

# Revision of Lockheed Martin Human Type Target for Manufacturability

## Team 7

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# Introduction and Background

- Lockheed Martin is designing a Human Type Target System for training Law Enforcement and Military personnel as a part of their Urban Operations Training System
- Lockheed Martin is currently purchasing a competitor's product for use
- This product does not meet their standards for realism or durability
- Lockheed Martin has a basic prototype

# Need Statement

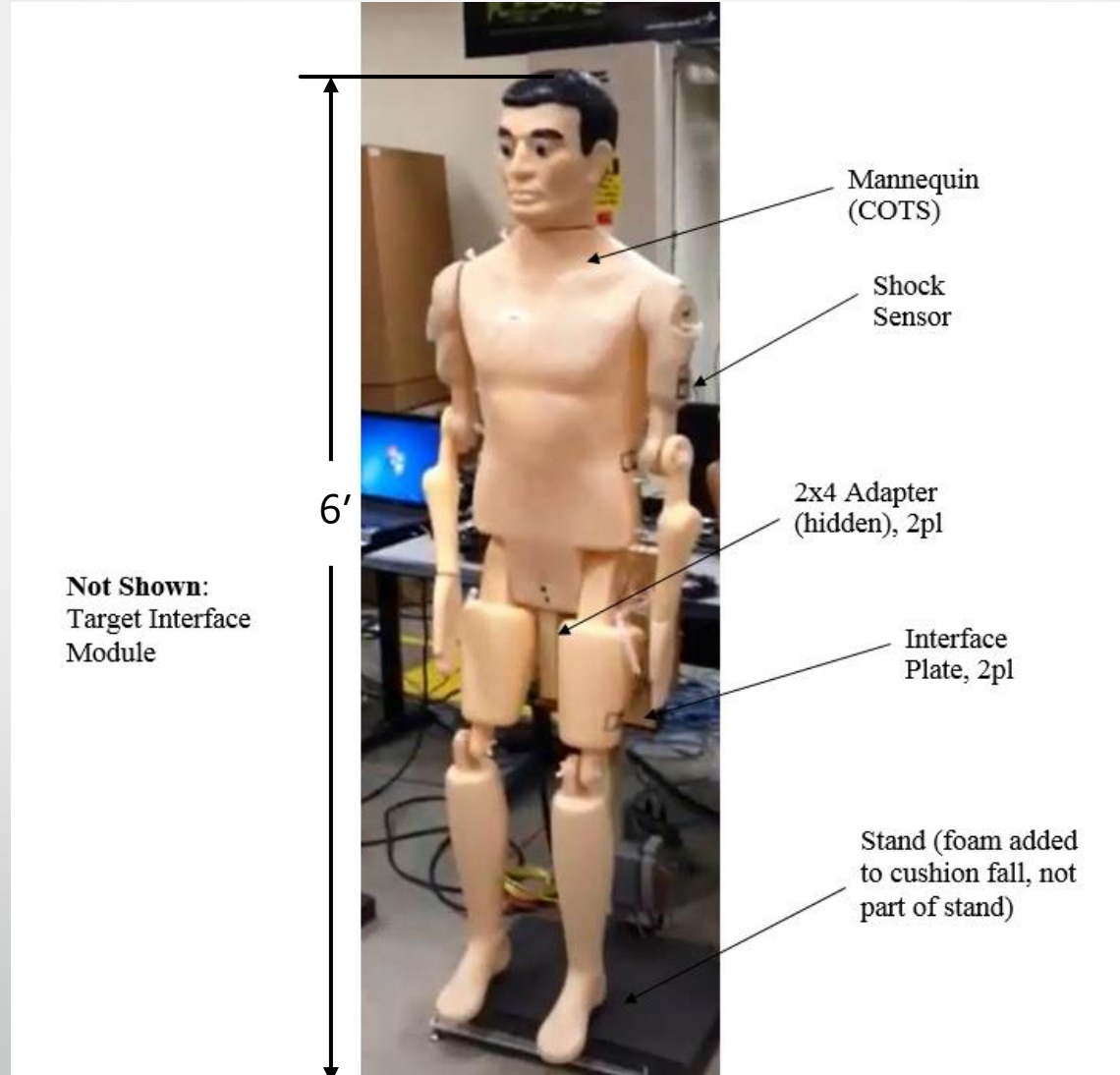
**“Lockheed Martin’s current human type target system is incomplete and requires further design for manufacturability and durability.”**

# Goal Statement

**“The goal of this project is to revise Lockheed Martin’s current prototype and take it to a production-ready-state.”**

# Components to be Redesigned for Manufacturability

- Interface Plates
- 2x4 Adapter
- Stand



# Constraints

- Perform at least 1000 drops before failure
- Ricochet averse
- Moveable by 1 person
- Max 2 ft x 2 ft base plate
- Capable of withstanding impacts from 7.62 mm, 5.56 mm, and airsoft BB rounds
- Operable in a variety of environmental conditions

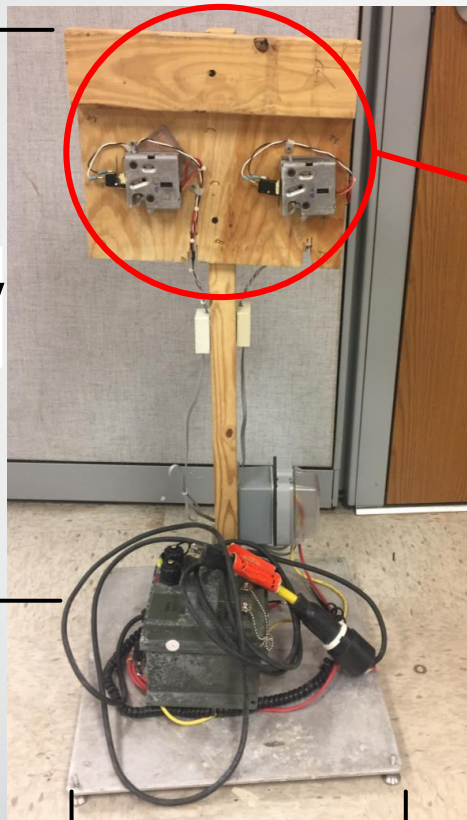
# Constraints Continued

- Target prices (maximum) – batches of 100
  - Interface plate - \$50.00 each
  - 2x4 adapter - \$25.00
  - Stand - \$70.00

