



Manos Rucking Pack

Diamond Engineering Group



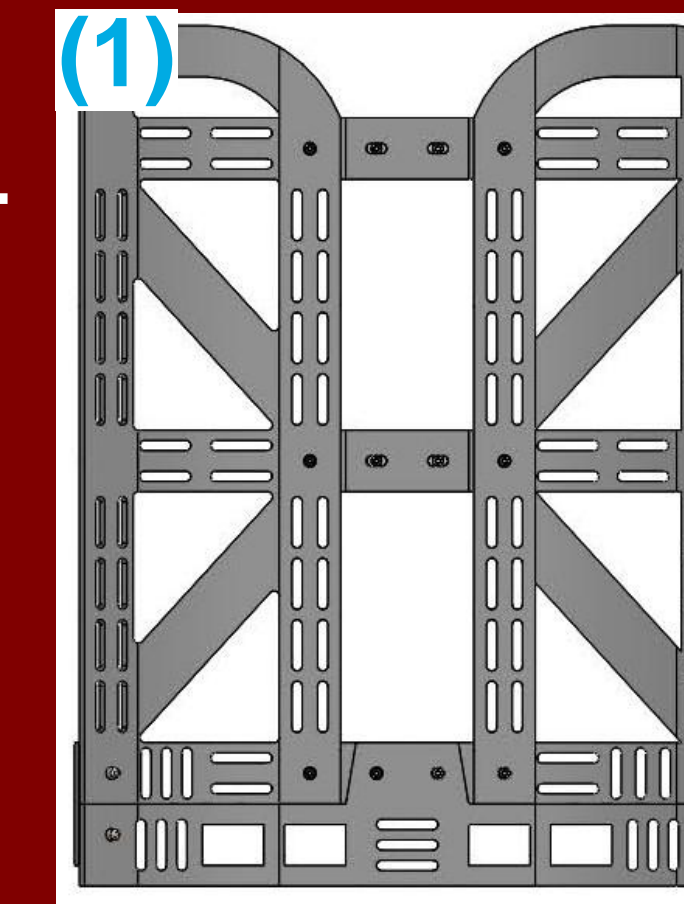
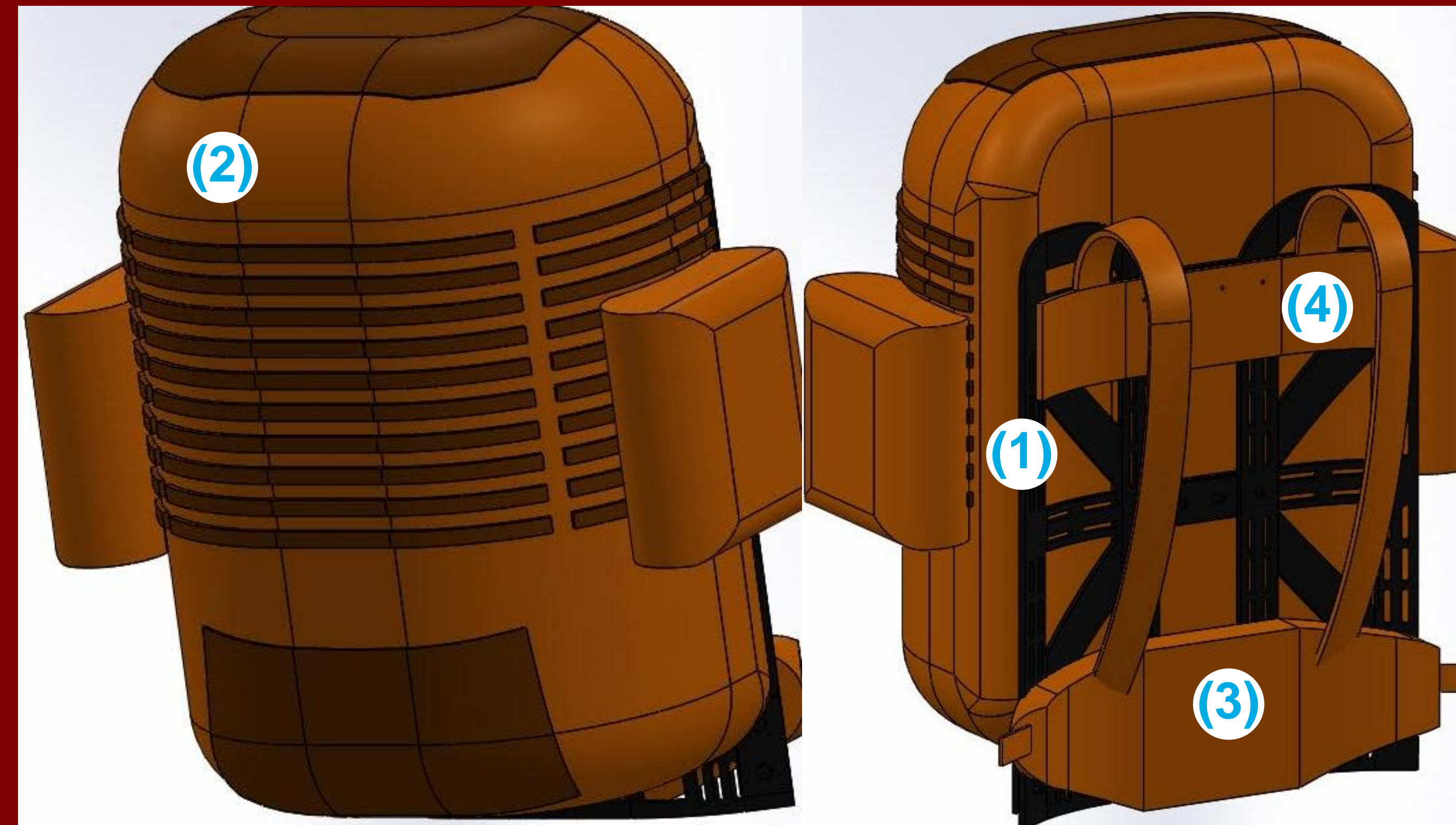
Problem

