Drone Data Based Insights for a Construction Site - A Case Study

HUVIAIR

A major real estate developer in India approached us, looking to enhance their productivity, for a 30 acre construction site.

They wanted aerial videos of construction progress on a regular basis to help them get a better view of what's happening at site, which in turn would enhance their decision making.

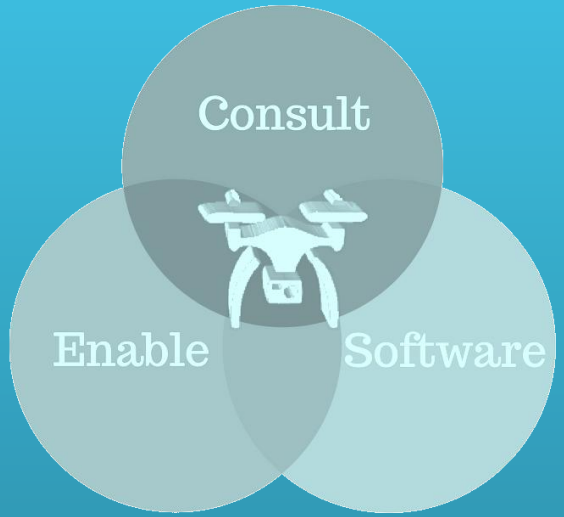
The HUVIRON Solution

We suggested to them that while aerial videos was one possible output from drones, we could also use drone data as a tool that can be integrated into every stage of the entire construction lifecycle.

By using drone data technology, we enable construction companies to save on time and cost while increasing accuracy and safety across all stages of the construction workflow.

The HUVIRIR Solution

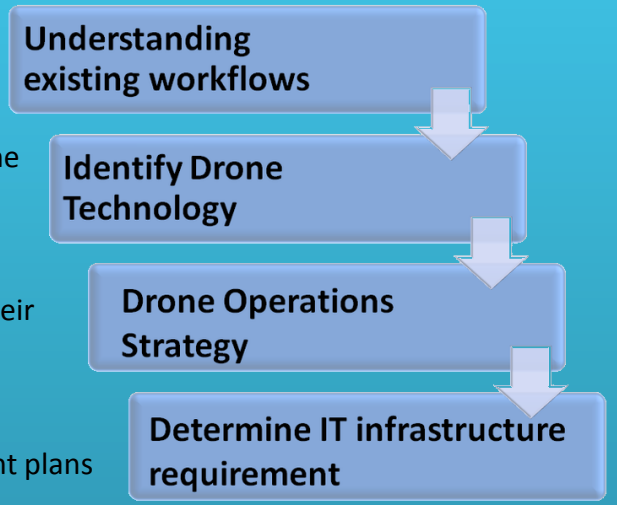
We helped the construction company to incorporate drone data with our 3 step approach -
Consult, Enable & Software



The HUVIRIR Solution

Consult

Understanding Existing Workflows -
We worked closely with company stakeholders such as architects, surveyors, project supervisors, engineers and managers to understand existing design, execution and reporting workflows across all stages of their project. Based on this, we came up with a report of the comprehensive list of drone data outputs that were required and how they could be integrated into different components of the existing workflows.



Identifying Drone Technology -
We identified Phantom 4 pro drone as the ideal platform to capture aerial data for their site.

Drone Operations Strategy -
We devised a well detailed drone operations strategy for project, which included flight plans and schedules.

Determining IT infrastructure requirement -
We assessed the existing IT infrastructure that was in place and made recommendations for upgrade of systems and internet so that the drone data could be visualized and analyzed from the job site as well as the company headquarters.

The HUVIRON Solution

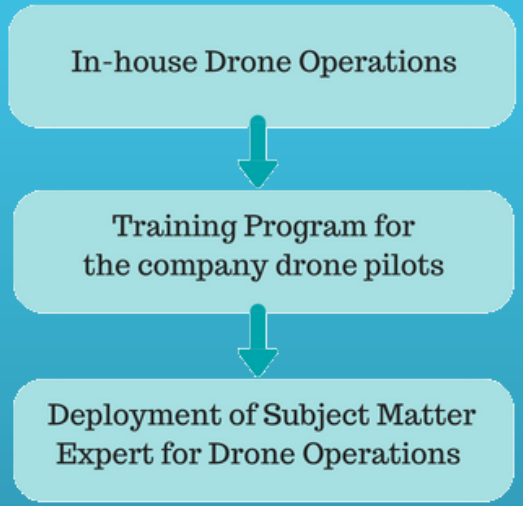
Enable

The real estate developer wanted to in-house drone operations.

