MidSemester Demo!

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Team BrightGoal (Team 2)
Project Recap:

- Training tool for athletes to help with their footwork
- Demo will be an application of our tool an interactive form

Where we are:

- Parts Ordered!!! Woo
- Consulting Soccer Coaches and Players
- Finalized use cases and mitigations
Architecture

- Foot 1
  - Xbee
  - UART
  - Arduino Pro Mini
  - GPIO
  - IMU Sensor Array
  - Feedback Motor
- Foot 2
  - Xbee
  - UART
  - Arduino Pro Mini
  - GPIO
  - IMU Sensor Array
  - Feedback Motor

- Xbee
  - USB
  - Laptop
  - Video Out
  - Video Floor
  - HDMI
State Transition Diagram

**Computer**
- **Idle**
  - wait for start command from user
  - start cmd from user / start cmd to Foot Module
  - stop cmd from user / stop cmd to Foot Module

**Foot Module**
- **Idle**
  - wait for start command from computer
  - start cmd from computer
  - stop cmd from computer

**Game**
- **Computer**
  - read & process IMU data stream
  - send haptic commands to foot module
  - wait for stop command from user
- **Foot Module**
  - stream IMU data to computer
  - listen for haptic commands
  - listen for stop signal

- start cmd from user / start cmd to Foot Module
- stop cmd from user / stop cmd to Foot Module
Use Cases

- Footwork Training
  - Agility drills
- Basic Skills
  - Positioning drills
- Practice Feedback
- Game Feedback

http://www.sport-fitness-advisor.com/ladder-agility-drills.html

http://www.bettersoccercoaching.com
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<th>Risks</th>
<th>Mitigation</th>
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<td>1. Real Time</td>
<td>1. Load overhead</td>
</tr>
<tr>
<td>a. Sensor Data</td>
<td>a. Superlow arduino load + sensor interrupts</td>
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<tr>
<td>b. Network</td>
<td>b. lower sensor resolution</td>
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<td>c. Computer Game</td>
<td>c. Fast libraries and languages</td>
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<tr>
<td>2. Durability</td>
<td>2. Custom Housing</td>
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<td>3. Bad IMU Data</td>
<td>3. Keep running average + throw out extremes</td>
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<td>4. Battery Life</td>
<td>4. Bigger battery / Multiple Batteries</td>
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<td>5. Wireless Interference</td>
<td>5. Timestamp each message</td>
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