The current rucksack used by the **U.S. Marine Corps 1st Reconnaissance Battalion** has a weak frame that easily breaks and does not fit comfortably while carrying a combat load.

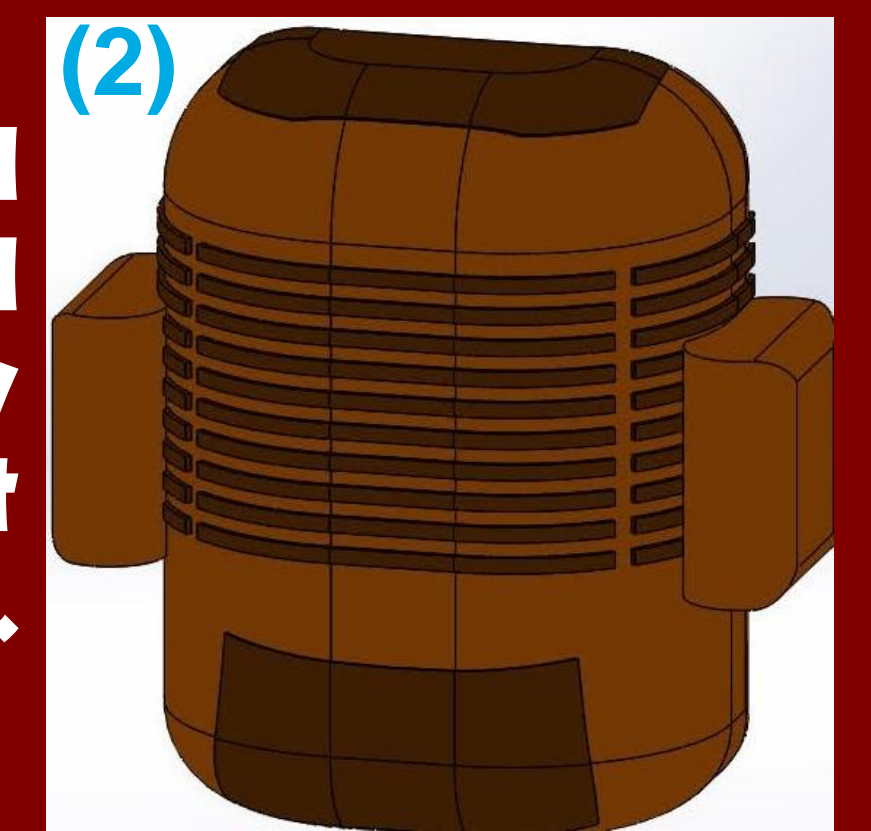
Objective

To develop a **modular rucksack** with an adjustable frame that has the ability to maintain its integrity through all missions faced by the 1st Recon. Battalion.

