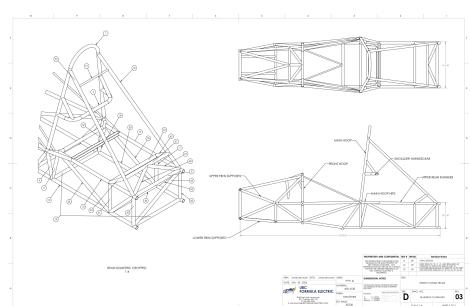
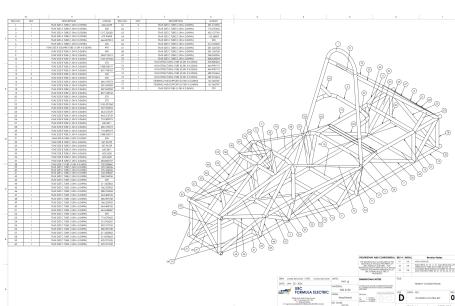
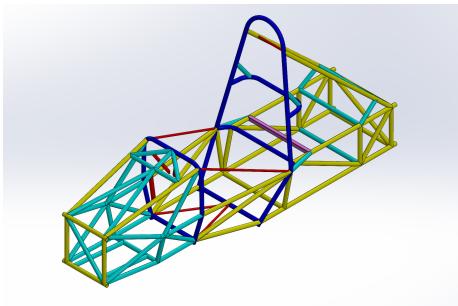


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UBC FORMULA ELECTRIC — CHASSIS FRAME DESIGN



What?

- Led end-to-end design of a FSAE electric vehicle chassis
- Owned safety, packaging, and manufacturability decisions
- Delegated team tasks and managed project timeline

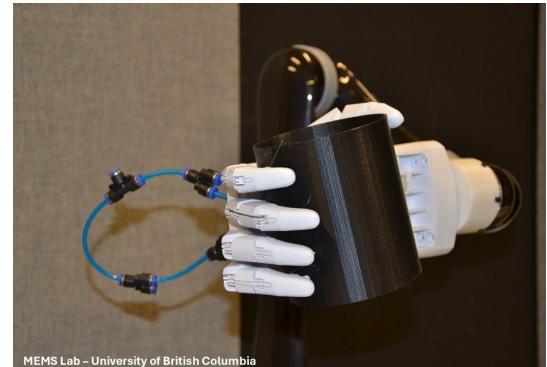
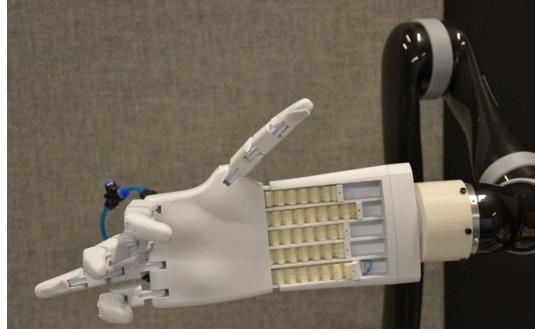
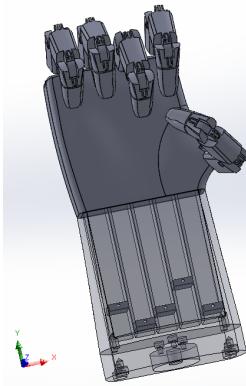
How?

- Designed space frame in SOLIDWORKS, iterating tube geometry for stiffness-to-weight
- Coordinated interfaces with suspension, powertrain, and battery teams

Results?

- Achieved FSAE-compliant chassis with improved packaging
- Enabled downstream manufacturing and on-schedule vehicle integration

MEMS PROSTHETIC HAND



What?

- Developed a tendon-driven prosthetic hand for research applications
- Explored bio-inspired actuation and grasping strategies

How?

- Designed and 3D printed iterative mechanical prototypes
- Integrated it with a Kinova Jaco2 robotic manipulator
- Evaluated grasp performance and refined linkage geometry

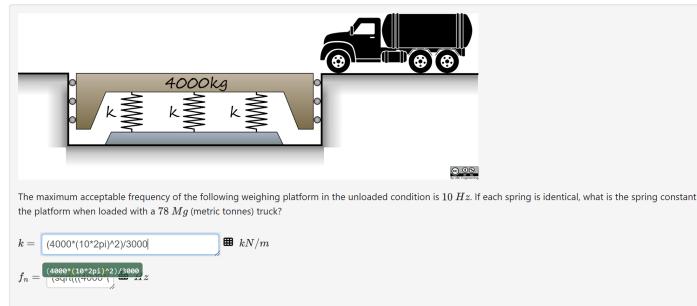
Results?

- Produced a fully functional prototype demonstrating reliable tendon actuation
- Achieved measurable grasp performance improvements over prior designs

WEBWORKER CHROME EXTENSION

221-ProblemSet5: Problem 14

(1 point)



Note: You can earn partial credit on this problem.