# Current Prototype

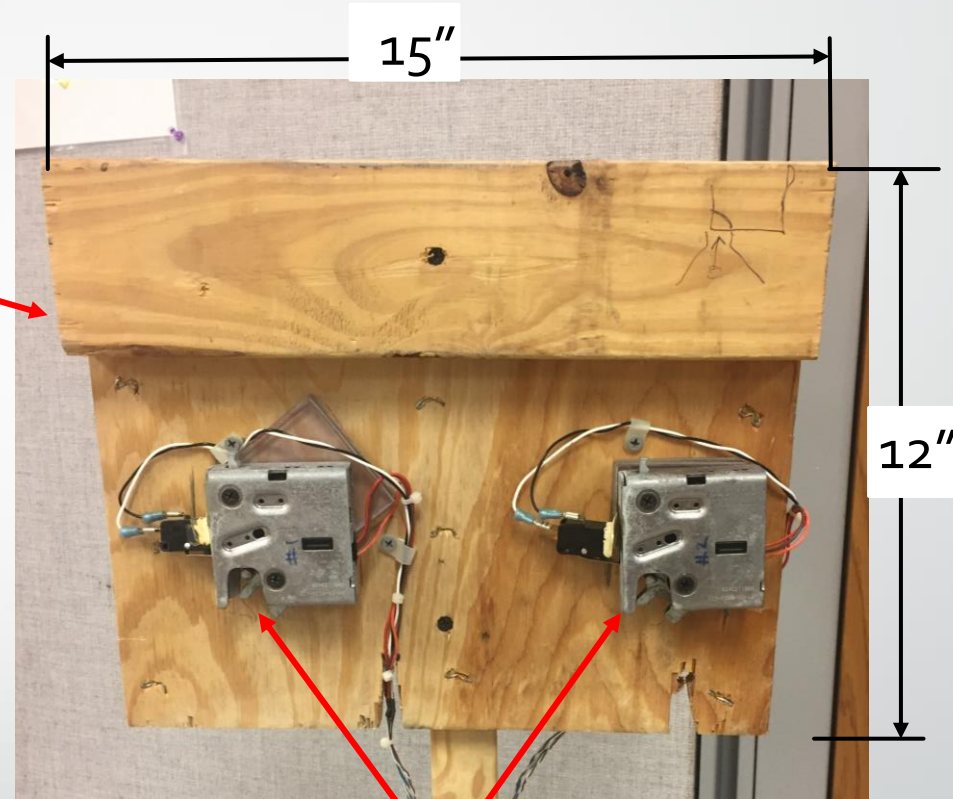


6'



3.25'

2'



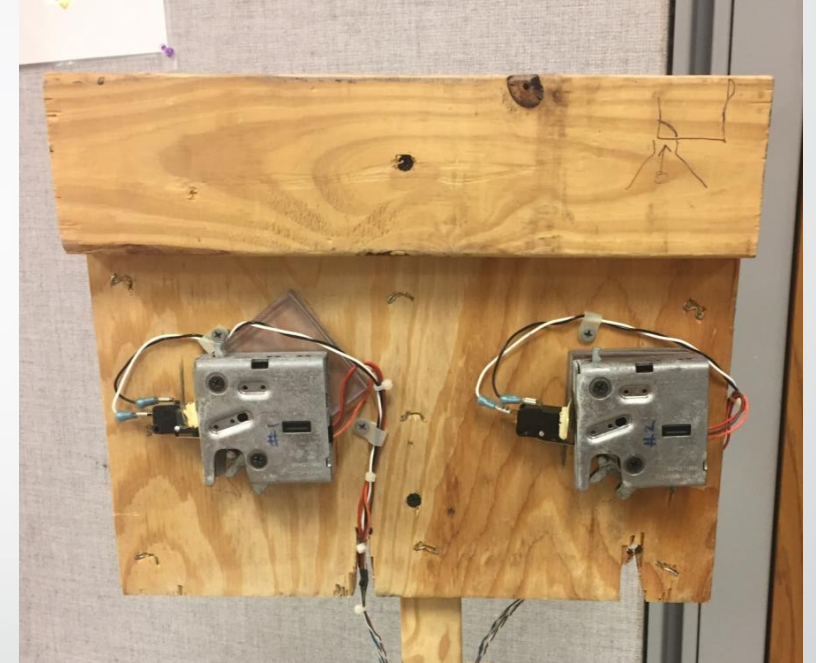
15''

12''

