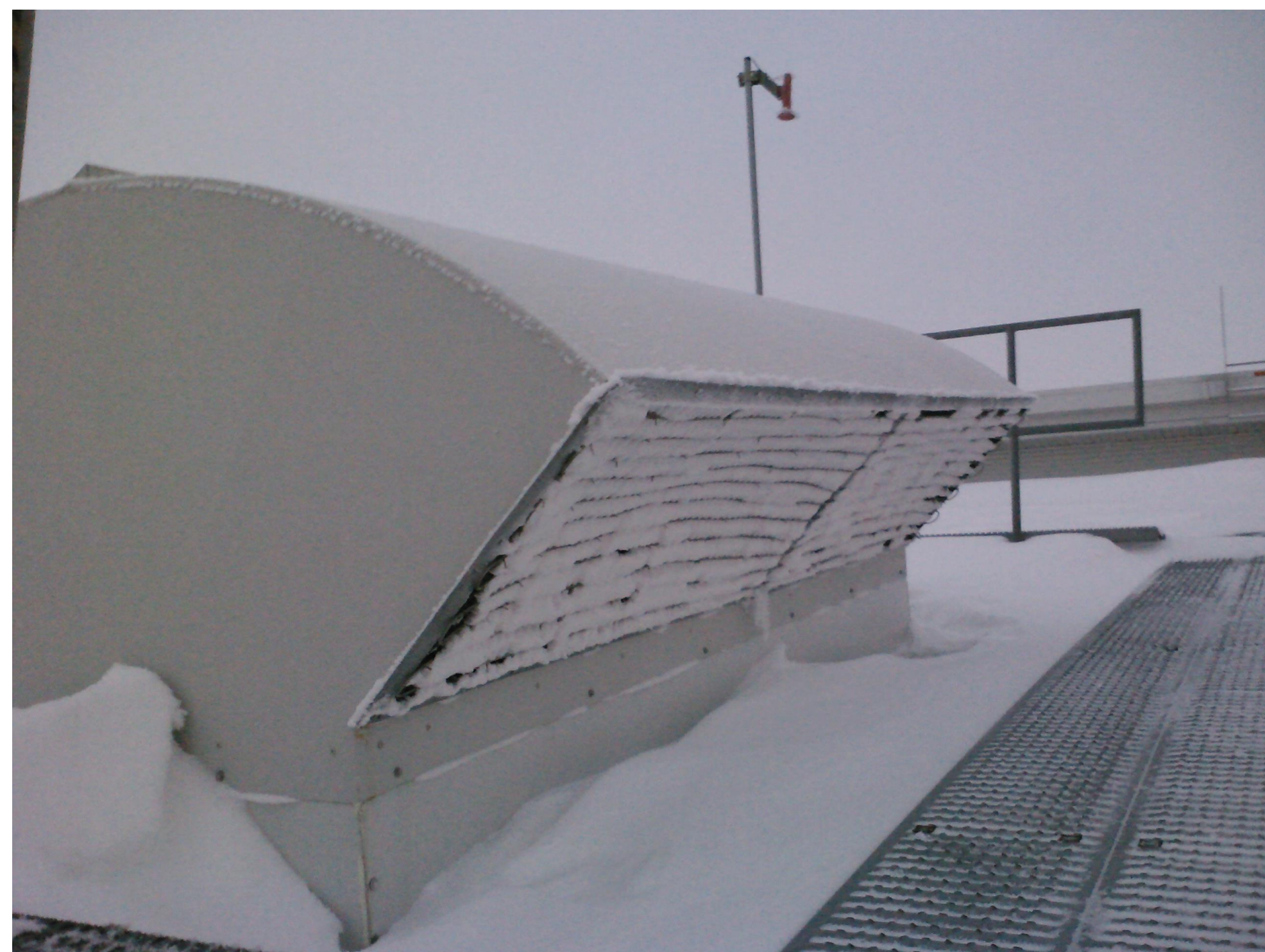


AUTOMATIC VENT WIPER

AMRITPAL DHARIWAL, JIN JIANG, ROLANDTINE SAKOU

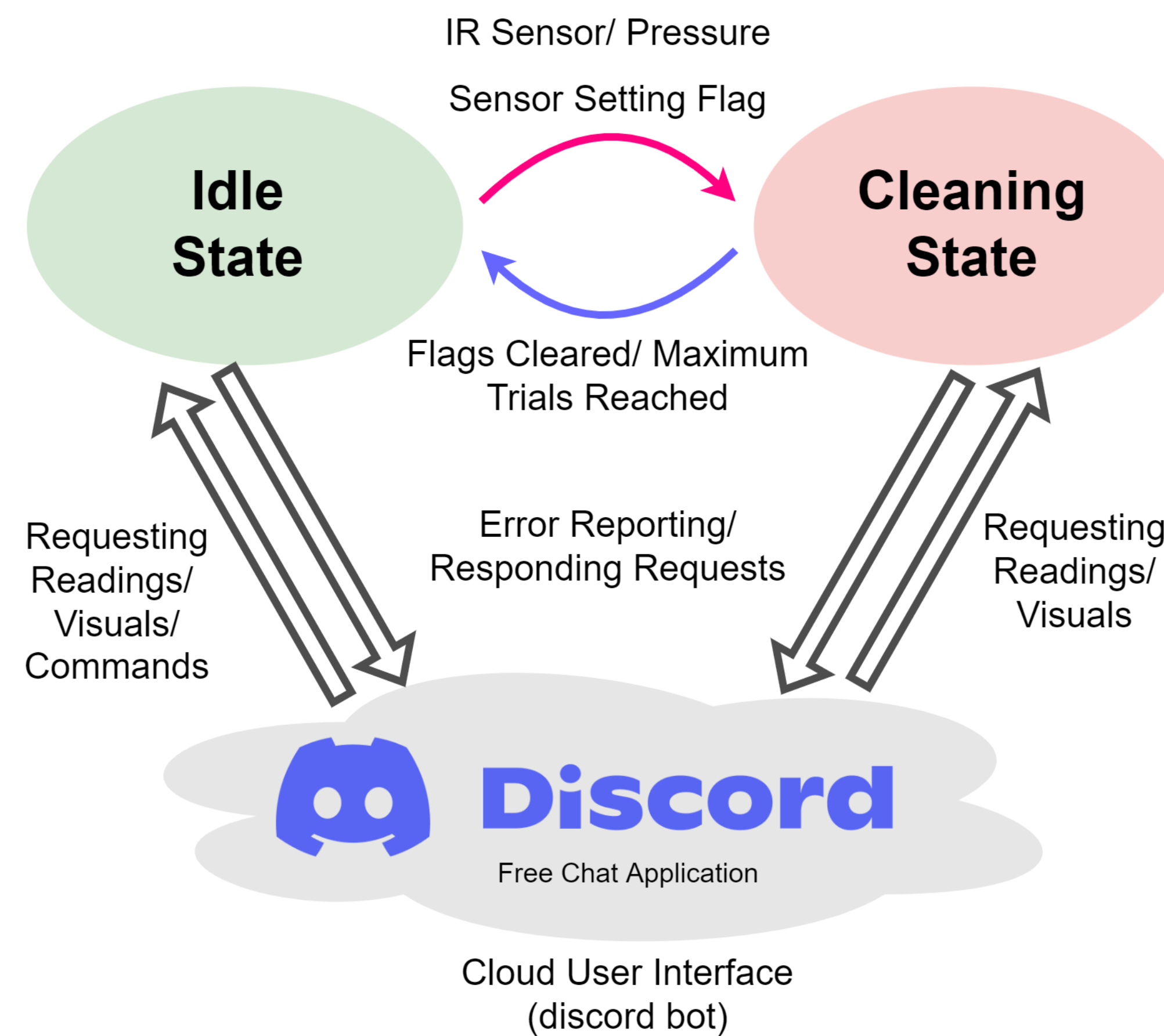
Current Problem

- Frost forms on the intake of the main vent in winter.
- Restricts air flow in the building.
- Worsens the covid-19 situation.
- Raises concerns when operators cleaning at the roof in winter.
- Costs significantly to implement the resistive heating systems.
- Consumes lots of energy when resistive heating system operates.
- Outcomes of resistive heating system is not satisfying.



Reference:
Vent Picture taken by U of R Facility Management
Discord logo source: <https://discord.com/branding>

Our Solution



- Cleans the frost automatically by reading two high sensitivity sensors.
- Minimizes the operators' accesses of the roof.
- Automatic and manual remote control via Discord.
- Demonstrates the current status of the vent remotely via Discord.
- Reports the errors to the operators remotely via Discord.
- Cleans the frost effectively.
- Limited costs and energy consumption.

Mock-up Quarter-Vent Test Bed

- Accurate dimensions and angles comparing to the real-world site.
- Demonstrates the system workflow and functionalities.
- Error detection capabilities.
- Low power consumption.



Acknowledgement:
Advisor: Douglas Wanger, P. Eng.
University of Regina Facility Management