



# **Release Lanyard Project**

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## **Team 5**

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# Overview

- ▶ Problem Statement
- ▶ Current Design
- ▶ Top Design
- ▶ Change in Focus
- ▶ Gantt Chart
- ▶ Conclusion
- ▶ References

# Problem Statement

- ▶ Issues with freezing temperatures and debris
- ▶ Issues not activating weapons system
- ▶ Issues with poor installation
- ▶ Keep new design under \$300

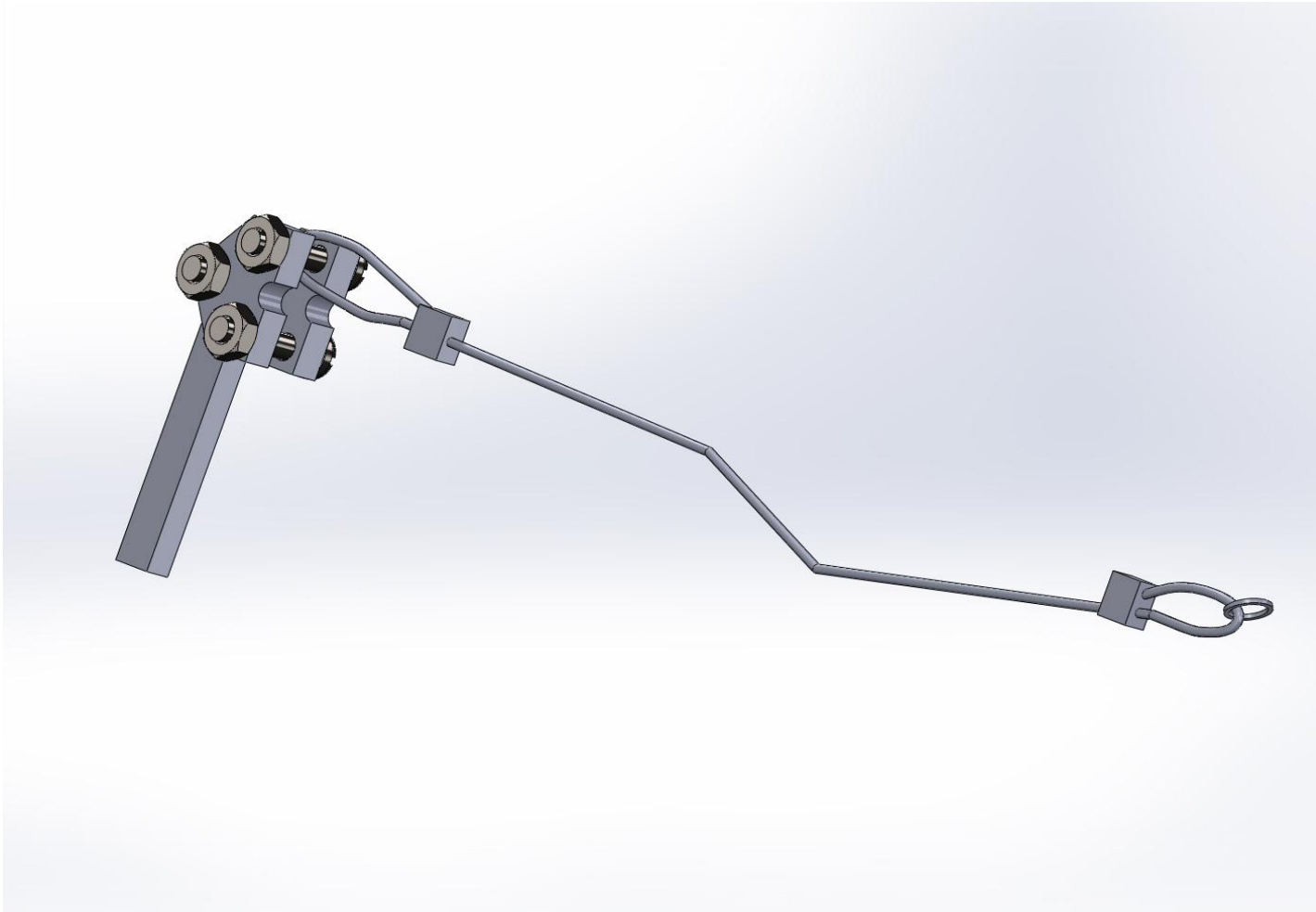
# General Constraints

- ▶ Temperature Range  $-50^{\circ}\text{C}$  to  $150^{\circ}\text{C}$
- ▶ Activation Force of 50N
- ▶ Breaking force of linkage 75N

