ISIS
Impact Safety Intelligent System

Safety for Long-Distance Cyclists
Two Part System

Helmet component

Bike component
Helmet Component

Internal
• 3-axis accelerometers
• Microcontroller
• Transponder

Buckle sensor turns on ISIS
Bike Component

- Receiver
- Call/Cancel buttons
- GPS/Cell phone unit
Scenario 1: Crash with Injury

Helmet monitors

CRASH!

Calls 911 with GPS
911 PERSONNEL ANSWERING AND GPS TRACK
Scenario 2: Crash with No Injury

Helmet monitors

CRASH! Press cancel

Does NOT call 911 with GPS
Preventing False Positives

Conditions:

1) Helmet buckled

2) 50 foot range between bike & helmet

3) 350 Head Injury Criterion score

User Override: 45 second delay to cancel
Scenario 3: Manual Call

Helmet monitors

Calls 911 with GPS
Testing: Technical Feasibility

- Environmental durability → Potted electronics
- 350 HIC score activates device
  - Normal bike rides <5 HIC score
# User Study Responses

**Target Market:** Adult Solo Bicycle Riders

<table>
<thead>
<tr>
<th>Function:</th>
<th>Calls 911 for 350-1000 HIC score crash, 45s after crash</th>
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<tbody>
<tr>
<td>Safety:</td>
<td>Complies with SNELL Helmet Safety Standards</td>
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</table>
| Control Buttons: | - Cancel call within 40s of crash  
                   - Manually call 911       |
| System Indicators: | - Battery level  
                        - Helmet/bike sync       |
| Size: | Bike: 5”x 4.5”x 1”, Helmet: 5”x 4”x 0.5” |
| Weight: | Bike: 250g, Helmet: 100g |
Market Opportunity

• License to helmet and bike technology manufacturing companies

• Expand ISIS technology:
  – Calling options
  – Bike product integration

• Expand market
  – Children’s helmets & adventure bikers
  – Snow sports
Comparison of Bike Safety Products

<table>
<thead>
<tr>
<th></th>
<th>RoadID</th>
<th>Cell phone</th>
<th>ISIS</th>
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<tbody>
<tr>
<td>Automatic Alert</td>
<td>○</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>Safety Enhancing</td>
<td>－</td>
<td>●</td>
<td>●</td>
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<tr>
<td>User Controls</td>
<td>－</td>
<td>●</td>
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<tr>
<td>System Indicators</td>
<td>●</td>
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<tr>
<td>Ergonomics</td>
<td>○</td>
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Note:  ● = Fully Satisfied  ○ = Partially Satisfied  － = Not Satisfied  ○ = Not Applicable
Business Model

- Licensing Strategy
- Estimate:
  - 5 to 8% licensing fee of delta of wholesale price
  - Standard retail price: $125
  - ISIS embedded retail price: $200
  - 5 million avid bikers
  - 5% initial market penetration
- Estimated Sales: $469,000
Thank You to:

- 798 cyclists who responded to our study
- 911 call center
- Dr. Barbara Hughey
- Asada Lab
- Blade Kotelly
- Edgerton Learning Center Staff
- Praveen Subramani
- Justin Burkhart
- Blair Gagnon
- 2.009 Staff
User Study Results

Which of the following do you consider most when buying a helmet?

- Weight
- Aerodynamics
- Brand
- Price
- Ventilation
- SNELL certification
- Style
- Comfort
- N/A