

# AI for Solar Refrigeration Systems in Long Haul Trucks - Hardware

## CHALLENGE

- Monitoring temperature profile, door open-close characteristics and power surge events of a solar reefer container.
- Position and route mapping for enhanced safety and solar performance.
- Systems integration and HMI development using data extraction techniques.

## PARTNER

**Westhill Innovation Inc.**



Designer and manufacturer of environmentally sustainable composites for the commercial, recreational, transportation and construction industry.

## TEAM

- Gina Succi, President, Westhill Innovation Inc.
- Dr. Seshasai Srinivasan, Assistant Professor and Program Chair, McMaster University.
- Dr. Zhen Gao, Assistant Professor, McMaster University.
- Anirudh Gorantla, M. Eng. Manufacturing.
- Ashwin Jacob, M. Eng. Manufacturing.
- Saurabh Sashi Kumar, M. Eng. Manufacturing.

## MILESTONES & OUTCOME

- Study and selection of sensory field devices.
- PLC programming and software simulation.
- Proposal of a PLC based remote monitoring system to achieve systems integration and data collection resulting into an intuitive user interface.

## VALUE

- Systems integration.
- Efficient methods of data extraction and remote monitoring of system characteristics.
- Ease of access through the development of HMI.

## NEXT STEPS

- Physically implement all the hardware components on the trailer and test the setup's capabilities.
- Use exported data to create an intuitive HMI.
- Use collected data to improve cost efficiency and increase carbon tax savings.

## STUDENT REFLECTION

- Collaborative team work in remote environments.
- Insight into automation techniques.
- Effective distinction and selection of industrial grade components.

