



# **Release Lanyard Project**

January 29th 2013

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**Andrew Baker** 

# 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

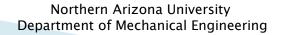
## **General Constraints**

- ► Temperature Range –50°C to 150°C
- Activation Force of 50N
- Breaking force of linkage 75N

# **Current Design**

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

### **Current Lanyard Design**

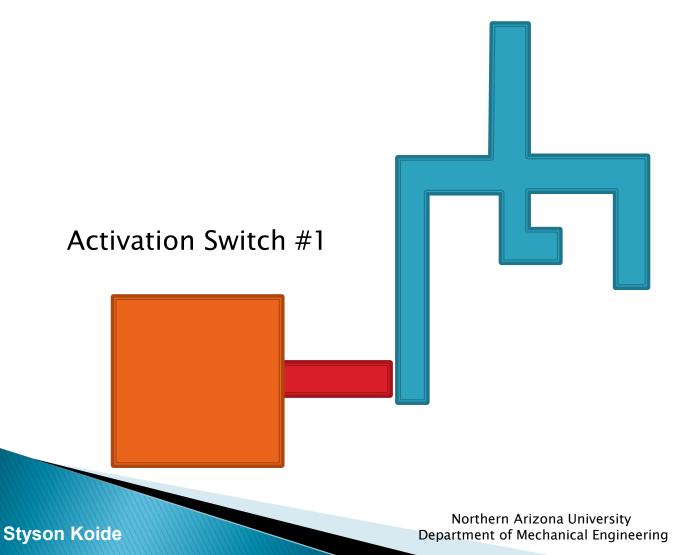


Styson Koide

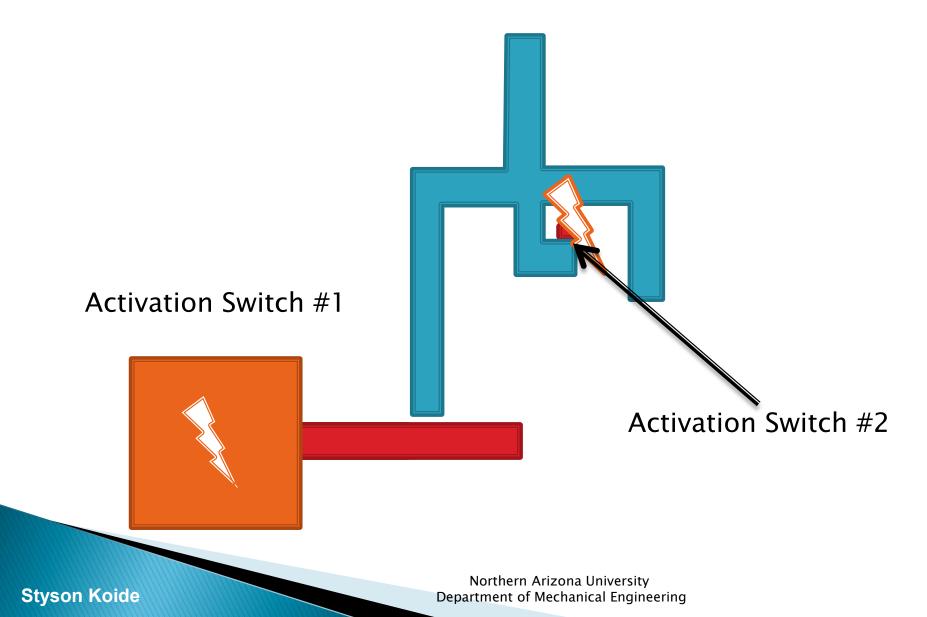
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### **Current Lanyard Activation**