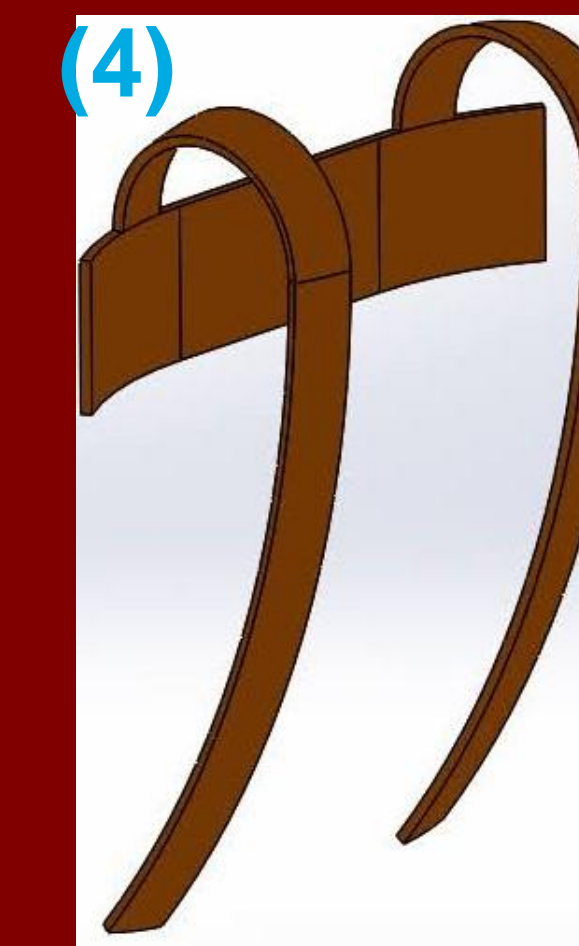
Design Overview



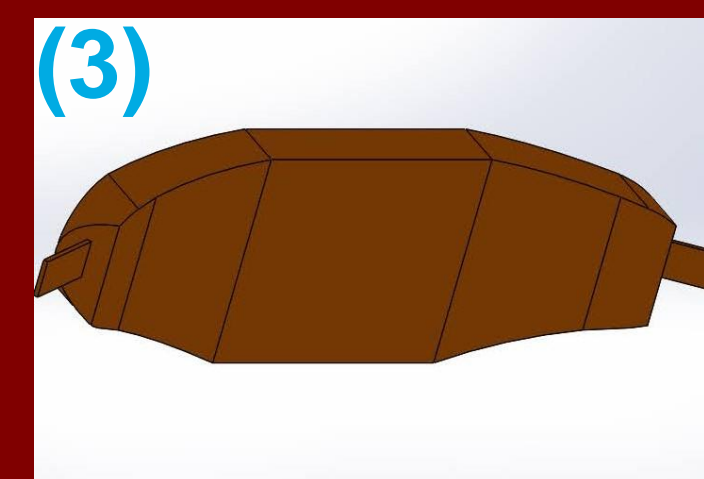
(1) Frame specially designed for comfort, strength and adaptability. Made from HDPE due to the material's strength, light weight and resistance to corrosion.



(2) Pack designed to be rugged and resist environmental factors. Made from military grade, puncture resistant Cordura.



(4) Shoulder straps designed to reduce bodily stress in increase operational range.



(3) Waist strap designed for comfort and ability to displace the load throughout the body.

Testing Plan

Load Testing: Load frame vertically and horizontally with maximum amount to ensure no deformation.



Endurance Testing: Measure blood oxygen levels during extended use of the pack.



Impact testing: Frame tested by dropping weights and simulating other impacts.



Puncture testing: Pack tested by attempting to puncture material using various objects.



Sponsor



Michael Hard

National Security Innovation Network (NSIN) is an organization that is focused on solving national security problems through innovation.

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