McMaster University | ENGINEERING
W Booth School of Engineering Practice and Technology

PROJECT SUMMARY

High-Speed Emergency Landing Gear and Suspension Design

CHALLENGE

The objective was to design a suspension system that will minimize the landing impact and comfortably decelerate a high-speed vehicle during an emergency landing.

PARTNER

TransPod Inc

TRANSPOD

TransPod is currently designing a hyperloop capable of travelling over 1,000 km/h between cities for public use.

TEAM

- Ryan Janzen, Chief Technology Officer and Co-Founder
- Dr. Moein Mehrtash, Assistant Professor, McMaster University
- Aljen Que, M. Eng. Manufacturing
- Likai Yang, M. Eng. Manufacturing

MILESTONES & OUTCOME

- Achieved critical damping for suspensions
- Derived material indices to select materials to minimize mass and cost
- Performed FEA and weight reduction
- Simulated modal analysis
- High-speed wheel design

VALUE

This project can be the difference between a safe emergency landing and a disastrous accident. Every calculation counts.

NEXT STEPS

- Optimize the wheel design's radius and fill factor
- Friction forces, gyroscopic forces, and rolling resistance analysis
- Prototyping and testing

STUDENT REFLECTION

We learned how to tackle engineering problems with self-research and independent decision-making.