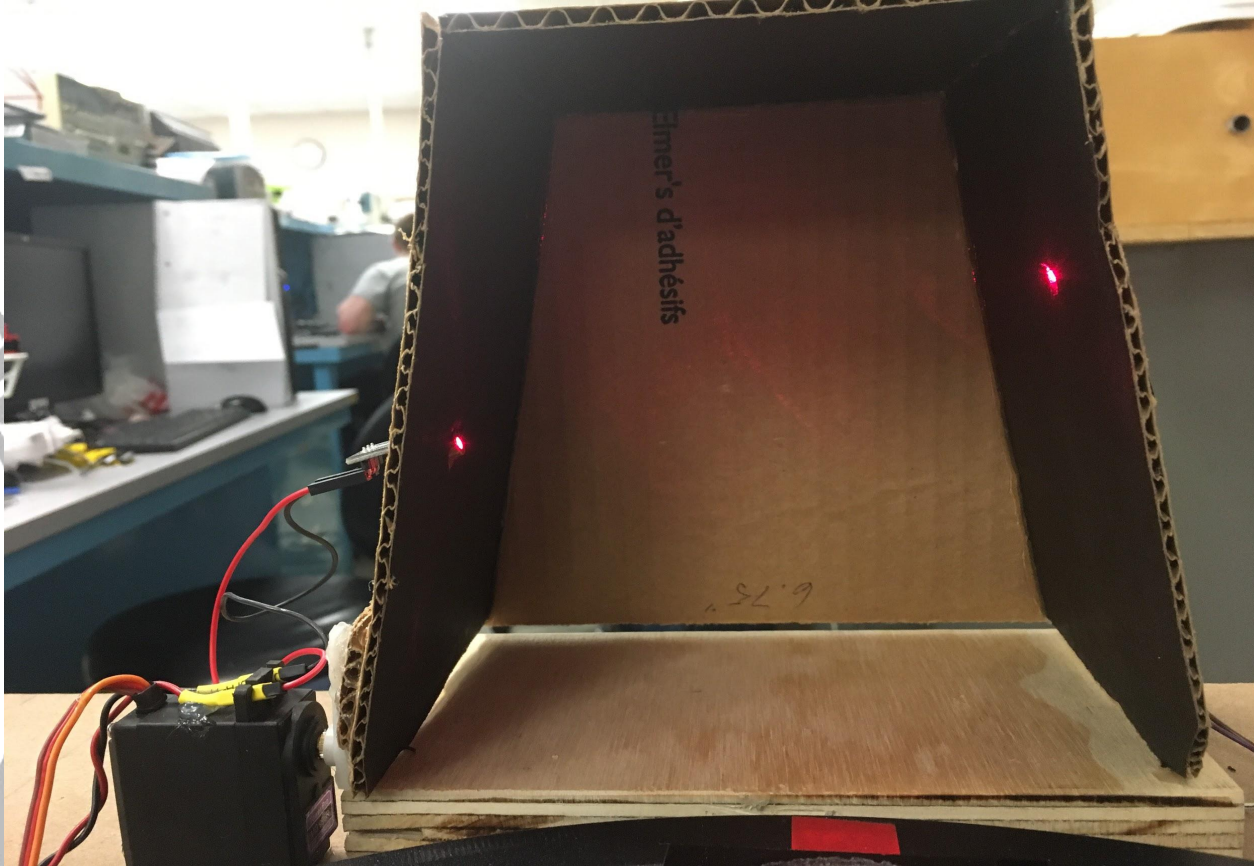
CDR Deliverable #4

- Failsafes are implemented



CDR Deliverable #4

- Failsafes are implemented



CDR Deliverable #5

- Upscale pump system to 6 pumps



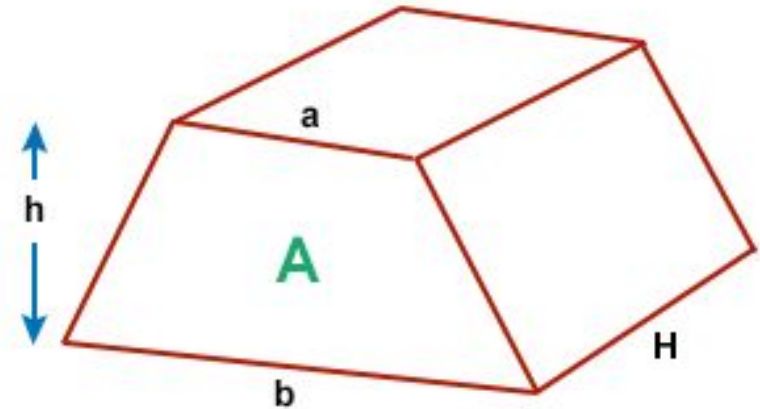
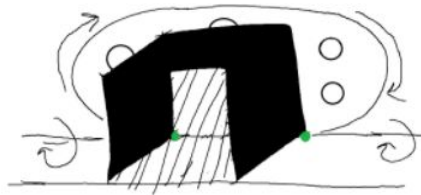
CDR Deliverable #6

- Serving Door added