# Current Design

- ▶ Pivot point / Activation point
- ▶ Cable / Cable Guide
- ▶ Activation Slider

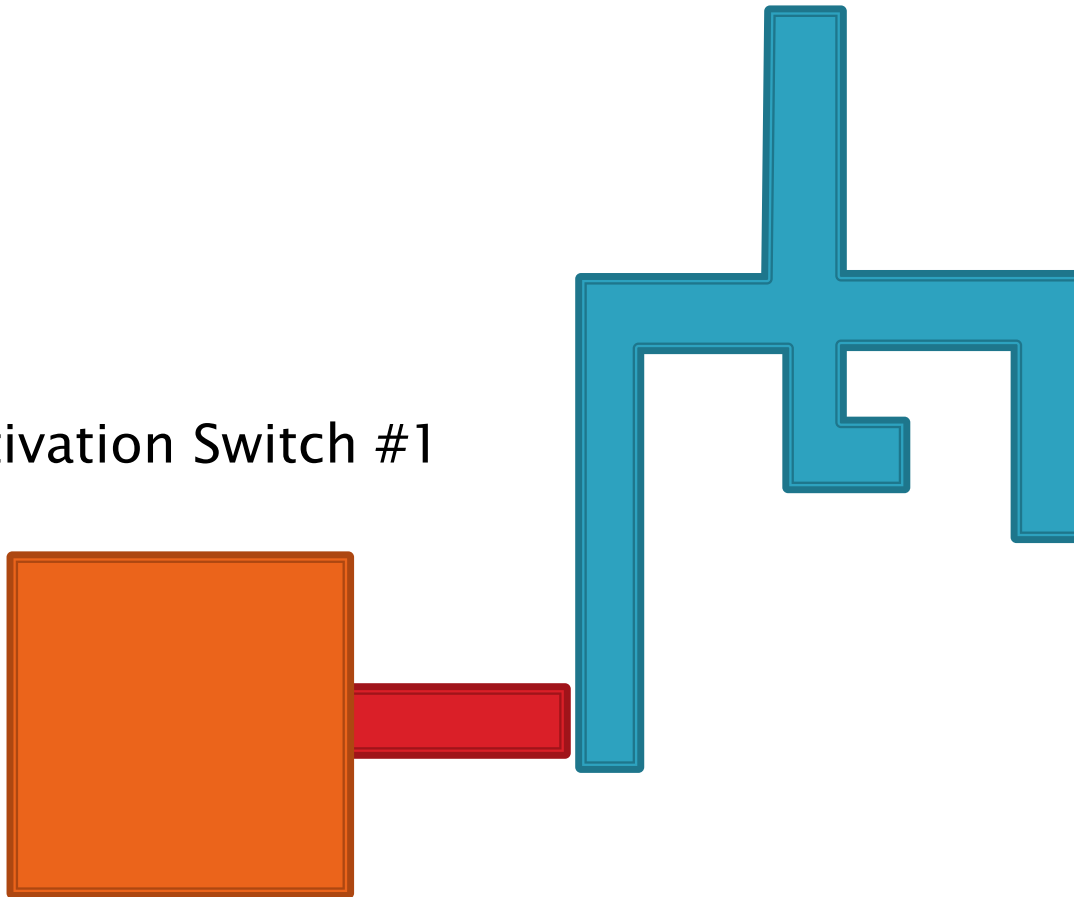
# Current Lanyard Design



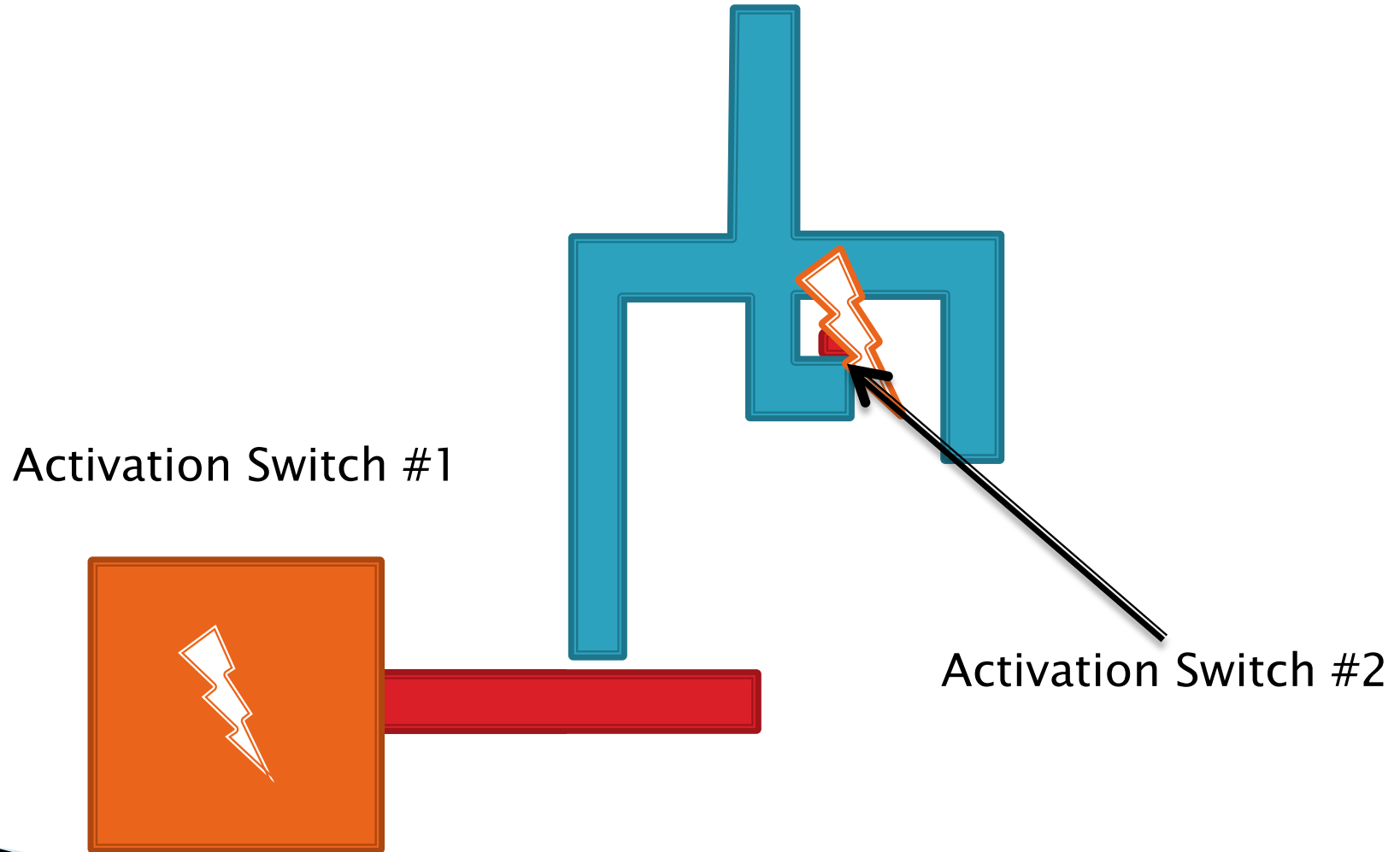