- Issues with binding on clamps
- Difficult to reset



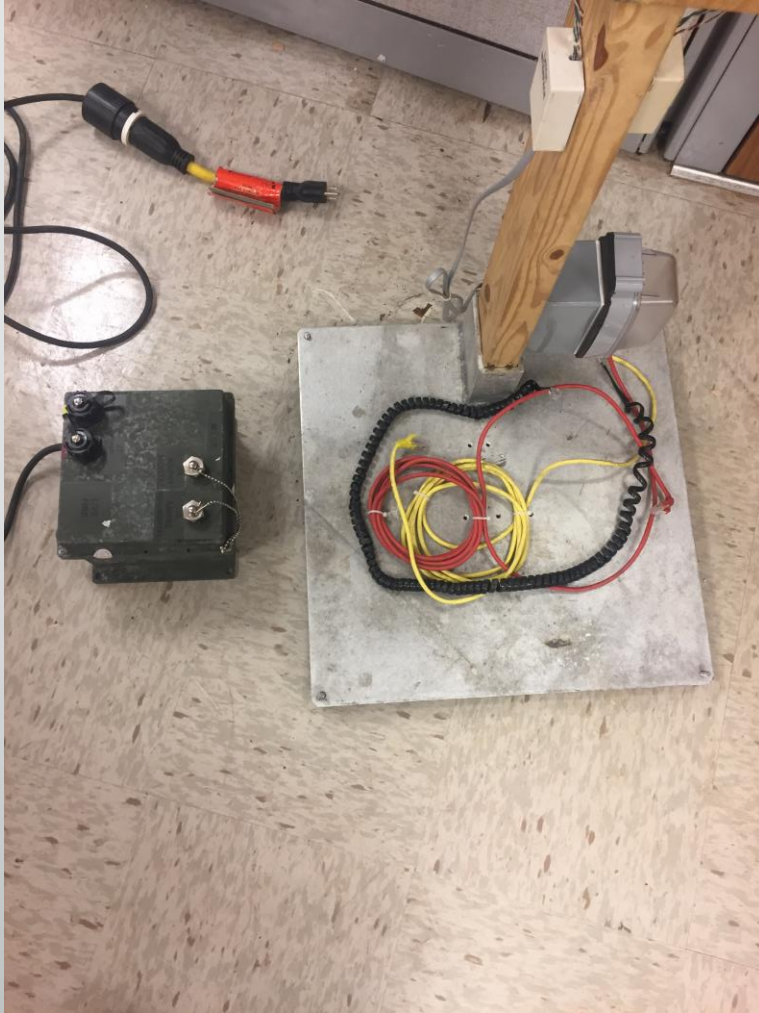
# Current Prototype (Cont.)



- Design one Interface Plate to be used in both plate locations
- Design Interface Plates with minimal assembly required

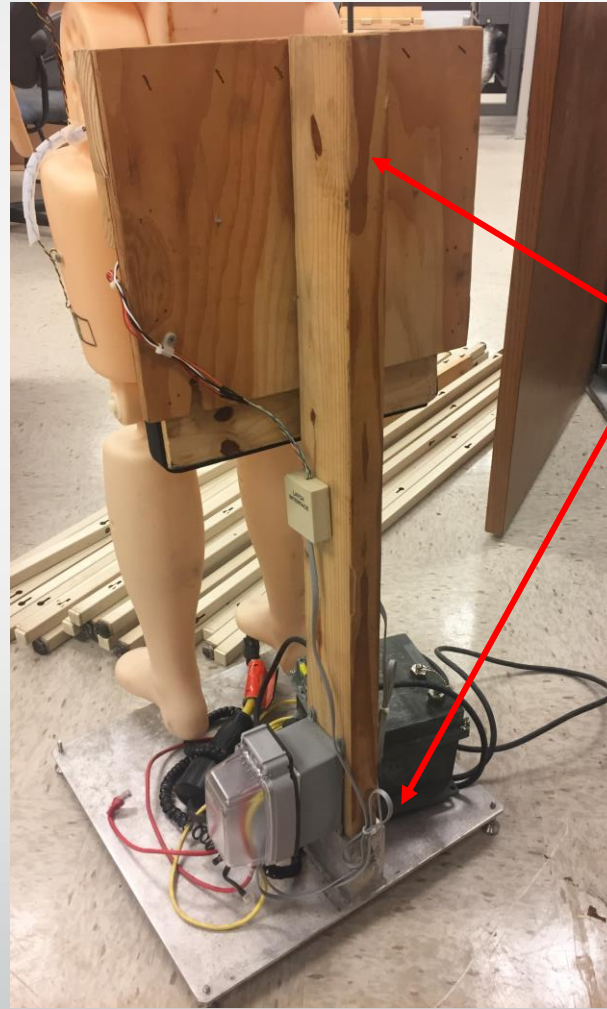


# Current Prototype (Cont.)



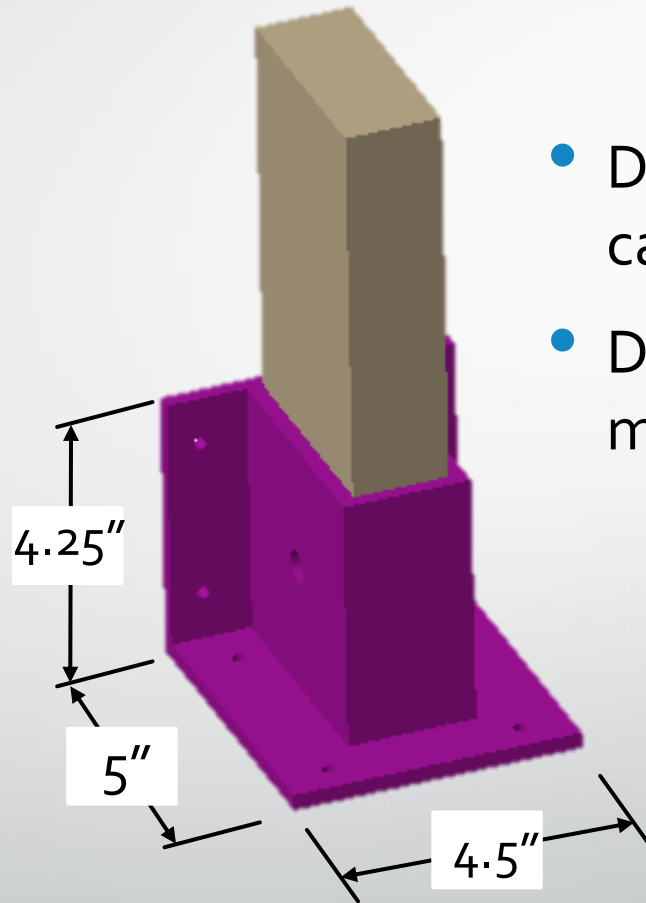
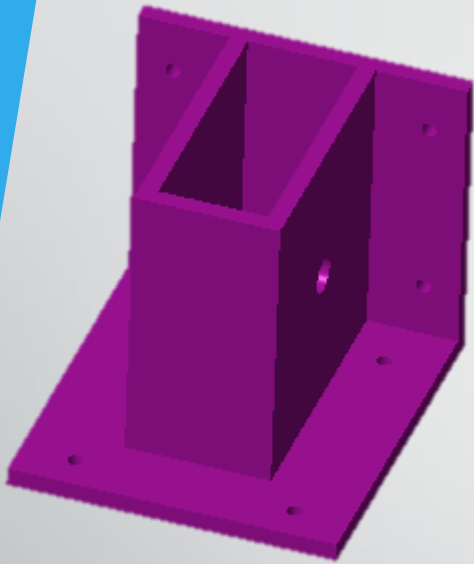
- Base must be designed for mobility and must house the control box (green box)
- Must not occupy an area greater than 2'x2'

