

# VICTORIA BERRY

Mechanical Engineering at Northeastern University



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## RC Plane Landing Gear, Personal Project

### Project Overview

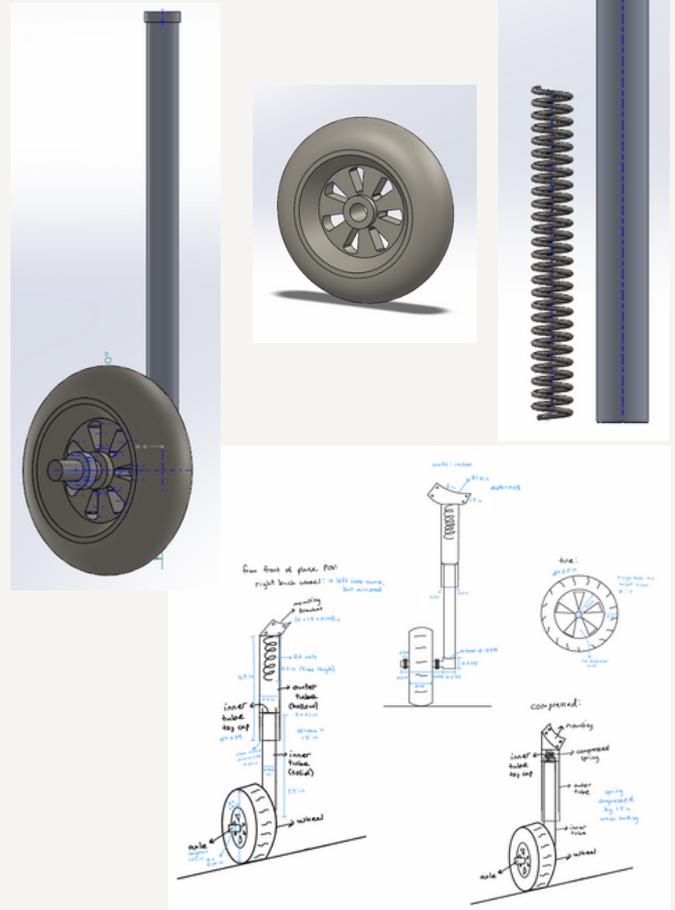
This project involved designing a telescoping shock-absorbing landing gear system for a 3.5-pound RC sport aircraft. The design uses a compression spring within telescoping aluminum tubes to absorb 11-pound landing loads with 1.5 inches of stroke and a 2.5 factor of safety.

### Design Process

Spring calculations determined parameters for a 7.5 lb/in rate using 0.048-inch music wire with 24 active coils. 6061-T6 aluminum telescoping tubes were designed with appropriate clearances, and SolidWorks was used to create detailed CAD models and engineering drawings.

### Results

The design achieves a 7.48 lb/in spring rate and meets all structural requirements with a 2.5 factor of safety. The project is currently being finalized with final design touches and documentation.