# Current Lanyard Activation

Activation Slider

Activation Switch #1

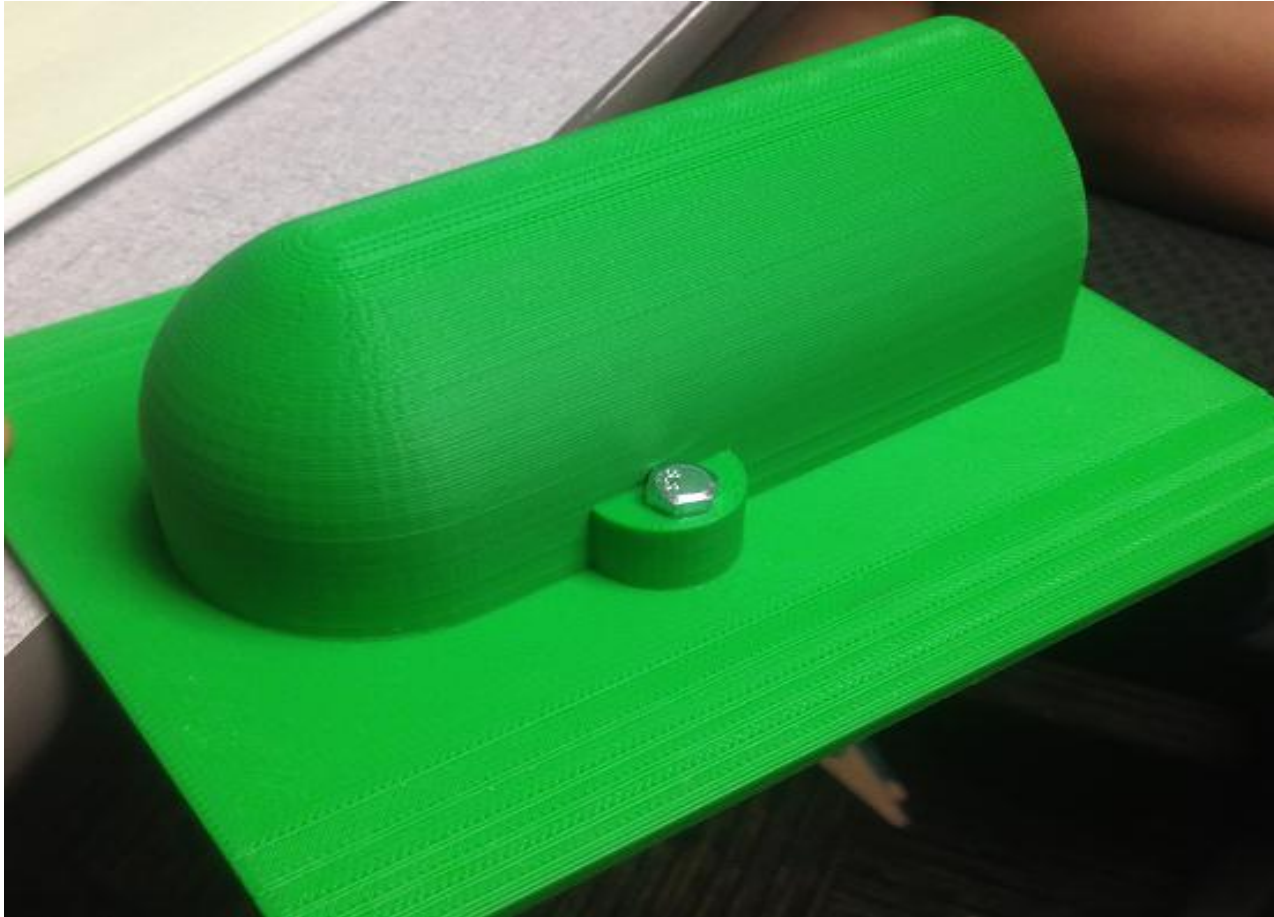