# Current Prototype (Cont.)



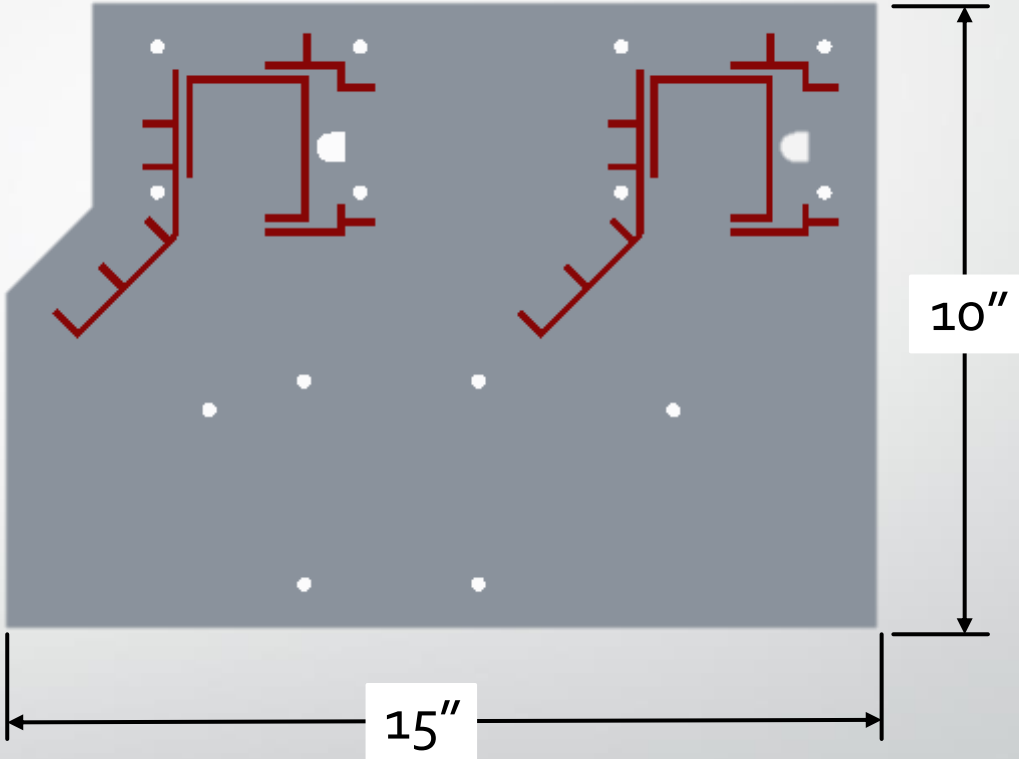
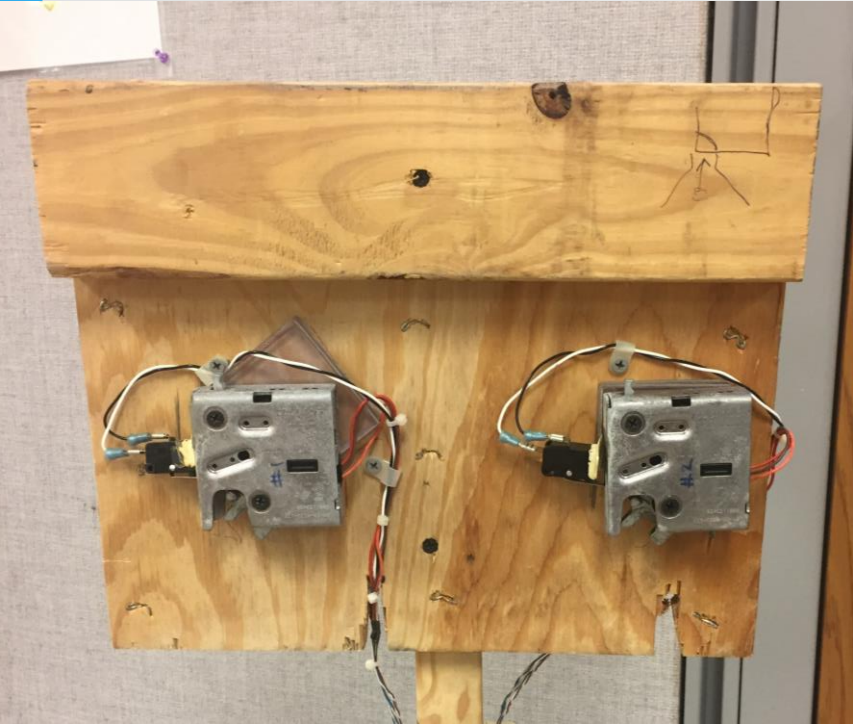
- Design a single 2x4 adapter to be used for attaching different components

