

Surveying of Building Envelope and Heat Signature Analysis Using Drones

Engineering Technology



FUNDER:

Ontario Centres of Excellence

INDUSTRY PARTNER:
Edison Engineers Inc.

TIMELINE:

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RESEARCH TEAM:

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KEY STATS:

Using drones allows 100% of a building envelope to be surveyed, and there would be no impediments with wind speeds. This process is much faster and safer than using traditional surveying methods.

Context: The Industry Partner used handheld technology to collect information on the integrity of the structural envelope as well as a building's heat signature. This process can be very time consuming, cumbersome, and poses a safety risk to the technicians that are suspended off the side of a building to collect the required data.

Industry Challenge: The Industry Partner considered using drones to collect the data but the cost of starting this process is prohibitive. By integrating drones into building envelope inspection protocol, they could obtain footage without risking the safety of their employees.

Solution: This project allowed the Mohawk team to integrate drones into their building envelope inspection protocol. On a culminating flight for the proof-of-concept phase, they were able to capture regular and thermal camera imaging for at least 50% of the building quickly by using drones, despite the wind gusts of over 40 km/hr.

Impact of the project: This project has shown the Industry Partner how to incorporate the use of drones in scanning the building envelope instead of the typical process of someone being suspended by means of a boson's chair to inspect the building. A larger portion of the building can be examined in a shorter time; the gusts in the proof-of-concept flight would have grounded someone from descending down the face of the building.

Mohawk's role: Mohawk was one of the first Colleges in southern Ontario to integrate drone surveying into the curriculum. The collaboration has allowed Mohawk to provide their expertise and provide invaluable assistance in this derisking technology.