Show: Correct Answers

[Preview My Answers](#) [Check Answers](#) [Open Piazza](#) [Custom Query](#)

You have attempted this problem

Your overall recorded score is 100%.

This homework set is closed.

What?

- Created and published a browser extension to improve WeBWorK usability for students

How?

- Developed front-end logic in JavaScript and HTML/CSS
- Implemented real-time math rendering and input validation
- Added new features based on direct user feedback

Results?

- Reached 900+ active users at peak adoption
- Reduced input errors and improved workflow efficiency

SVNWORKS

What?

- Built a Windows desktop tool to streamline CAD version control
- Published on the Microsoft Store

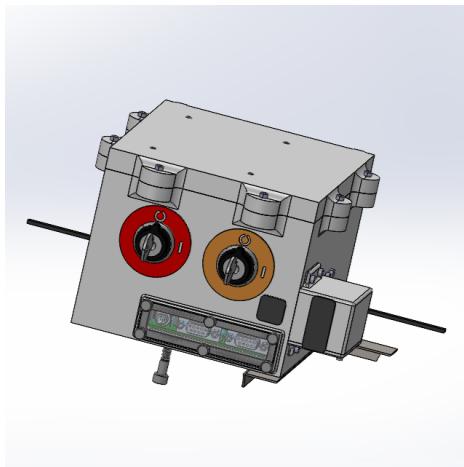
How?

- Developed an MSIX application using C#/.NET
- Integrated Apache Subversion with the SOLIDWORKS API
- Exposed file-lock and repository state directly in the CAD workflow

Results?

- Reduced file conflicts in collaborative CAD environments
- Improved design accountability and version awareness for teams

UBC FORMULA ELECTRIC — DESIGN PROJECTS (YEAR 1-2)



What?

- Manufactured structural and composite vehicle components
- Designed electrical enclosures and mounting systems

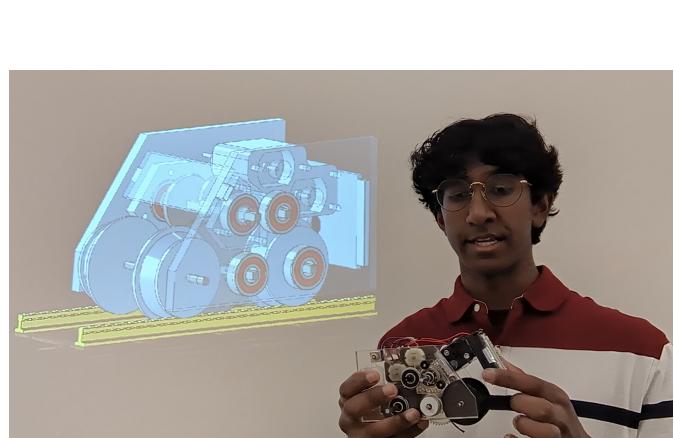
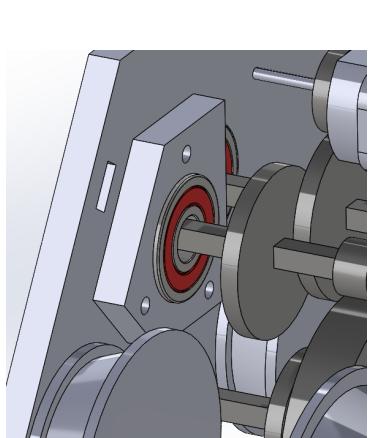
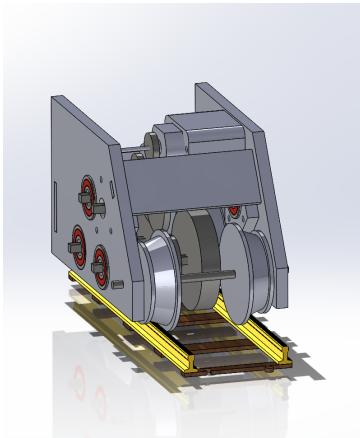
How?

- Modeled mounts, enclosures, and tabs in SOLIDWORKS
- Executed carbon and glass fiber composite layups
- Collaborated using SVN and structured design reviews

Results?

- Delivered reliable body, aero, and enclosure components
- Gained hands-on experience in composite manufacturing workflows

MECH 223 RAIL HAULER



What?

- Designed a load-carrying rail vehicle from concept to fabrication
- Worked in a team to meet course requirements and deadlines

How?

- Modeled full mechanical system and produced fabrication drawings
- Manufactured parts using machining, laser cutting, and 3D printing

Results?

- Delivered a fully functional vehicle meeting load and performance targets
- Demonstrated complete design-build-test cycle execution

For more details and media, please go to my portfolio website danielrbenjamin.com