# 2x4 Adapter Design

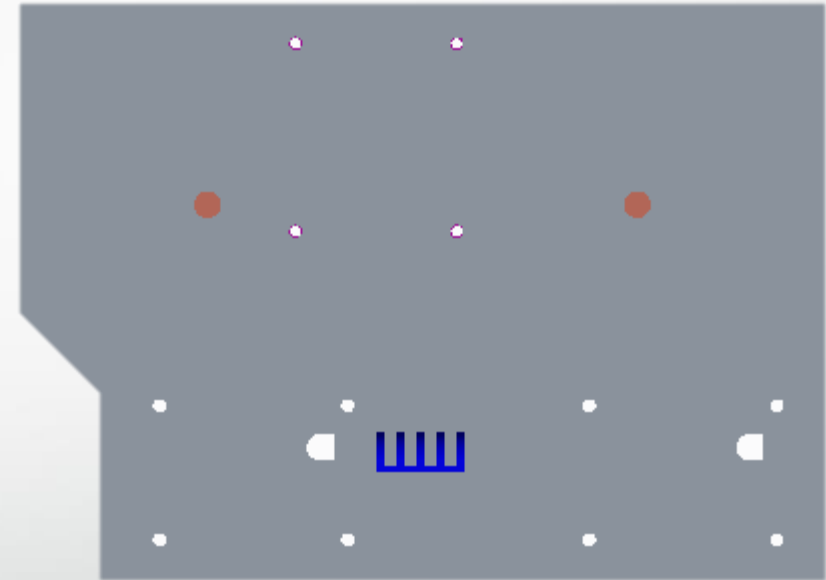
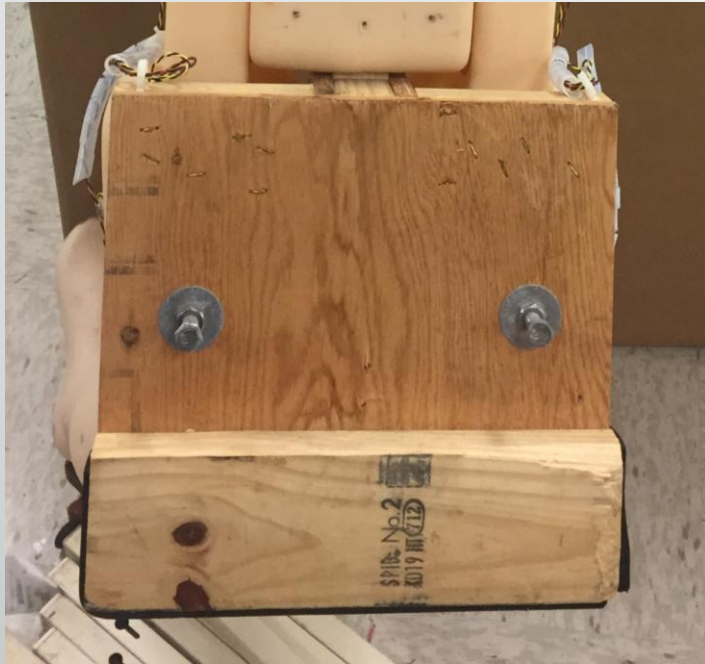


- Designed so that this one 2x4 adapter can be used in several locations
- Design must be altered for injection molding

# Interface Plate Design (Front)



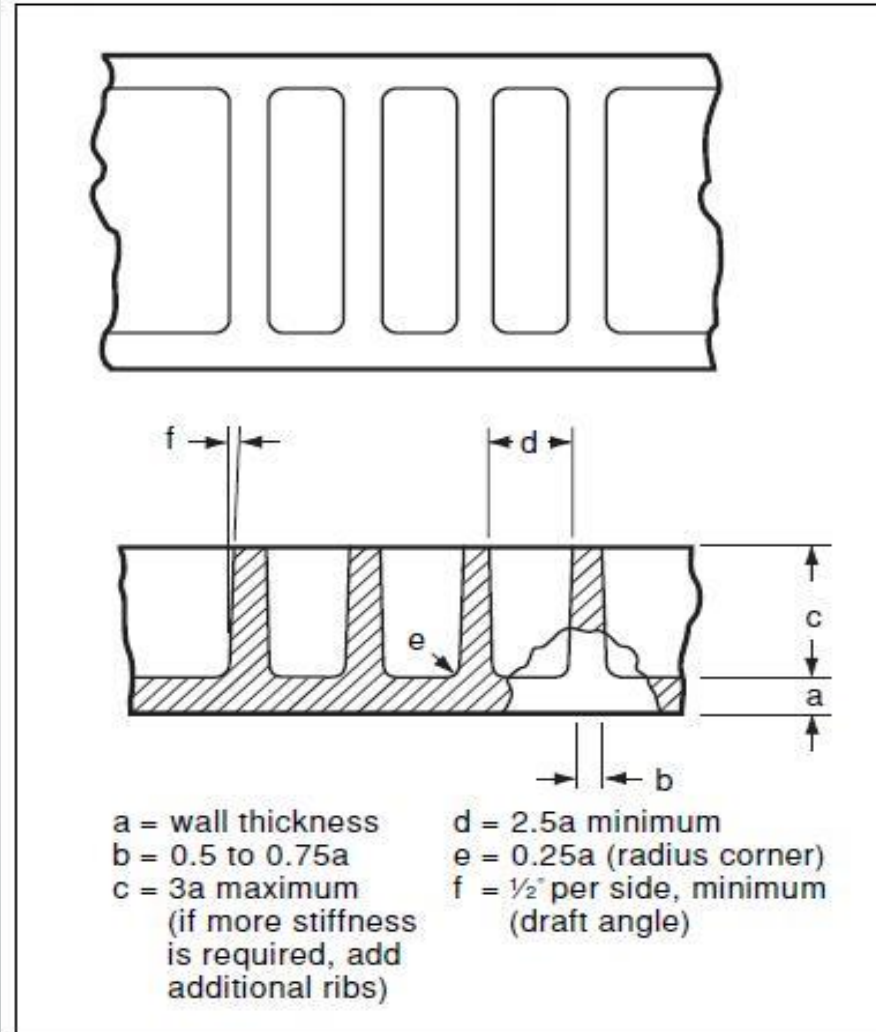
# Interface Plate Design (Rear)



