

11-30-2018

MakuSafe Wearable Device Testing

Nicholas Campbell

Iowa State University, ncamp17@iastate.edu

Alexander Foust

Iowa State University, amfoust@iastate.edu

Dawson Knapp

Iowa State University, dknapp@iastate.edu

Andrew Yi

Iowa State University, ayi@iastate.edu

Follow this and additional works at: <https://lib.dr.iastate.edu/tsm415>



Part of the [Bioresource and Agricultural Engineering Commons](#), and the [Industrial Technology Commons](#)

Recommended Citation

Campbell, Nicholas; Foust, Alexander; Knapp, Dawson; and Yi, Andrew, "MakuSafe Wearable Device Testing" (2018). *TSM 415 Technology Capstone Posters*. 28.

<https://lib.dr.iastate.edu/tsm415/28>

This Poster is brought to you for free and open access by the Iowa State University Capstones, Theses and Dissertations at Iowa State University Digital Repository. It has been accepted for inclusion in TSM 415 Technology Capstone Posters by an authorized administrator of Iowa State University Digital Repository. For more information, please contact digirep@iastate.edu.

Nick Campbell, Alex Foust, Dawson Knapp, Andrew Yi

MakuSafe Wearable Device Testing

Client: MakuSafe Corporation, West Des Moines, Iowa

Problem Statement

- MakuSafe Corporation needs data collected on the strength and comfortability of the holster for their wearable safety device.

Objective(s)

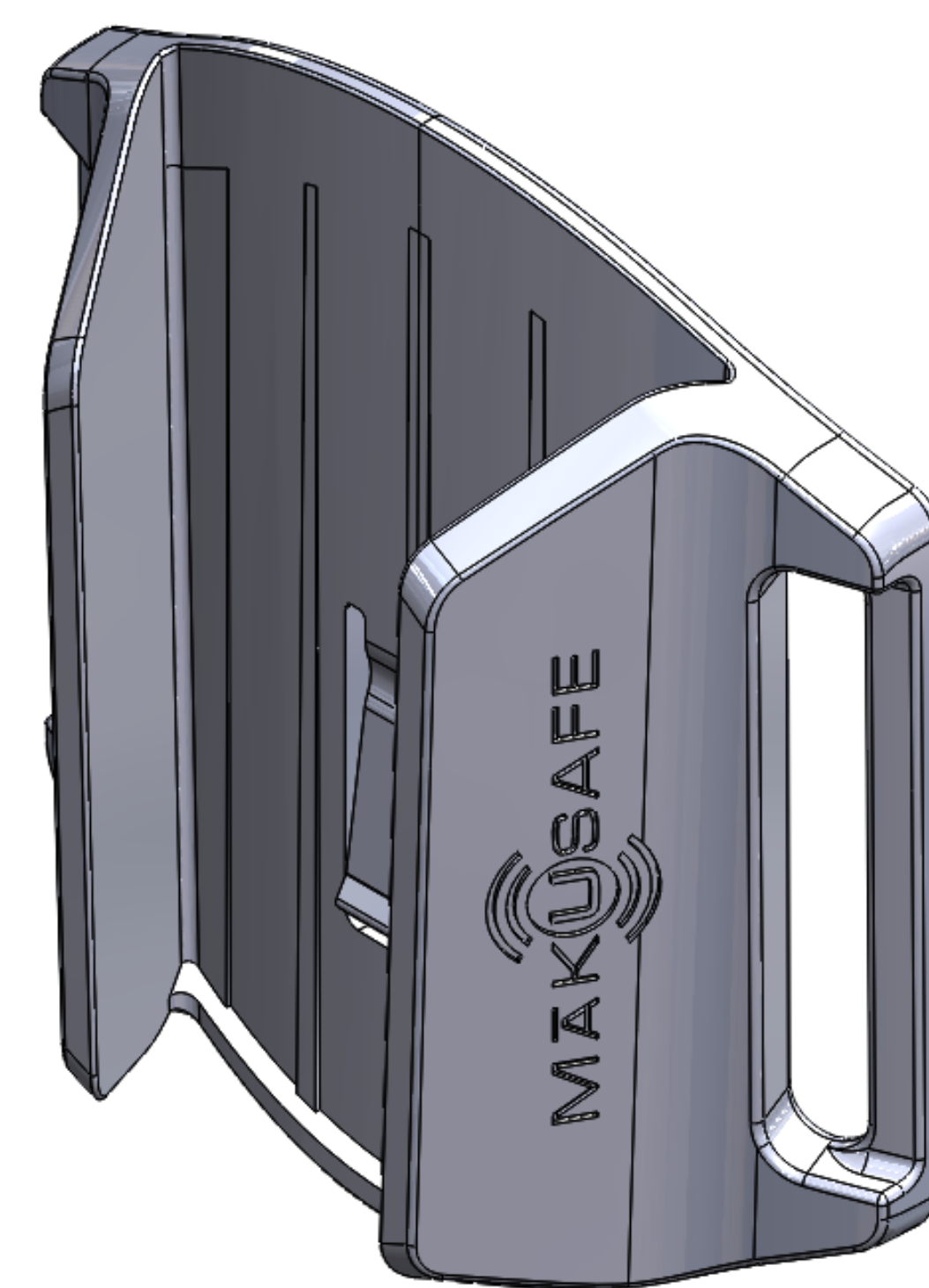
- Determine the force required to break the holster
- Evaluate the comfortability of the holster and armband
- Make recommendations for any design changes

