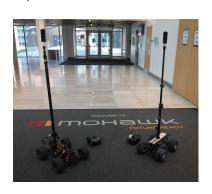**CASE STUDY**

360 Capture Innovations: Remotely Piloted Rovers For Campus Capture & Industry Applications

By using new technologies in 360 photogrammetry and developing innovative remote capture methods, Mohawk College's School of Building and Construction Sciences applied research team is building a 360° virtual walk-through of their entire campus to support safety, security and facilities management efforts.

With their main goal to have the camera at a consistent optical height without having to use a manually positioned tripod for each capture, the Applied Research Team of professors and their students initially discussed ideas about robot trucks to attain consistent center point focus during the 360 capture process. Working with a local hobby shop, they developed a working prototype of a remotely piloted robotic vehicle featuring a wide wheel base and a surveying pole mounted on top. By collaborating with Visual Plan on the capture options and utilizing it as the capture platform, the team was able to leverage the platform's built-in video capture mode while operating the moving vehicle mount for faster remote 360° photo capture at regular intervals.

With Visual Plan, the remote vehicle capture method has worked seamlessly with the platform's AI-driven pano placement and spatial alignment of the captured 360 images. "The workflow has been outstanding. When we're in lecture theaters – normally we'd walk between the rows for manual capture. Now, we put the Rover at the start of one row and drive, and the meta-data uploads and puts the panos in that right room. We just drive the Rover in a series of rows down the classroom with one crossing, and the whole room is done. It's been really fantastic to see the workflow so smooth and intuitive with data placement as well," said Professor Richard Borger of the Visual Plan experience.

The combination of video 360 capture and the remote-controlled vehicle speeds up the data collection process, allows for consistent data capture and opens the door for future capture capabilities and opportunities in toxic or dangerous environments.

360 CAPTURE SPECS

camera Ricoh Theta Z1

capture site Mohawk College Fennell Campus, 66 acres

capture size ~600,000 sq ft

capture date On-going

application Safety and security, facilities management

✓ **EASY 360 CAPTURE, PROCESSING, IMPORT & PLACEMENT**

✓ **2D CAD / FLOOR-PLAN IMPORT**

✓ **SECURE, REMOTE ACCESS**

"Our main role as faculty is educating students and supporting industry partners with the adoption of new technology. We've focused on drone and remotely piloted technology, as well as imagery technology like photogrammetry and LIDAR – Visual Plan is a technology where those two worlds meet."
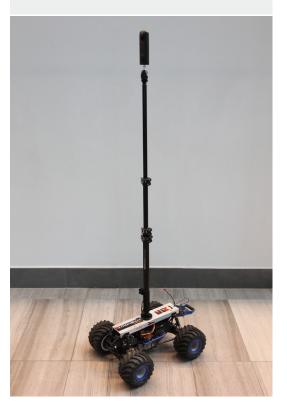
– Richard Borger, Professor at Mohawk College

KEY PLATFORM FEATURES

- Camera Agnostic Platform
- Video Capture / Multi-shot Capture
- Pano Editing Tools
- 2D CAD/Floor Plan Import
- Automatic & Manual Redaction of Faces through a Blur
- Share/Reporting (Deep links to specific locations / User access controls / HTML Reports)
- Remote Viewing & Access
- Secure Cloud Storage

Critical Features For Success

For a 360° capture project of this size, it was critical for the Mohawk team to be as organized as possible when uploading and processing the photogrammetry. The Visual Plan platform is optimized for the large square footage, using meta-data to automatically place images into the uploaded floor plan for efficient creation and management.

With an intuitive interface and AI-enabled pano processing and placement, the applied research team students were able to learn, operate and leverage the Visual Plan's capabilities on the Mohawk campus and as part of their industry-partners program, gaining real-world experience creating Digital Twins across industry and applications.

- Barrier to entry was low with regard to the capital investment
- Easy import, scale and alignment of floor plans to GIS via Import Floor-plan Wizard
- Simple auto and manual orientation of 360° imagery to CAD to enhance understanding
- Intuitive organization of 360 photos across levels, areas and spaces (accelerated via the Visual Plan Capture App)
- Intuitive interface and functionality

"I think that Visual Plan is a great addition to IOT technologies – the internet of things. It's a great asset for maintenance, risk assessments or quality inspections. Particularly with big warehouses where there are a lot of pieces of equipment – these assets could be located with sensors, to be visually connected as a list of all assets and their maintenance needs. The 'internet of things' is a great compliment for Visual Plan."

– Katherine, Mohawk College Student

Driving Industry & Application Through Innovation

Working with development partners, Visual Plan and their local hobby shop, the applied research team of faculty and students at Mohawk College have designed and built industry-changing, remotely piloted 360° Rovers for capturing 360° photogrammetry on their campus and beyond. Their current application of campus capture for safety and facilities management continues to be successful, relying on Visual Plan to capture and build reliable and accurate digital twins to assist future facility development and first responders. As their remote capture vehicle designs become more capable and versatile, so does the future potential of capturing and leveraging digital twins across various environments, industries and applications.

www.visualplan.net

Visual Plan improves operational efficiency, capturing and compiling your 360° photos, documentation, video, LIDAR, BIM and more into one data visualization hub your entire team can fit in their pocket.