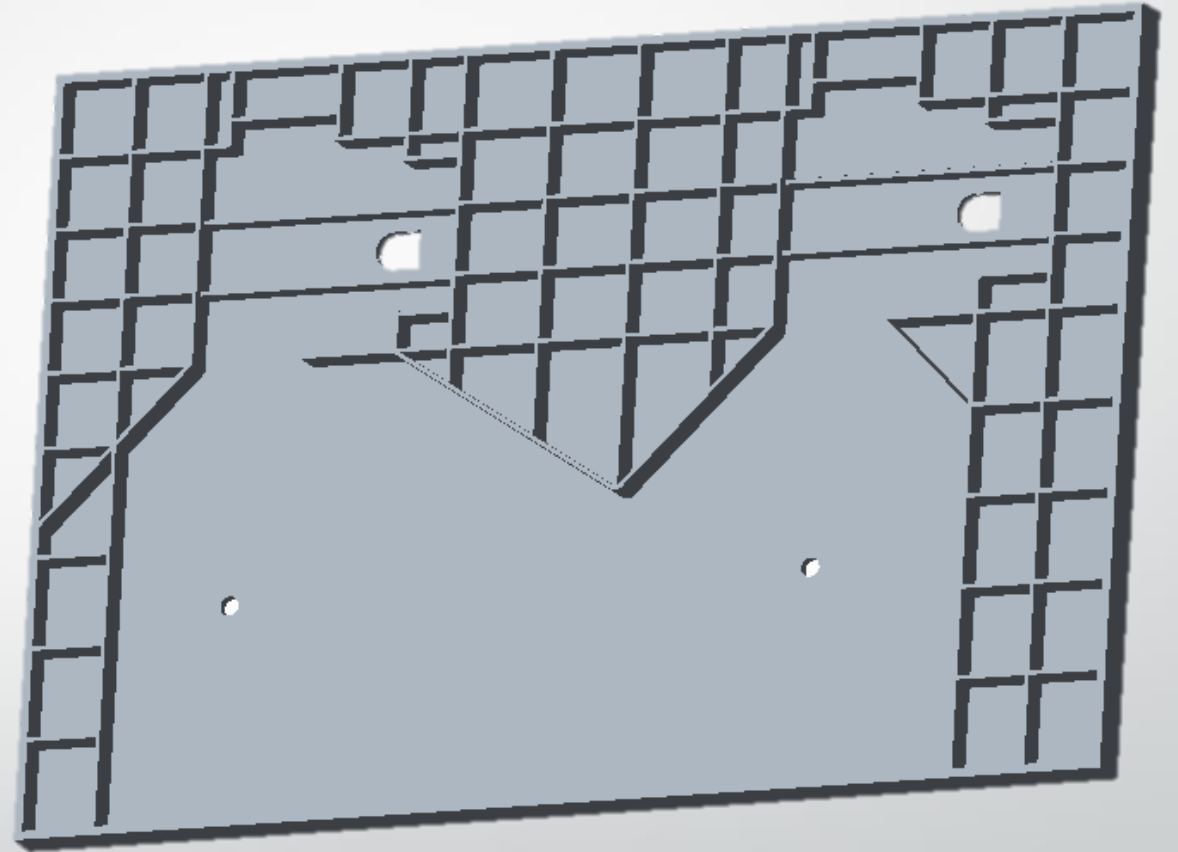
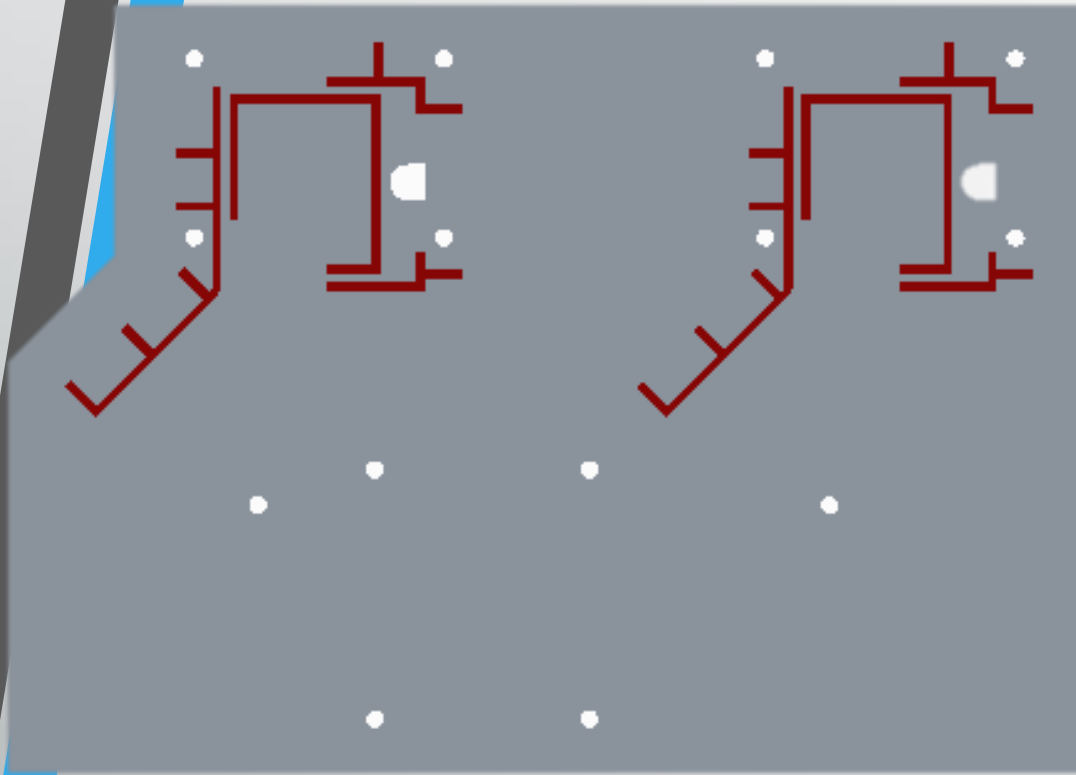