Constraints

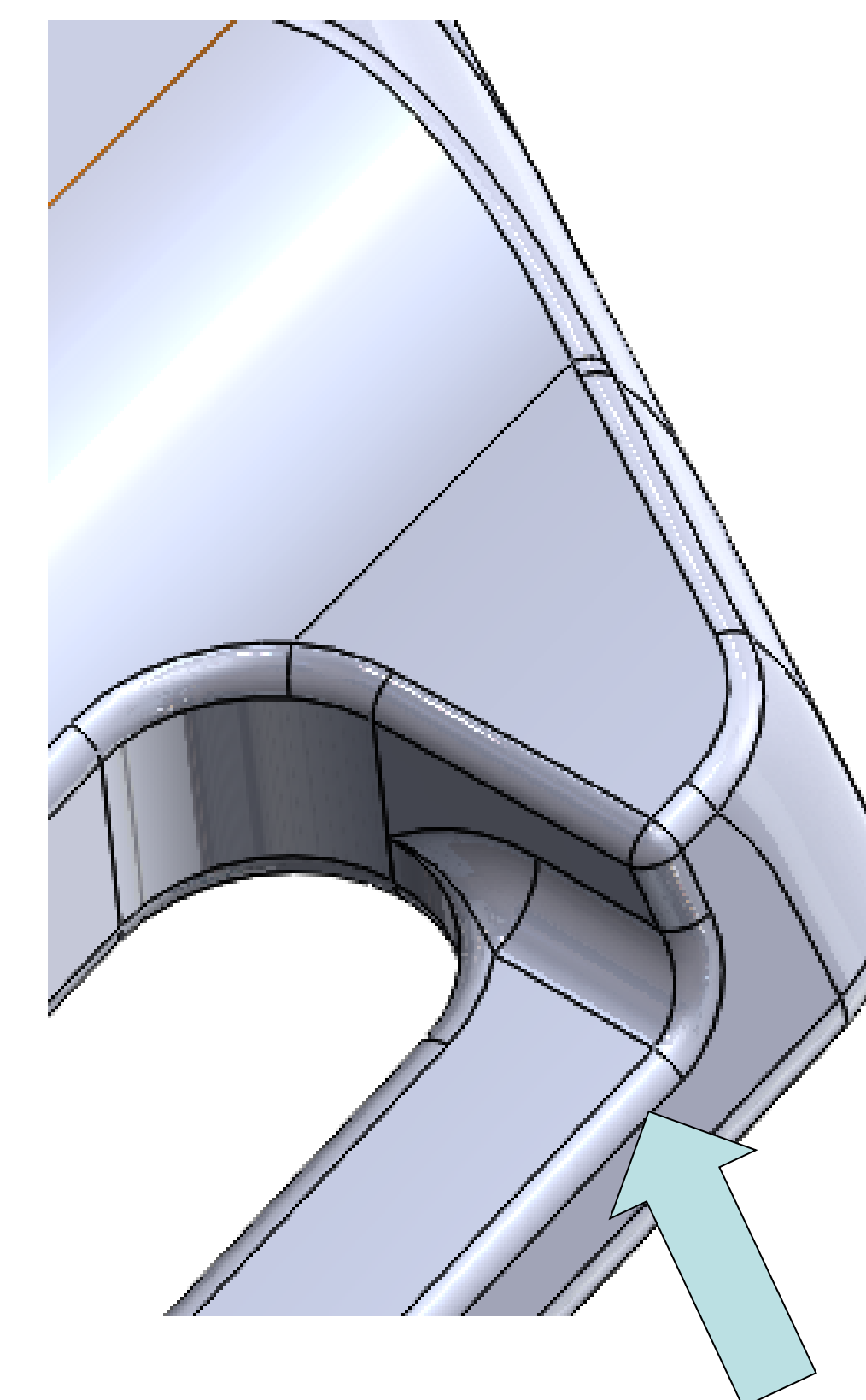
- \$1000 material budget for testing
- Timeline: Testing, analysis, and recommendations will be completed by March 18th
- Criteria to be met:
 - Design will be safe for workers to wear
 - Holster will be found comfortable to wear