## RocketWorks, AerospaceNU

### Project Overview

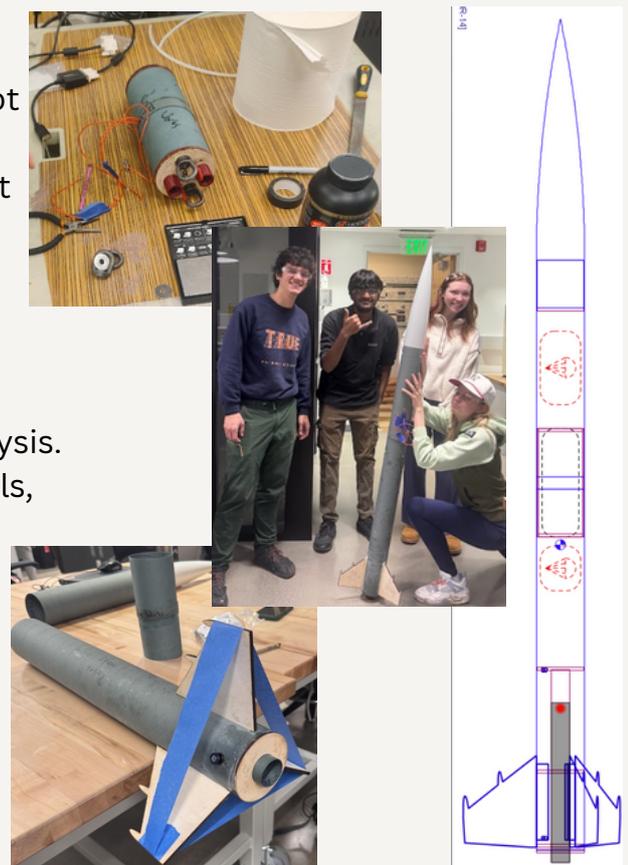
This team project involved designing and building a 6-foot high-power rocket with a target apogee exceeding 1000 meters and maximum acceleration of 200 m/s. The rocket body was constructed from Kraft paper tubes and designed using SolidWorks and OpenRocket simulations.

### Design Process

Working with a team of five, I contributed to fin design decisions and learned OpenRocket for performance analysis. I led the physical fabrication using laser cutters, dremmels, saws, and drills, performed critical measurements, and assisted with epoxy bonding and ejection system testing.

### Results

The rocket was successfully assembled and ejection testing validated the recovery system. The rocket is scheduled to launch within the next couple months to validate design performance predictions.



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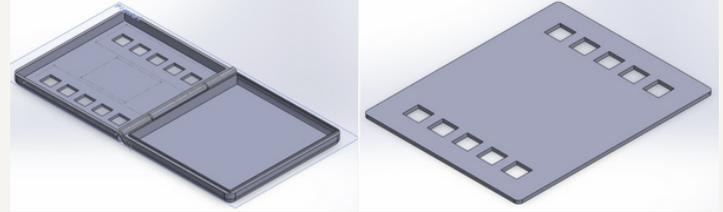


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## SenseLink, Class Project

### Project Overview

SenseLink is a handheld communication device designed to help non-verbal children express their needs and emotions. The device features 10 interchangeable audible buttons customizable to each child's sensory needs, with future plans to connect to an app for easy button reprogramming.



### Design Process

I drew the initial design sketches, created dimensional specifications, and led fabrication including 3D printing, laser cutting, measurements, and assembly. When 3D printing challenges arose, I consulted my team to redesign the casing using laser-cut components.



### Results and Validation

The prototype was successfully assembled using SolidWorks, AutoCAD, and Arduino, demonstrating the 10-button customizable interface. The laser-cut design proved effective for creating a functional pediatric communication device.



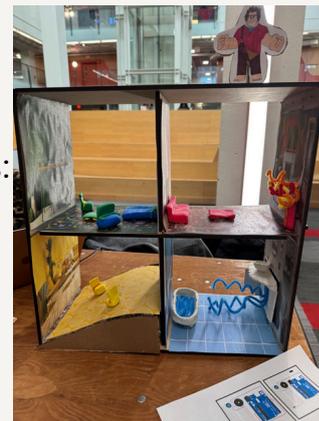
## Wreck-It-Ralph Building Disaster, Class Project

### Project Overview

This interactive game challenged players to solve why a building was collapsing alongside Wreck-it-Ralph. The structure featured four distinct engineering failure scenarios: electrical system faults, hydraulic failures, structural foundation defects, and load-bearing capacity violations.

### Design Process

I led the structural design from concept through fabrication, creating detailed sketches and AutoCAD models for laser cutting. I fabricated custom clay furniture serving as functional puzzle components, created the character figure, and contributed to C++ programming and narrative design.



### Results and Validation

The completed game successfully integrated SparkFun boards with physical puzzle elements across all four engineering failure scenarios, creating an engaging hands-on learning experience for exploring structural and systems engineering concepts.