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Serving Door/Cage

- Vending door will be automated by servo motor
- Vending door will auto-shut after being opened and cup is taken
- Back side of door will drop down 3 walls around cup so interior of machine isn't exposed to user

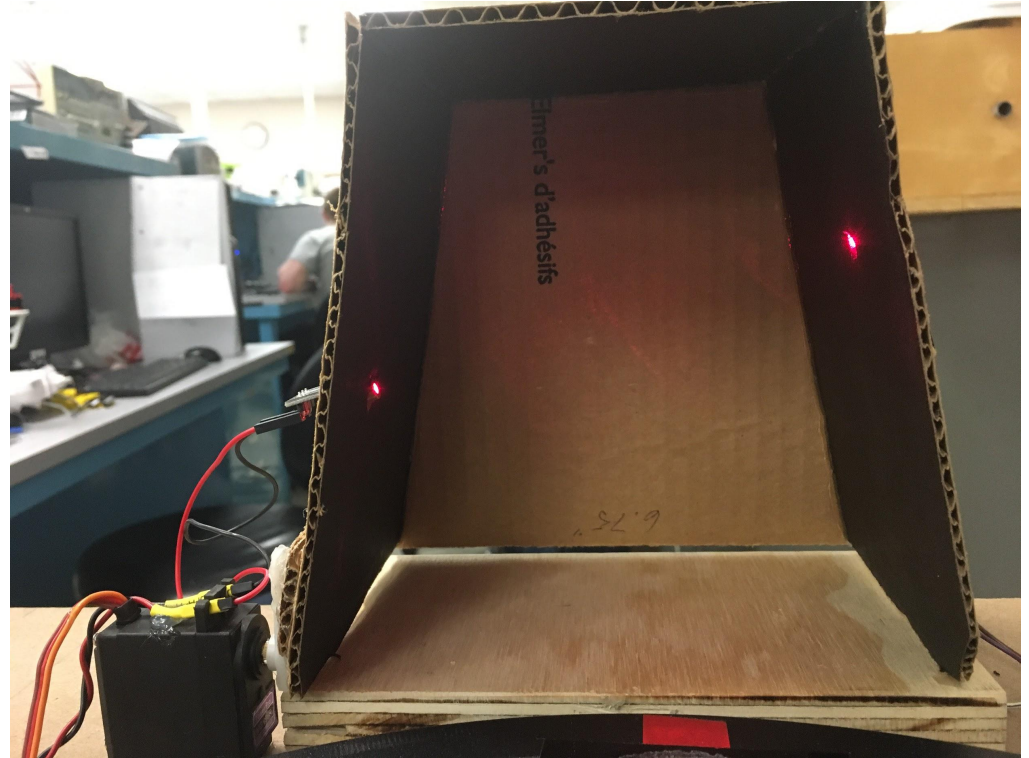
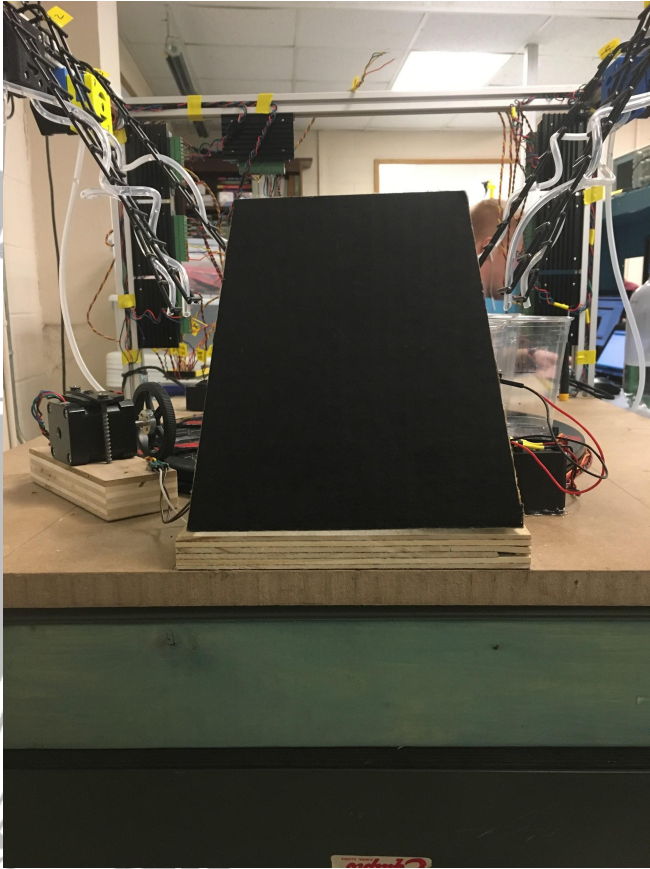