Scope

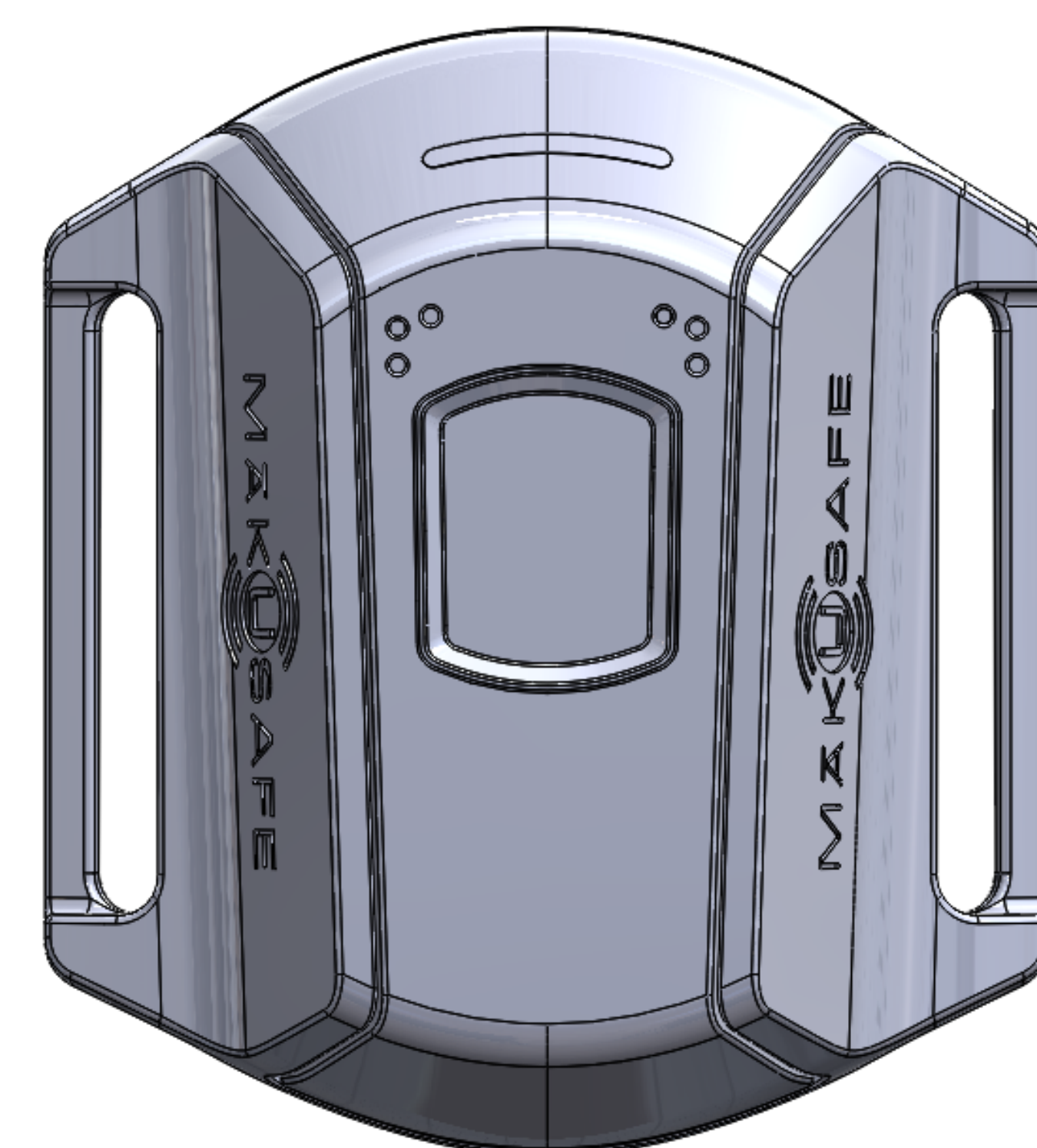
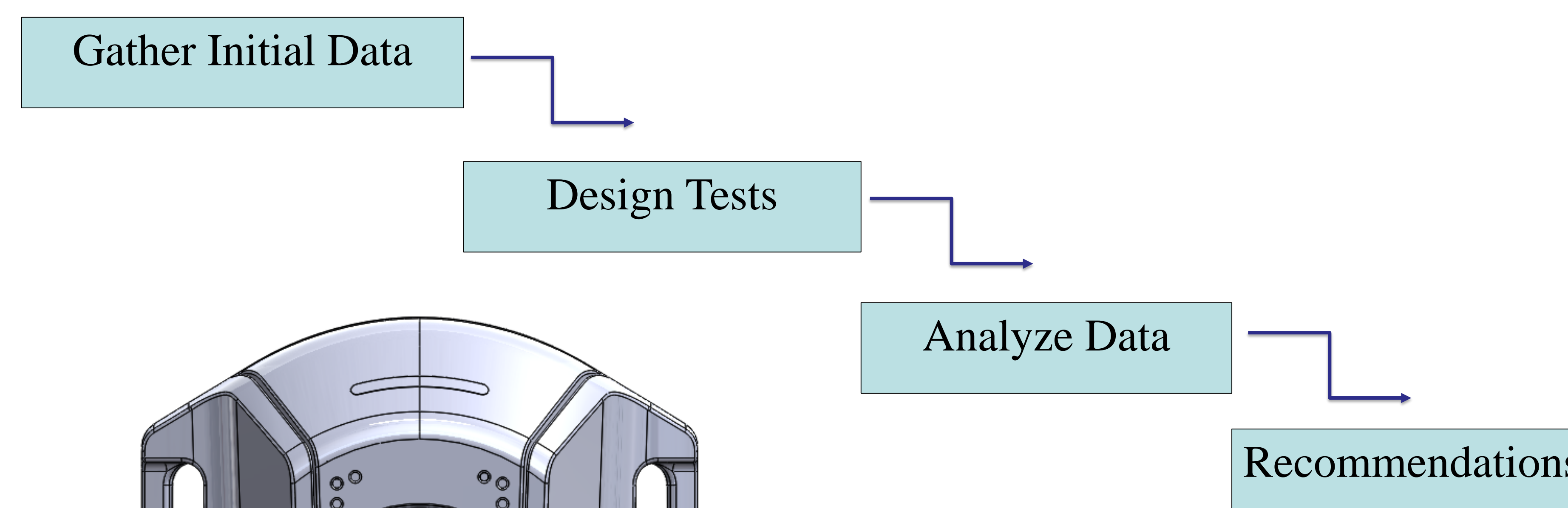
- Develop, test, and analyze the strength and comfortability of the holster. Make design change recommendations.



MakuSafe holster



Breakaway tab



MakuSafe holster and safety monitoring device

Methods

- Research materials
- Develop test procedures
- Test and analyze data
- Conduct cost analysis of design changes
- Use Solidworks for conducting FEA

Proposed Solutions

- Change the shape or size of the breakaway tabs
- Change the holster material
- Change the band material
- Add a clasp to the band

Major Outcomes

- Safe design
- Comfortable design
- Cost effective design
- Final Report
- Final Presentation

Benefit to Client

- MakuSafe will be able to ensure worker safety while wearing the device