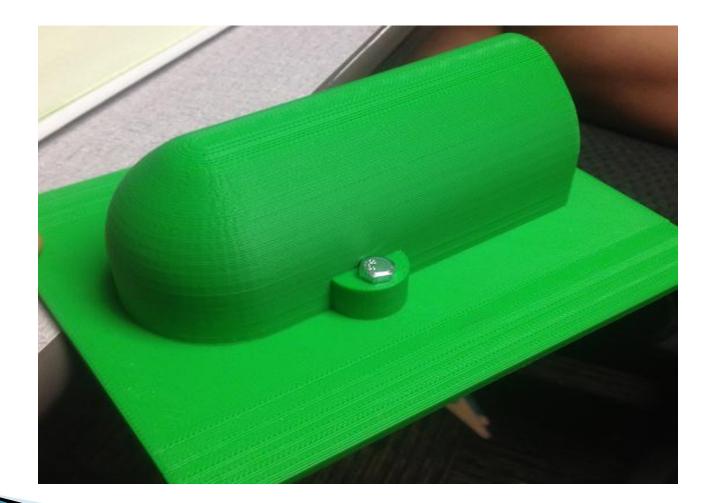
**Activation Slider** 



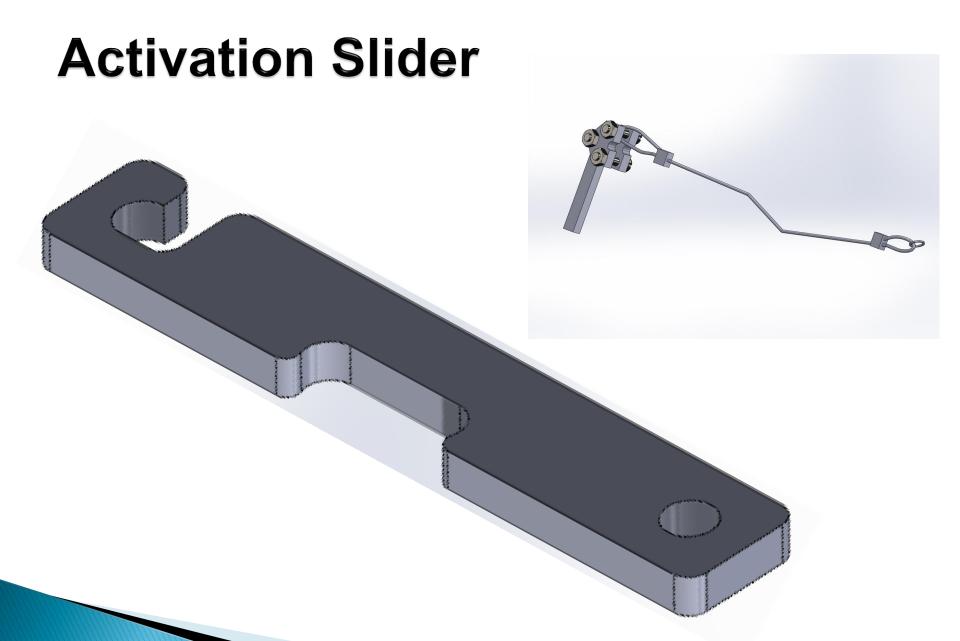
#### **Current Lanyard Activation**



## **Housing Design**

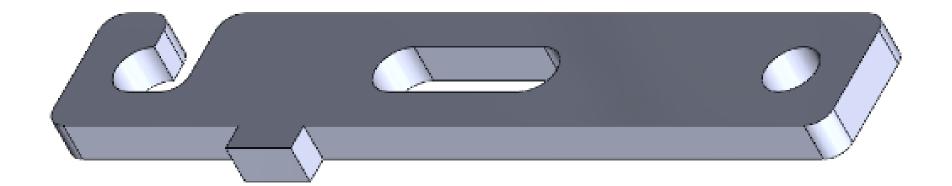


David Lofgreen





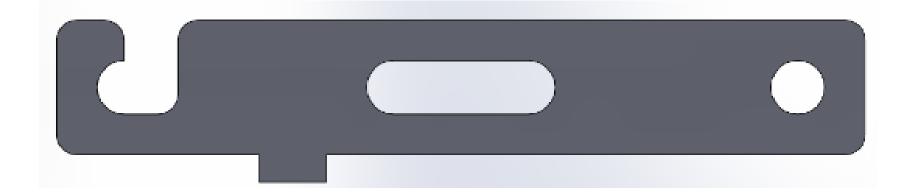
## **Activation Slider**



Northern Arizona University Department of Mechanical Engineering

**Tim Haynes** 

## **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**

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# 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?**

Northern Arizona University Department of Mechanical Engineering

**Chris Temme**