Alfred
(Wifi-Enabled Automated Mixed Drink Maker)

Team 15:
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Team Member Roles

- 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
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
What was completed at MDR
Alfred Now - Bird’s Eye View
Alfred Now - Back View
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
• 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
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
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
• Failsafes are implemented

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
Failsafes are implemented
CDR Deliverable #4

- Failsafes are implemented
CDR Deliverable #5

- Upscale pump system to 6 pumps
CDR Deliverable #6

- Serving Door added

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

\[ a = 4.5'' \]
\[ b = 6.7'' \]
\[ H = 4.5'' \]
\[ h = 6.5'' \]
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