# Design for Injection Molding

Figure 29 - Example of Rib Design



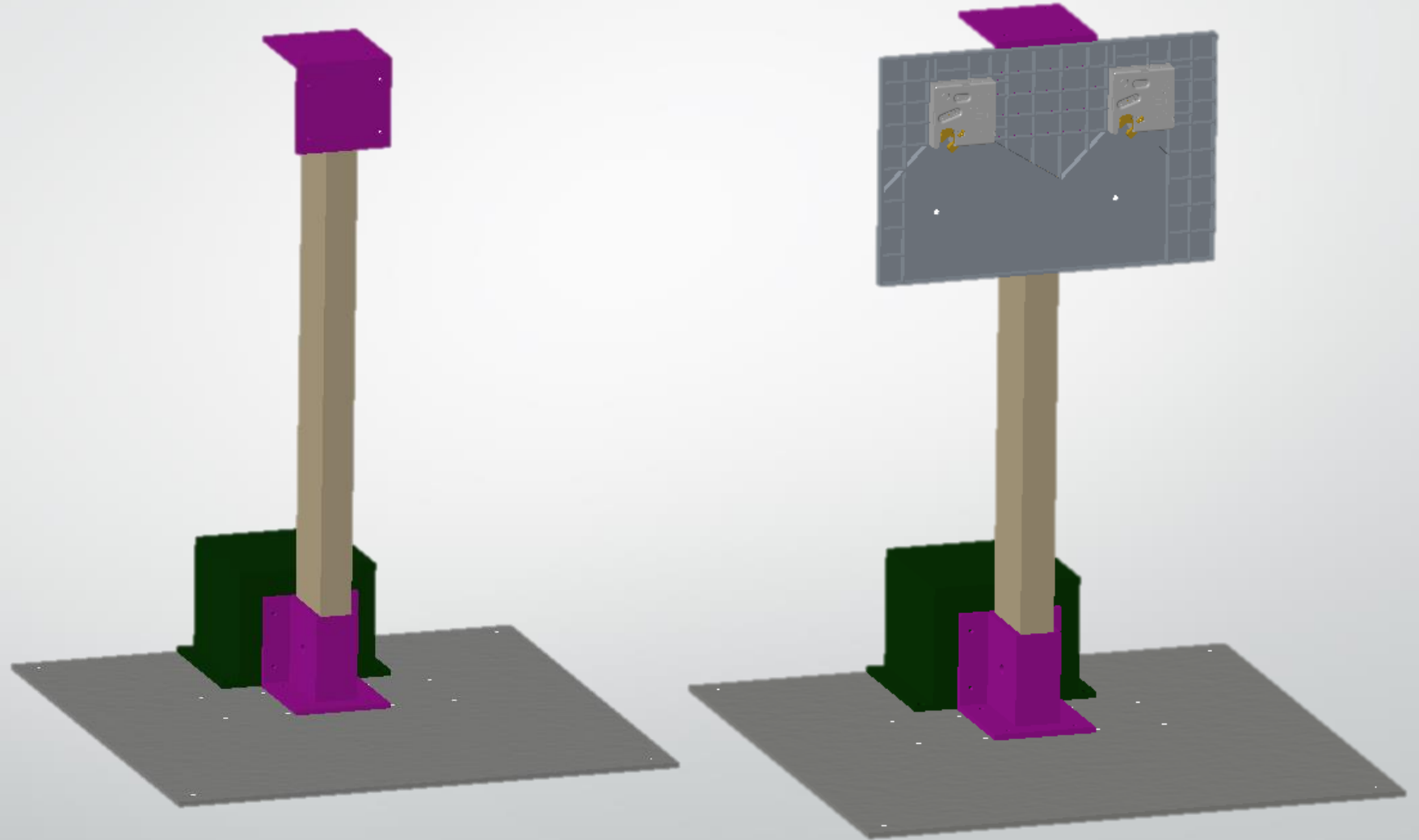
# Design for Injection Molding (Cont.)



