

Salamah



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Needs Statement

An approach to solving the issue of limited mobility inside the cabin of an ambulance to assist a paramedic in creating stability for them to safely reach over and grab necessary tools and equipment that are out of reach while preventing any risk of injury to the paramedic or patient.

Mission and Vision Statement

- Mission statement: Work together to create a solution that allows for improved safety to both patient and paramedic while improving the healthcare available to patients in an ambulance.
- Vision statement: To be able to produce a product that will benefit the medical field in a timely manner.

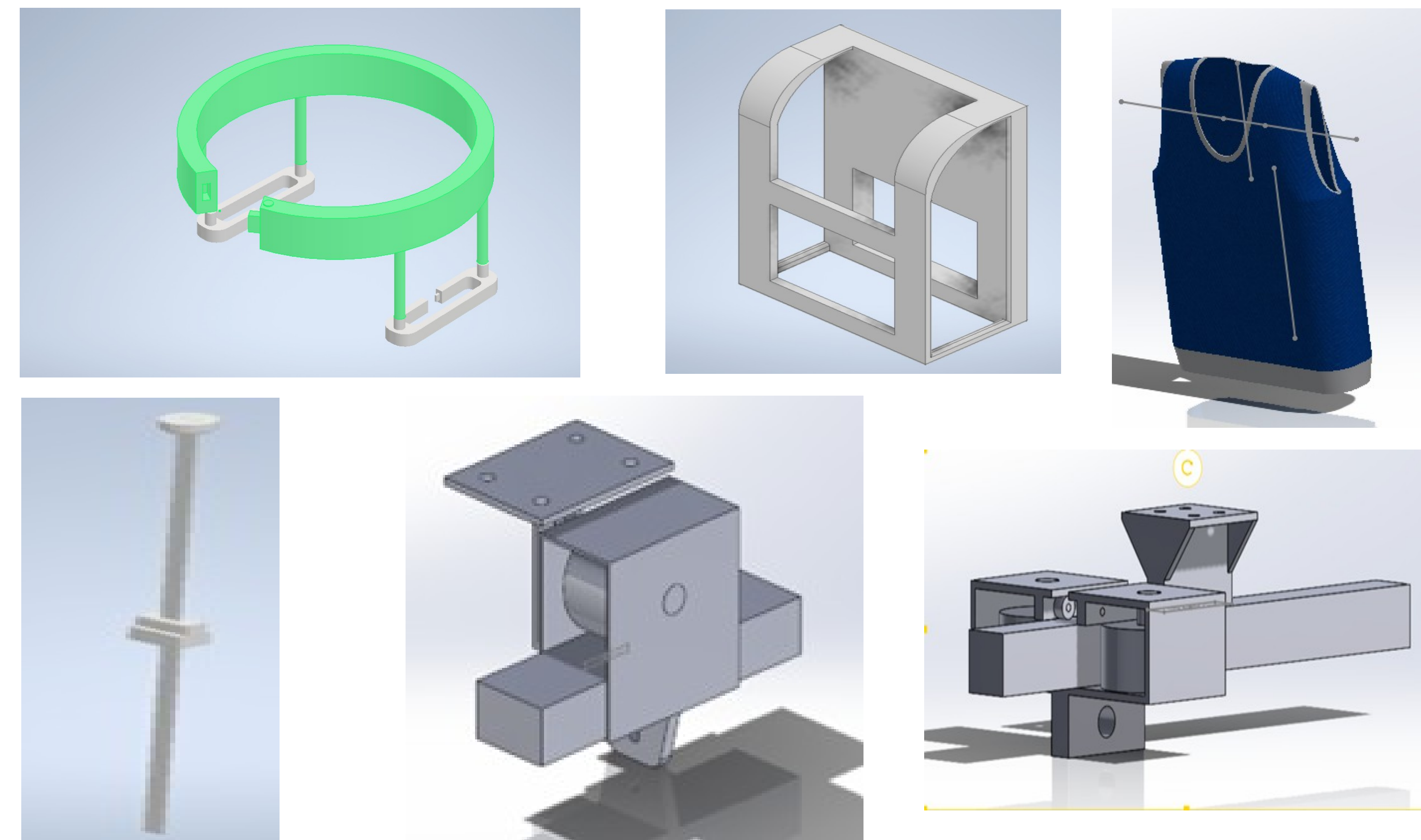
Introduction

- . Most type I and type III ambulances, which are most common in the United States, are also heavy enough that they are legally classified in the same class of vehicle as small buses, where passengers are not required to wear seatbelts. Because of this, and the restraints seat belts impose on an EMS provider at work, EMS providers are almost always unrestrained in the back of an ambulance, and in many cases, the patient is improperly restrained and at a higher risk of further injury. A solution that offers EMS providers greater stability while performing their duties in a moving ambulance, as well as greater safety when the ambulance undergoes high acceleration is critical if this problem is to be solved so EMS safety and performance can be improved.