# Current Lanyard Activation

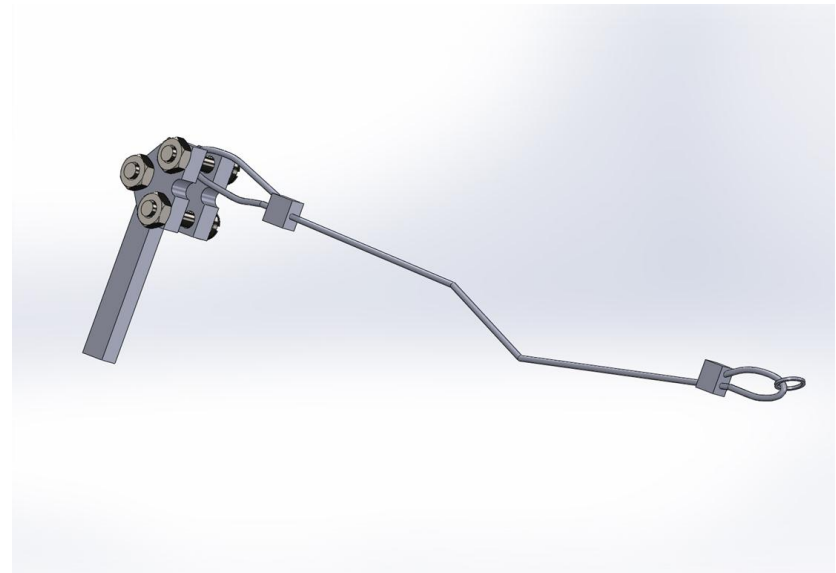
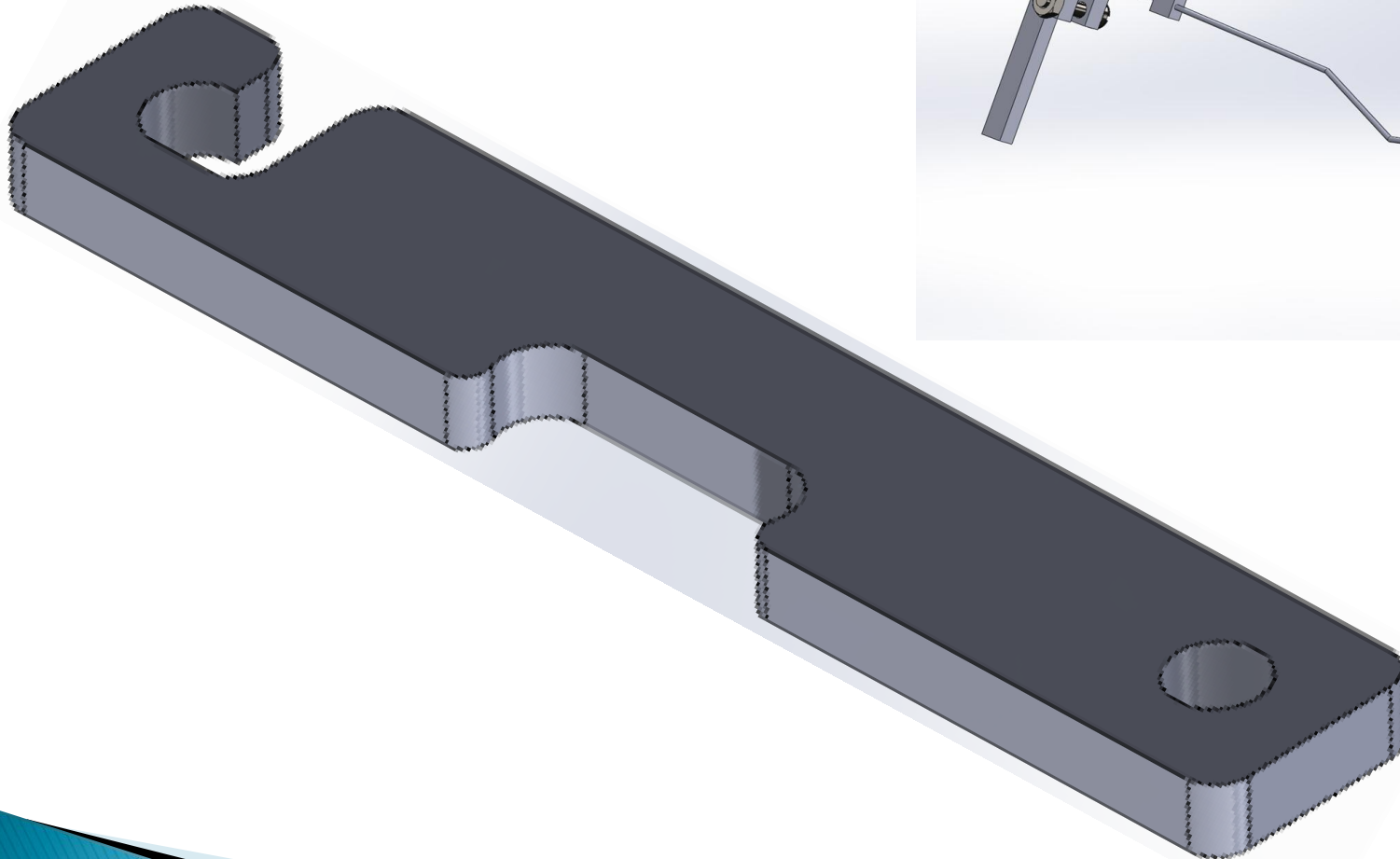




