MONASH
ENGINEERING

MONASH University

Faculty of Engineering

Summer Research Program 2022-2023

Project Title: Computer Vision in High-Rise Prefabricated Wall Module Installation

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Objective

In high-rise construction, the on-site installation of prefabricated exterior wall modules involves precisely aligning the crane suspended module to the attachment position. The conventional process requires workers to manually catch this dangerously swinging 500Kg pendulum before they can guide it into alignment. The purpose of this project is to enable machinery to do this task, thereby improving safety.

Cameras can be used to capture the location of the swinging module and the target installation location. However, outdoor lighting conditions (sun, reflections, rain, clouds, etc.) make this task very difficult. The objective of this project is to devise a visual processing strategy to extract this information.

Project Details

The stages of this project are:

1. Conducting review of outdoor glass detection
2. Developing a strategy to improve detection of wall glass modules
3. Implementing the strategy with scaled experimentation for verification

Prerequisites

Basic familiarity with computer vision techniques

Additional Information

Applicants may be required to attend an interview.