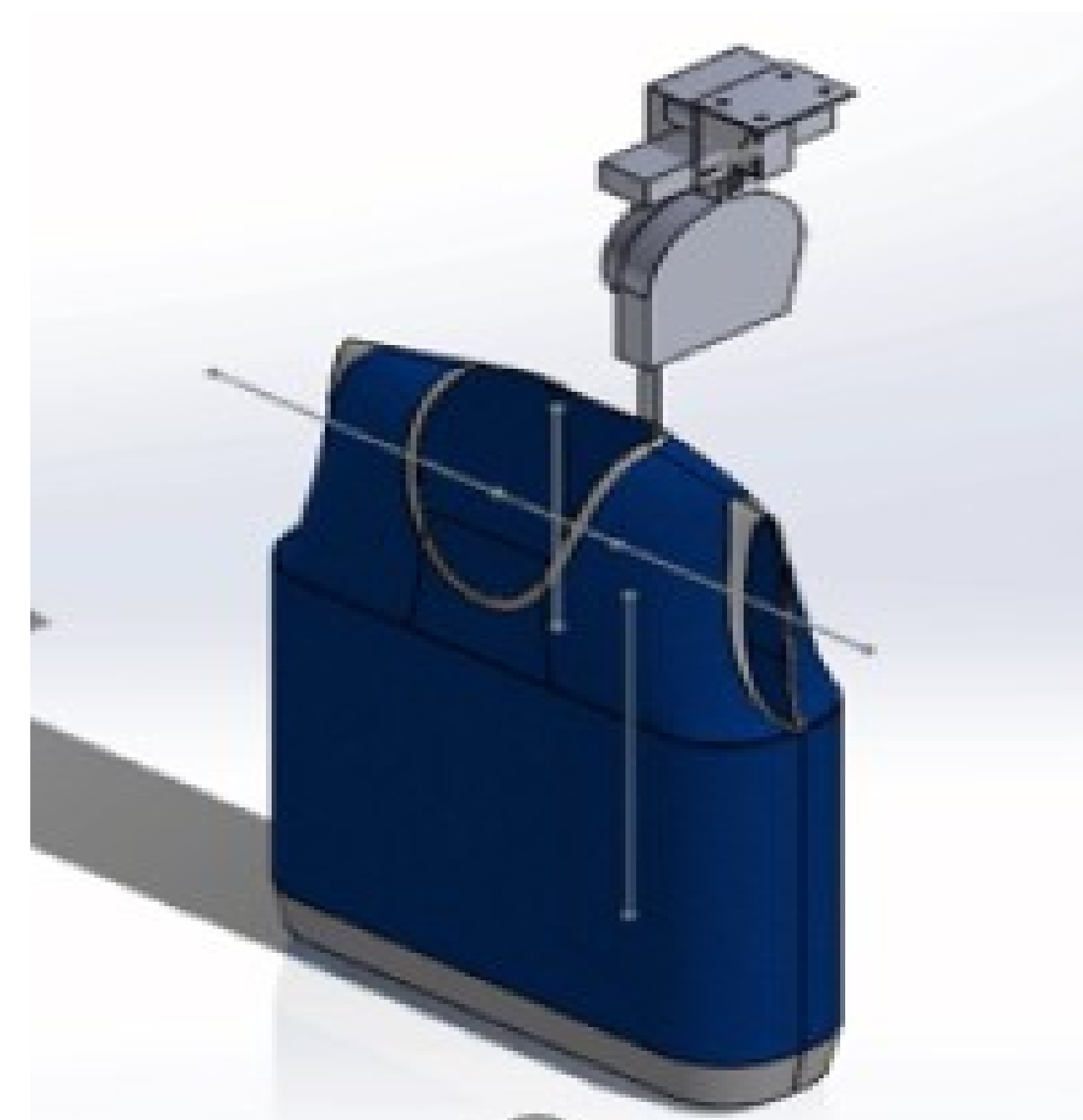
Market Analysis

- Due to their weight, ambulances are not subject to the same laws regarding safety restraints as most passenger vehicles and are categorized in the same class of vehicle as small buses, where seat restraints are not required for all passengers. In most cases, the vehicle exceeds its chassis' GVWR when fully loaded with a crew of two EMS workers and a patient on board. Given the weight of an ambulance, and the aggressive maneuvers made by EMS drivers in critical moments, impacts between ambulances and other objects may be perilous for all parties involved, especially when safety harnesses are not involved.

