

GBTN 20

AUTOMATED SHADING AT NAIT

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Project Typology:	Institutional Retrofit
Project Location:	Edmonton
Project Innovation:	Artificial Intelligence Shading
Project Lead:	AI Shading
Project Partner:	NAIT
Building Owner:	NAIT

GREEN BUILDING
TECHNOLOGY
NETWORK

PROJECT OVERVIEW



PROJECT MOTIVATION

According to the US Department of Energy, 30% of energy loss in buildings is through windows. Revenue for the window shades market in the Canadian market in 2023 is expected to be US\$ 1.79 billion. AI Shading is an all-year-round energy savings solution. In Summer, the control strategy blocks the solar heat. In Winter, it harvests the solar heat to reduce the demand of HVAC. However, the public doesn't realize the energy savings potential of the AI Shading system.

The product demonstration at NAIT was a good opportunity to demonstrate the technology. The next step is to scale up the project size to a whole commercial building. Then, it can be a very convincing and presentable case study to the market. With this case study, we believe we could incorporate 180 buildings or more in the coming 5 years.

Highly satisfied with technology deployment, the overall performance and energy savings.

- NAIT

	UPGRADE ESTIMATED	UPGRADE ACTUAL
ANNUAL ENERGY CONSUMPTION IN GJ (% SAVINGS)	13.3	24.1
ANNUAL GHG EMISSIONS IN tCO ₂ e (% REDUCTIONS)	3	5.4

5.4 ANNUAL GREENHOUSE GAS
REDUCTIONS (TCO₂E)

24.1 ANNUAL ENERGY USE
SAVINGS (GJ)

PROJECT INNOVATION



AI Shading's autonomous operated window shades are on the same path as SSRIA in the goal of achieving energy savings and greenhouse gas reductions through innovation.

The devices at NAIT use solar panels as the power supply for the shades' operations. In future projects, AI Shading will use solar panels to supply the power for South-facing windows' shades to make a good use of renewable energy. This technology is applicable to all kinds of buildings.

Key Findings

- Consider the **social and economic impact on local communities**, and seek partnerships that extend beyond the project's immediate scope.
- **Engage a diverse range of stakeholders**, including end-users (in this case students), to understand the technology and goals for the project.
- Prioritize a **comprehensive stakeholder engagement strategy**, ensuring that all relevant voices are heard and considered in decision-making processes.
- Successful implementation of autonomous system requires **careful consideration of technology integration** and adaptability to meet evolving needs, especially the wireless connection of devices.
- Establish a **detail planning on the wireless connection** for the devices.
- **Measure all the windows** to make sure there is no surprise during the installation.
- Consider **measure and validation** in the project site selection.

ADDITIONAL RESOURCES



Visit the [Resource Library](#) to find resources on this project and others like it.

ABOUT THE TEAM

Take a look at two interviews conducted with the team and get to understand their collaboration and vision for a low-carbon built environment.

[Team Lead](#)

[Team Collaborators](#)

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