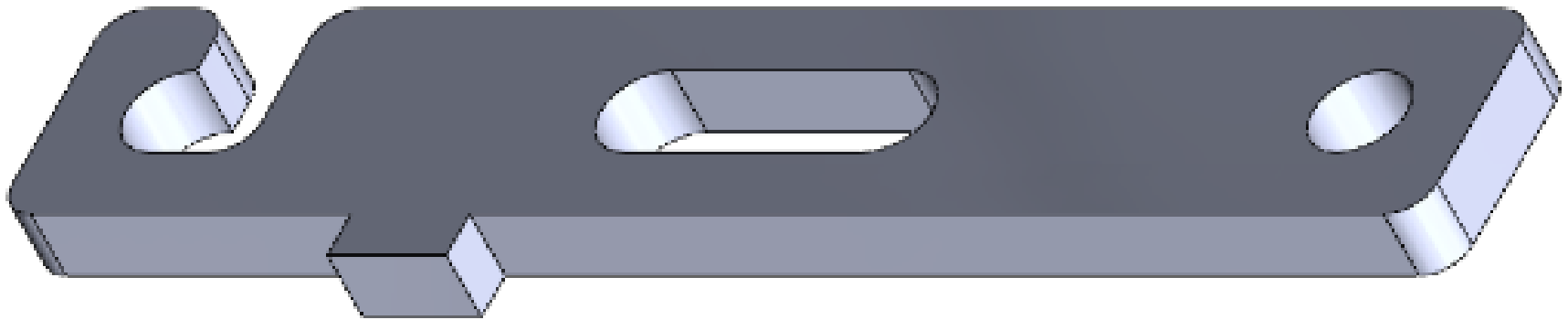
# Housing Design



# Activation Slider



# Activation Slider



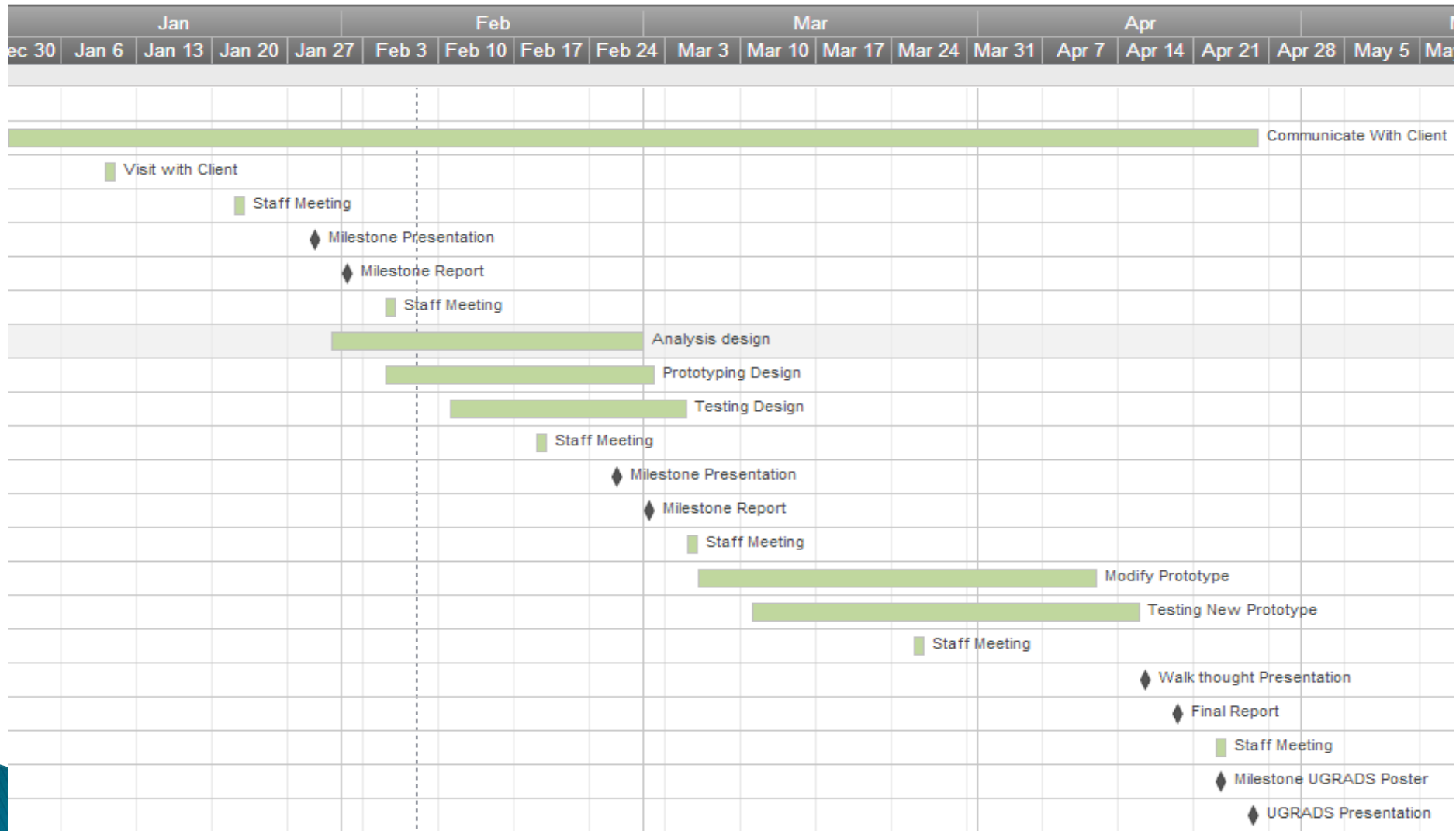
# Activation Slider



# Testing & Design Analysis

- ▶ Testing
  - Rapid prototyping
  - Simulating environmental issues
- ▶ Design Analysis
  - Mechanics of Material
  - Vibration
  - Finite Element Analysis
  - Statics
  - Fluid Mechanics

# Gantt Chart



# Conclusion

- ▶ Problem Statement
  - Issues with freezing temperature and debris
  - Not activating
  - Poor installation
- ▶ Current Design
  - Failing under extreme conductions
- ▶ Top Designs
  - Include new slider arm, cable, and pivot point
- ▶ Gantt Chart

# References

- ▶ Stephen Larimore
  - Raytheon Department Manager
- ▶ Kelly Convington
  - Raytheon Mechanical Engineer



# Questions?