$$\begin{aligned}
 a &= 4.5'' \\
 b &= 6.7'' \\
 H &= 4.5'' \\
 h &= 6.5''
 \end{aligned}$$



CDR Deliverable #6

- Serving Door added



Additions Not Included in CDR Deliverables

- Cup place-holders so bartender knows where to place cups + added stability
- Tubing holders/stabilizers so tubes are dispensing correctly into the cup and not excessively shaking from the movement of motors
- Logic level converters
- Splash Guards for cups*



FPR Deliverables

- Splash Guards* will be mounted near the tubing - currently liquids splash a little when liquid level increases in cups
- PCB completed
- Outer casing for whole project
- Secure the password reset for accounts
- Fully automated through Pi
- Completed algorithm for base rotation
- Personal identification code for completed drinks (barcode/QR code/keypad)



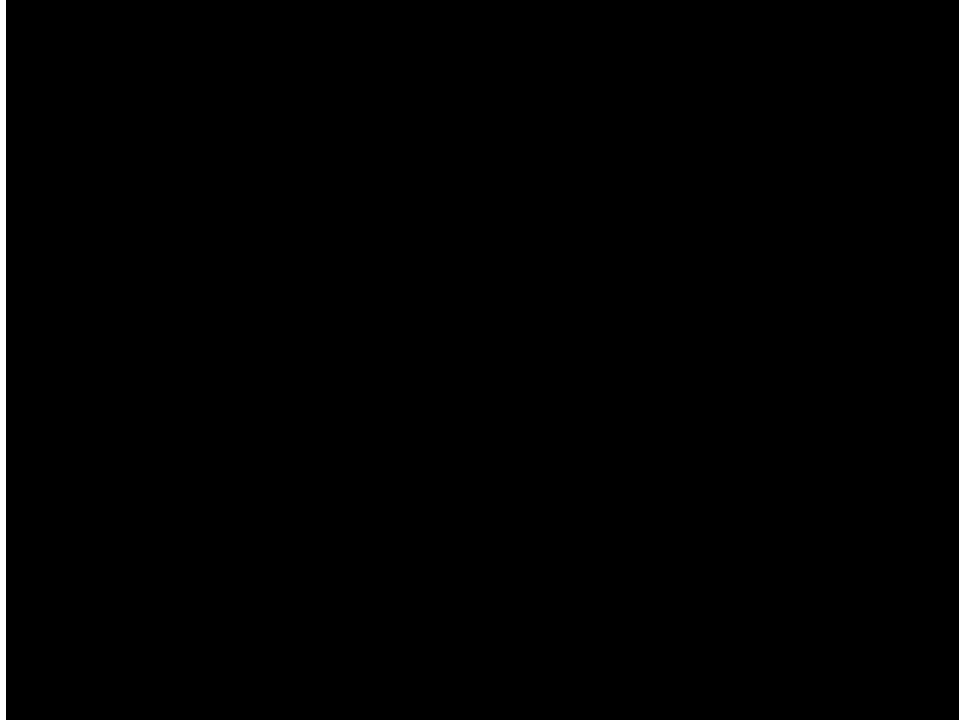


DEMO



Questions??

Base Calibration



Serving Door Calibration

