Team BrightGoal

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Contents

1. the **Idea** for our project
2. **Analysis** of our Competitors
3. the **Requirements** to implement it
4. a list of **Parts** to build the architecture
5. the **Architecture** we run
6. **Risks** and ways to **Mitigate** those risks
Idea

Interactive Soccer Trainer
- Lights on the floor simulate soccer ball and drills
- Special shoes track movement and ball interaction
- Works on and off the field

Motivations for BrightGoal
- Furniture and valuable items are safe
- Improve ball skills even in a small area
- Fun interactive activity for kids and adults
Competitive Analysis

Entertainment

- Brightlogic Active Floor
- Mediatec Interactive LED Floor
- Ground FX Interactive Floor Projection

Sports

- Interactive Sports Technologies
- Match Analysis
- Vertigo Systems
Requirements

- Accurate motion tracking
- Low Latency
- Rugged hardware
  - It's going on people's feet
- Fun
- Immersive
- Well Designed
- Useful in real life
- Intuitive
Parts

- Arduino Pro Mini
- 9 Degrees of Freedom Inertial Measurement Unit
- Zigbee Xbee
- Battery (Li-Ion)
- Battery Charger
- Vibration Motor
- Housing

- XBee Explorer Dongle
- Zigbee Xbee

- Plexiglass Housing
- LED Floor Panel(s)
Architecture Diagram
## Risks and Mitigation

<table>
<thead>
<tr>
<th>Risks</th>
<th>Mitigation</th>
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<tr>
<td>1. Difficult to demo, need a decent chunk of infrastructure</td>
<td>1. Get some sponsors on board who can provide expensive components</td>
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<td>2. Getting position of feet within a 3D space</td>
<td>2. IMU will track position - most likely need to recalibrate</td>
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<td>3. Ensuring low latency of system to provide an immersive experience</td>
<td>3. Zigbee has low latency, but alternative is bluetooth</td>
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