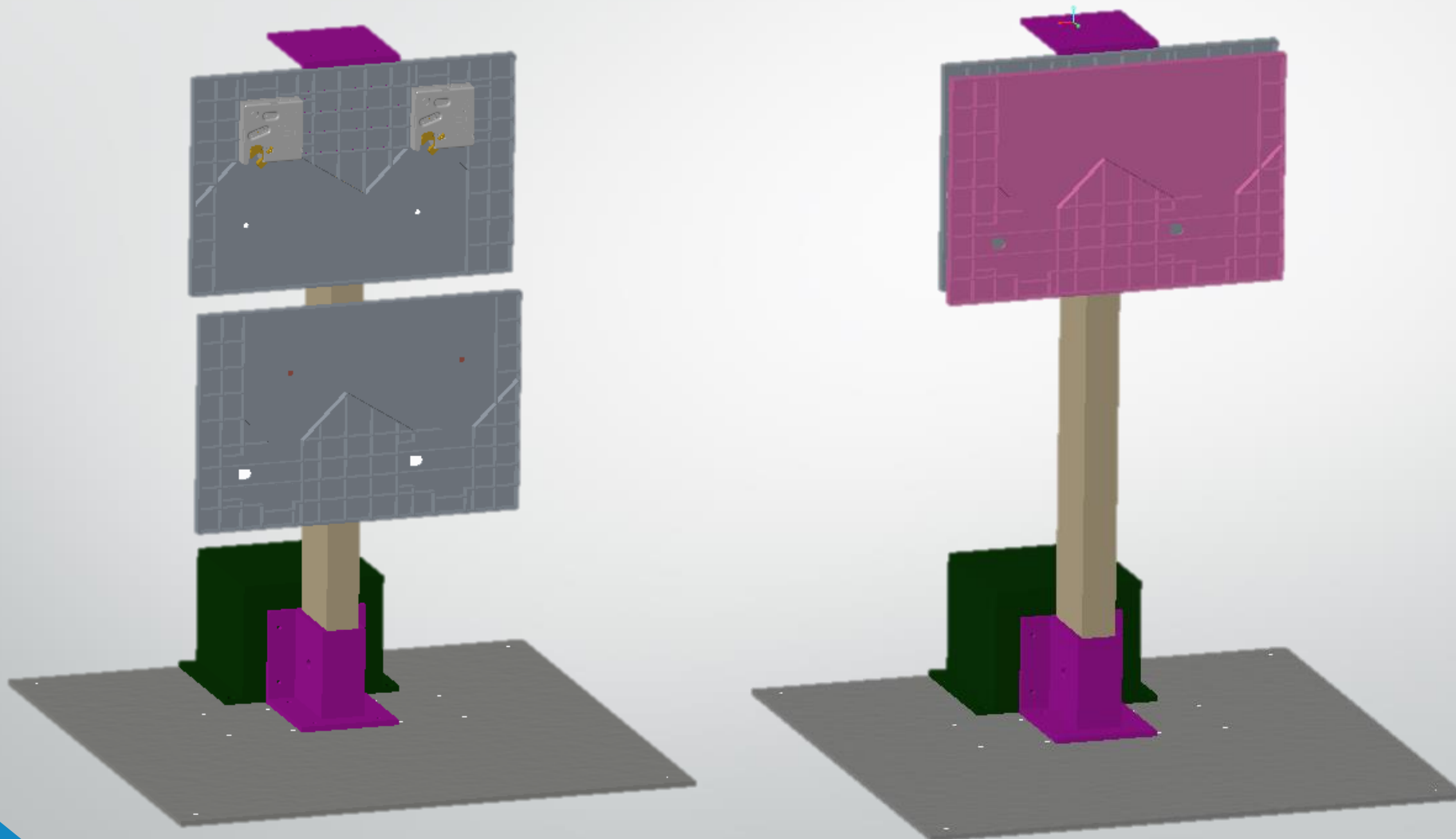
# Stand Design



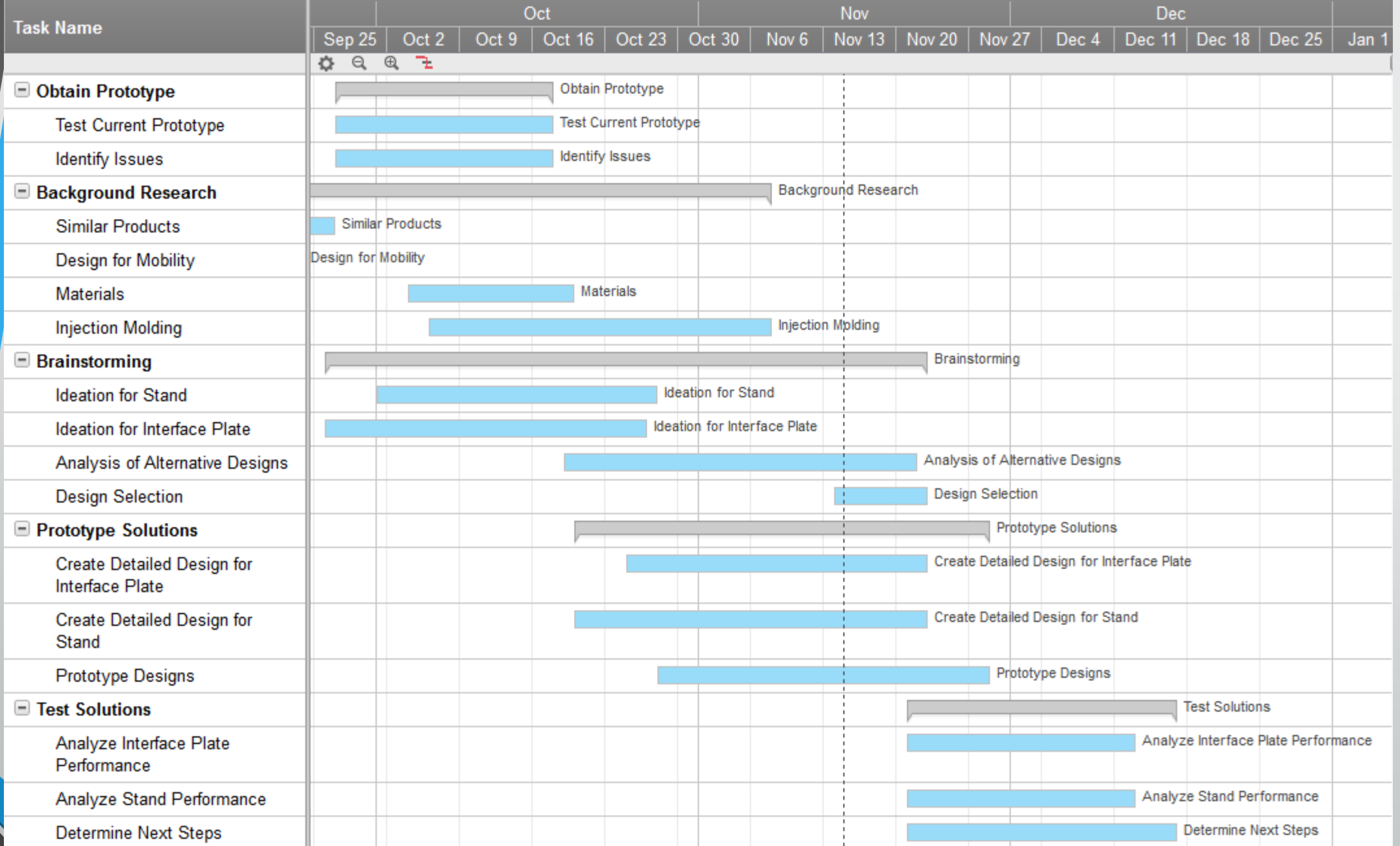
Raymond Lessig



# Full Assembly



Raymond Lessig





# Next Steps

- Finalize designs for injection molding
- Purchase parts
  - Arduino board
  - Clamps
- Continue weekly calls with sponsor

# Summary

- Introduction and Background
- Need and Goal Statement
- Constraints
- Lockheed Martin Prototype
- Injection Molding Components
  - 2x4 Adapter
  - Interface Plate
- Stand Design
- Timeline