MAGNETAR

Easy-Release Magnetic Pedal System for Cycling
Product Vision

Generator

Cleat Insert

Pedal
Product Vision
The Problem:
Traditional clipless pedal systems are difficult to learn and can cause injury.
Market

$200 million on utility bicycle equipment

Shimano
- **Cost:** $50
- **Holding Force:** mechanical
- **Weight:** 350 g
- **Easy Out:** No

Maglock
- **Cost:** $100
- **Holding Force:** magnetic 30 lb.
- **Weight:** 974 g
- **Easy Out:** Yes

Magnetar
- **Proposed Cost:** $75-100
- **Holding Force:** 40 lb.
- **Weight:** <1000 g
- **Easy In/Out:** Yes
# Product Contract

<table>
<thead>
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<th>Metric</th>
<th>Engineering Specification</th>
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## Key Risks

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Testing: Holding Force (> 40 lbs.)

Results

- Avg. of 47.5 lbs.
Testing: Power Requirement (<5 W)

Results

- 2.5 W generated
- 35 lb holding force when pedal-powered
Testing: Release Time (<1 sec)

Results
- Braking- 1 sec delay
Findings & Next Steps

• **Force:** Sufficient holding forces from 50 g electromagnet

• **Power:** Sufficient power available

• **Release:** 1 second delay