CoasterBot

Silver B
Mockup Review
Scenario: Empty CoasterBot
Tap your order on the Bot
Bot goes to Bartender
Drink placed on Bot
Bot heads in your direction
It’s not his drink!
Bot "sees" an obstacle
Goes around the obstacle
Continues to destination...
Turns green upon arrival
Enjoy!
Repeat
CoasterBot

- ABS shell
- RFID readers
- Proximity sensors
- Indicator LEDs
- Small gear motors
- LiPo battery
- Microcontroller
- Translucent cover
# Product Contract

- **Product Description:** a robot coaster that delivers the drink from the bartender to the customer
- **Intended Customers:** bar operators
- **Market:** bars, pubs, lounges, taverns

<table>
<thead>
<tr>
<th>Customer Need</th>
<th>Design Attributes</th>
<th>Engineering Specs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drink Stability</td>
<td>Accel. Control</td>
<td>TBD</td>
</tr>
<tr>
<td>Long battery life</td>
<td>LiPo battery</td>
<td>&gt;12 hours</td>
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<tr>
<td>Long overall battery life</td>
<td>Charge cycles</td>
<td>&gt;1,000 charge cycles</td>
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<tr>
<td>Bot avoids obstacles</td>
<td>IR Sensors</td>
<td>&gt;10 cm</td>
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<tr>
<td>Water resistance</td>
<td>Sealing</td>
<td>&gt;2 inch submersion</td>
</tr>
<tr>
<td>Drink delivery integrity</td>
<td>Drink detection</td>
<td>&gt;100gm load cell</td>
</tr>
<tr>
<td>Fast drink delivery</td>
<td>Time</td>
<td>&lt;5 min</td>
</tr>
<tr>
<td>Bot does not get stolen</td>
<td>Sound alarm</td>
<td>&gt;10 feet</td>
</tr>
<tr>
<td>Fits on a bar</td>
<td>Size</td>
<td>24-30in bar width</td>
</tr>
<tr>
<td>Easy ordering</td>
<td>Memory Storage</td>
<td>&gt;512kb</td>
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</tbody>
</table>
Goals

Key Challenges
- Obstacle avoidance
- Water resistant
- Navigation
  - Lines, orientation, switching, edge detection
- Theft of coaster/drink
- Ordering system
- Charging
- Wire management
- Sensor size
Goals

Key Challenges

- **Obstacle avoidance**
- Water resistant
- **Navigation**
  - Lines, orientation, switching, edge detection
- Theft of coaster/drink
- Ordering system
- Charging
- Wire management
- Sensor size
Goals

Key Challenges
- **Obstacle avoidance**
- Water resistant
- **Navigation**
  - Lines, orientation, switching, edge detection
- Theft of coaster/drink
- Ordering system
- Charging
- **Wire management**
- Sensor size
Navigation?

- Wall following
- RFID-based location
- 24 or 30 in bar width
Obstacle Avoidance?

- Low clearance
- Proximity sensors
Component Specs?

- Power
- Size
- Wiring
Benchmarking

- **Technology**
  - Restaurant coaster pagers

- **Charging**
  - Inductive
  - Stacking
  - Shelves/cubbies

- **$2,200 total system**
  - $100 per coaster
Next Steps

- PCB
- Smaller sensors
- Body fabrication
- Charging
- Ordering system

- Convince Wallace to buy us caffeinated root BEER