

CAPTURING DATA THAT HELPS BRING BLOCKBUSTERS TO THE SILVER SCREEN

How Emesent Hovermap technology is helping XM2 PURSUIT capture data that's used to create special effects for some of Hollywood's biggest blockbusters

BACKGROUND

Headquartered in Melbourne, Australia, XM2 PURSUIT provides aerial cinematography services to the international film and television industry. The company designs and builds a range of unmanned vehicle technologies (UVTs) which can carry heavy payloads, including dual cameras and large lens packages. Its systems are designed to be deployed safely, quickly and easily anywhere in the world.

THE CHALLENGE: CAPTURING SET PIECES AND LOCATIONS QUICKLY AND ACCURATELY

XM2 PURSUIT deploys UVTs to capture data that's used to develop highly accurate 3D models of large sets, environments and locations. These models eliminate the need to shoot in situ in inaccessible and inhospitable terrains and are used in the post production process to create special effects (VFX). Previously, XM2 PURSUIT had used

terrestrial and mobile LiDAR, but data capture was time consuming and frequently called for the shutdown of sets and locations while photogrammetry and LiDAR scans were completed. In the film and television industry, time is money and having to halt filming can increase the cost of production by tens of thousands of dollars.

XM2 PURSUIT sought a means of capturing detailed point cloud data that did not impact on shooting schedules.

THE SOLUTION: SEND IN HOVERMAP

In 2017, XM2 PURSUIT purchased a Hovermap LiDAR scanner for its team to use on assignments around the world. Since then, the scanner has been used by the XM2 PURSUIT LiDAR team on 40 projects in 10 countries, including Australian-filmed blockbusters Pacific Rim and Thor Ragnarok.

XM2 PURSUIT deploys Hovermap on its inhouse designed Tango aircraft for extreme distance applications, such as capturing large cliff faces and desert scenes for VFX work on both Star Wars Episode 9 and the following series The Mandalorian.

With 40+ minute flight endurance, XM2 PURSUIT were able to capture kilometers of cliff faces both vertically and horizontally in a fraction of the time that it would have taken with traditional methods.

Hovermap has also been mounted to the XM2 PURSUIT terrestrial rover 'Charlie' to capture the underside of set pieces such as bridges and train carriages.

KEY ACHIEVEMENTS



Reduced need to shut down locations, resulting in production cost savings



Accurate point cloud data that can be easily imported to 3D modelling workflows



Rapid and cost effective capture of accurate, shadowless data on live sets



Fast and safe data capture in inaccessible environments and locations



DELIVERABLES

Point cloud data is delivered to post production clients as colorized and uncolored .ply and .las files. Minimal work is done to correct the files for noise and clip data size.

SAVING TIME AND MONEY FROM RAPID, ACCURATE DATA COLLECTION

Using Hovermap aerially and terrestrially enables XM2 PURSUIT to collect shadowless high resolution LiDAR data between takes on live sets, and quickly and safely on location. This data is then fed into the VFX department to create true-to-life virtual reality models that are used on set to enable shooting with real world backgrounds, without ever having to leave the studio.

Hovermap's colorization feature provides clients with an easily digestible overview of sets and terrains. It has been used extensively on the upcoming Mission Impossible movie to help with placement of set pieces.