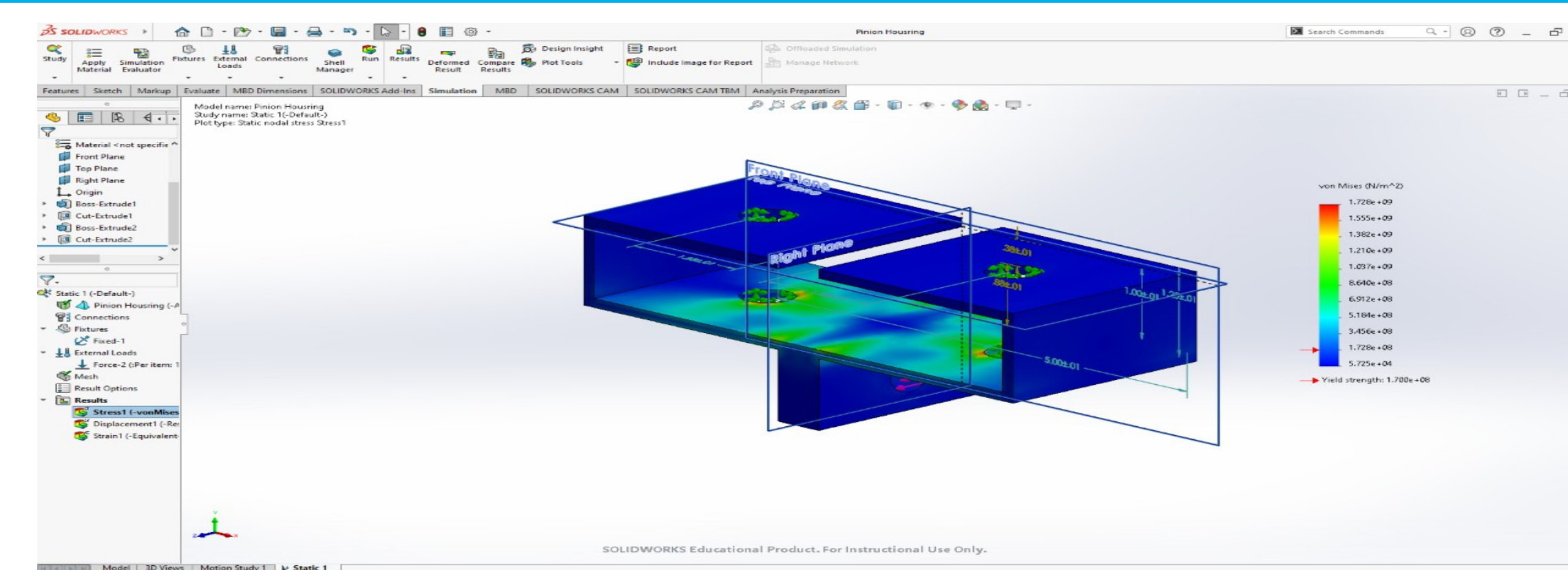
Design Concepts



Final Design



Prototype Testing



• 316L stainless steel as the material, the force applied was 17.5 kN horizontally (purple arrows at the bottom). The green arrows in the axle holes are the fixed portions.

Prototype



Conclusion

- Safety is the number one priority that can not be bargained for, a safe environment requires more effort from everyone to make sure things do not go wrong. While paramedics are not seat-belted when they stand and lean forward to grab items, this brings a red flag to the table. Team Root saw and analyzed the situation and came up with multiple solutions and evaluated each of them. As a result, project Salamah was made to make the medics' work environment safer. Project Salamah is made of two parts, the rail system, and the safety belt. First is the rail system, the rail system is connected to the roof of an ambulance will allow easy movements while being restrained in sudden accelerations to give support. Second is a safety belt which is connected to the rail system to stabilize medics and support their back while lifting heavy objects.