Team Name: High Risers x360

Domain: Software

PSID: SIH-1444

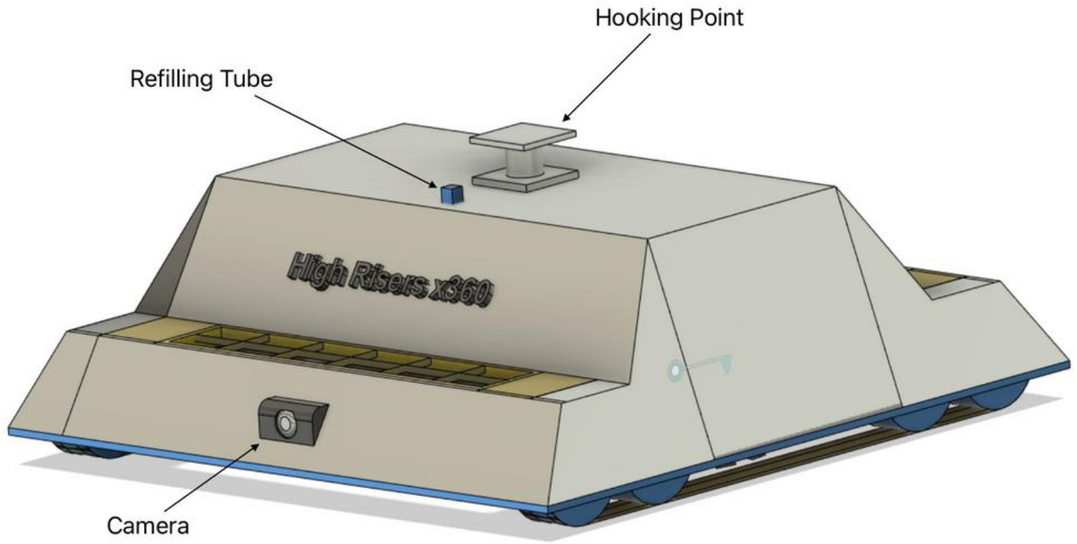
Theme Name: Robotics and Drones

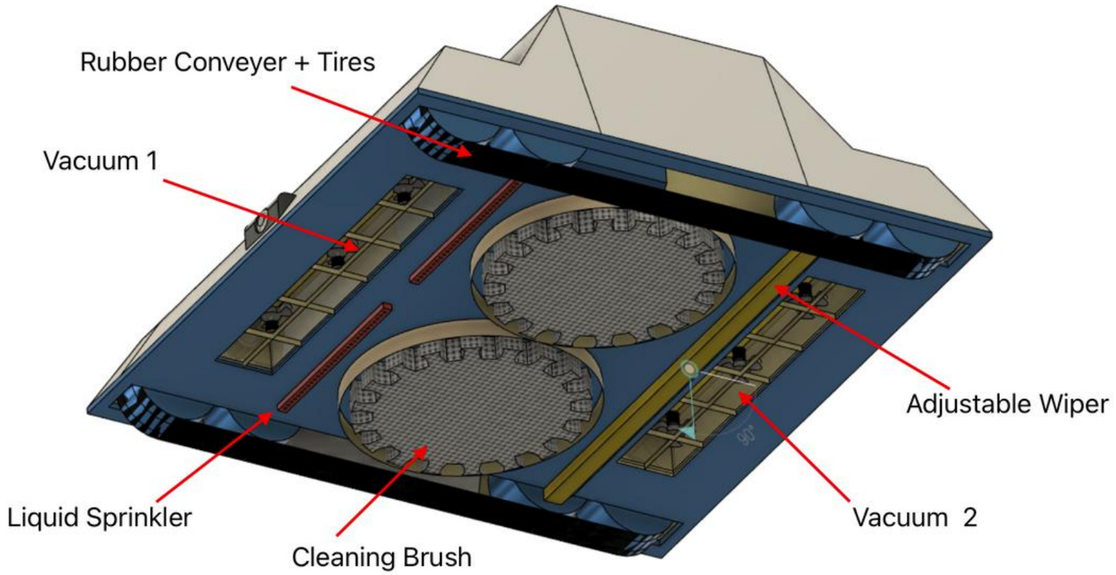
Innovation: Highly Efficient Glass Cleaning Robot

Problem Statement Title: Autodesk

Students to use Autodesk Fusion 360 to research and develop a design on “Smart Glass Cleaning Robot”, which can climb, clean, and carry liquid cleaners.

Working





The Robot needs to be hanged from the top of the building like a spider hanging from the ceiling, keeping it in contact with the glass surface.

The robot will be attached to the automatic spool pulley which will provide it power and support against gravity. It works in sync with the main robot and can be controlled by both human operator & AI.

Firstly, the vacuum fans will clean the dust deposited on the window. Furthermore, the cleaner unit will clean the glass making it spotless. Lastly, the wipers will remove any liquid or deposits that are on the window’s surface

The vacuum fans will help maintain its stability and will help it stick to the building The rubber belt tires will help improve the lateral stability against the wind as well as help in navigating through out the plane.

Whats New? What are the Advantages?

The major issues with the solutions(Robotic High-Rise Glass Cleaners) already available in the market are:

- Big Size
- High Cost
- Limited Working Time.

We have successfully overcome this problem by making our solution:

- Compact: Limiting its dimensions to max (1 x 1 x 1)m.
- Efficient: Instead of using a battery we will be using a Current Supply from the automatic spool of wire(synchronized with the main Cleaning Unit).
- Portability: The robot can easily be moved to different areas without the hassle of changing or recycling batteries.

Major Advantages of this Prototype are as Follows:

- Cost Effective: By using very basic but durable electrical components, removing the concept of batteries hence reducing the cost.
- Minimal Waste: The robot generates minimal waste as there are no disposable batteries to discard, contributing to a more eco-friendly cleaning solution.
- Easy Deployment: They can be easily transported to different locations, making them suitable for both residential and commercial cleaning applications.