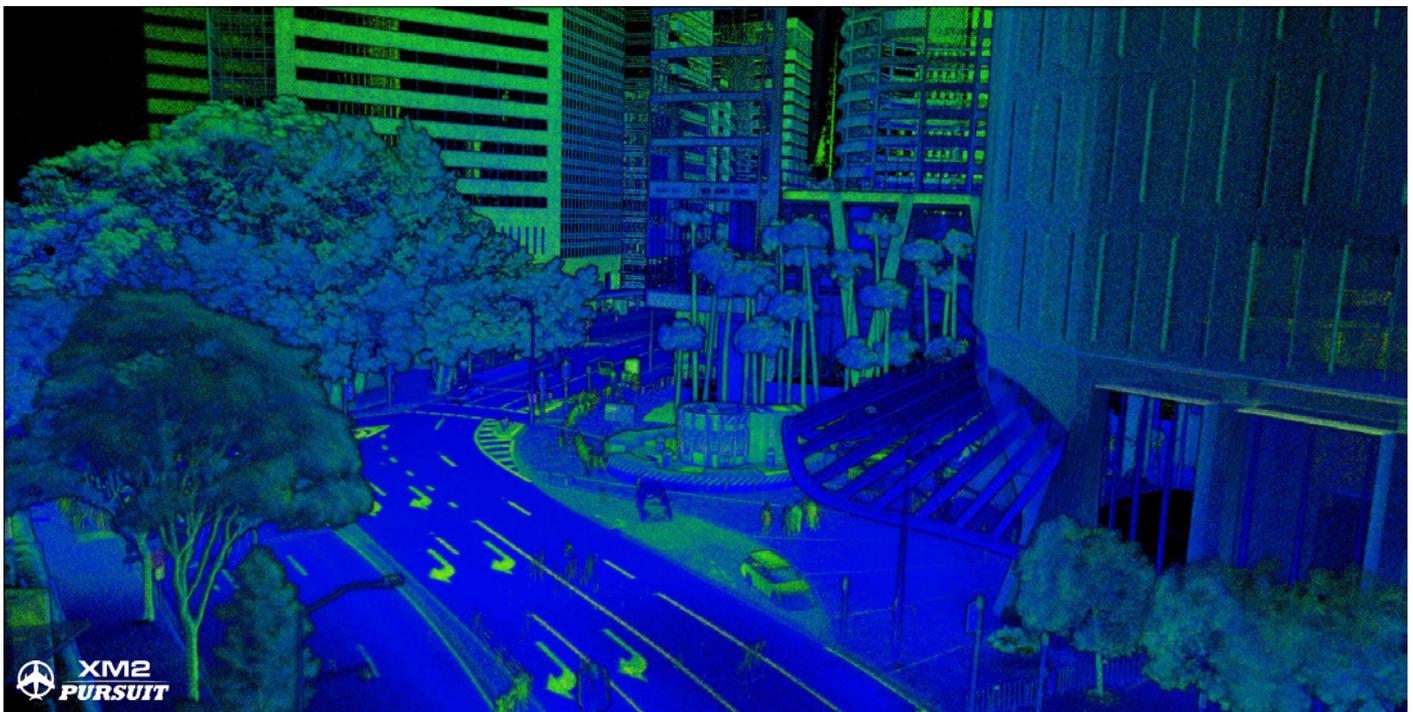
The ability to visually identify parts in the point cloud means that the output can be used with no classification or post processing. Measurements can be made directly on the point cloud almost immediately after capture.

Early adoption of mobile LiDAR mapping has given XM2 PURSUIT a significant advantage over competitive service providers in the film industry.

“When capturing VFX data on a live set, speed is key. Being able to scan large areas quickly and accurately, from both the air and the ground, has increased our ability to keep pace with the film production industry's workflow.

“We use the drone-mounted Hovermap to cover areas that, in the past, could not have been scanned effectively, including over buildings and around complex set pieces. And we do it in a fraction of the time a terrestrial scan would take. A Hovermap scan can be completed in five minutes. It's fast enough that we don't have to wait for the set to be clear: we can operate between takes.”

Daniel Thomas, LiDAR drone pilot, VFX Manager, XM2 PURSUIT



This footage of downtown Brisbane was shot for the movie Pacific Rim Uprising, using an early version of Hovermap, in 2017. The point clouds were used to build true-to-life models of the buildings that the VFX creators then incorporated into monster fight scenes. Being able to scan in full 360 degrees, not having to shoot each building face with the correct overlap, and having each point accurately distanced from another point meant that the data capture flight could be achieved in the tight street access timeframe that XM2 PURSUIT had work within.