Hence, we conducted a **training program for company drone pilots:**

The training included **classroom, online and on field drone flight sessions** for selected employees within the company – these employees were primarily project supervisors.

Further, we deployed a **subject matter expert dedicated to the company** to
- oversee the drone operations
- provide continued guidance to drone operators
- ensure quality of data collection
- bring further improvement in operations

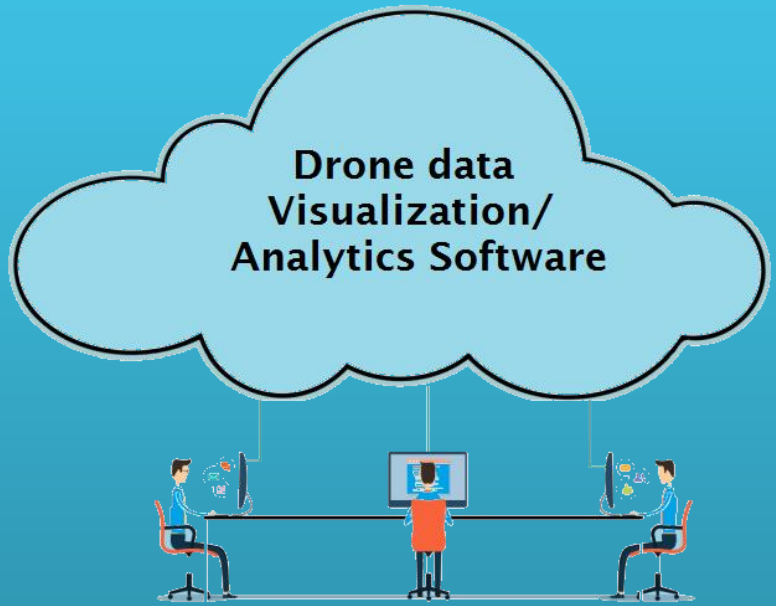


The HUVIAiR Solution

Software

Deployment -
We deployed our drone data visualization and analytics software for the company.
This enabled their teams to visualize, analyze and manage drone data such as aerial images, videos, orthomosaics, DSMs, contours, 3D models and point clouds at each stage of the construction lifecycle.

Employee orientation -
HUVIAiR conducted orientation sessions to train the various company stakeholders on how to use the software as part of their design, execution and reporting workflows.



Outcomes

Site survey

Before any construction work began, drone data was processed with our software to deliver -

- Accurate and high resolution orthomosaics (top view geo -referenced aerial image of the entire site).
- Digital surface models
- Points clouds
- 3D models
- Contours maps
- Boundary maps
- Feature maps

This process of land surveying **was 5 times faster**, **more accurate and has a lot more details than traditional site survey methods.**

Outcome

Property layout and architecture designing

Architects used the land survey outputs mentioned above along with aerial videos and images of the site to go about their **site layout and building design processes, in software such as AutoCAD and sketchup.**

The architects did not need to do extensive site walk-arounds, take images and try to recollect how each site feature looked like.

All these outputs were extremely useful to them to design quicker and more creatively!

Outcome

Earth work estimations and stockpile volume calculations

Based on the proposed surfaces that the architects finalized, contractors were **given accurate earthwork volumes to be cut and filled.**

This enhanced workflow gave them much **higher precision in their volume estimations**.
The real estate developer saw **up to 20% savings in payments to contractors due to this increased accuracy of estimations and stockpile volume calculations.**

Outcome

Construction deviation and issue tracking

Once construction work began, orthomosaic layers were generated at regular intervals and **compared with layout drawings to check for deviations and issues in the construction.**

The real estate developer **saved a few hundred thousand dollars worth of change orders** and **finished their project a month in advance** because of early deviation detection and immediate corrections!

Outcome

Construction inspection and progress tracking

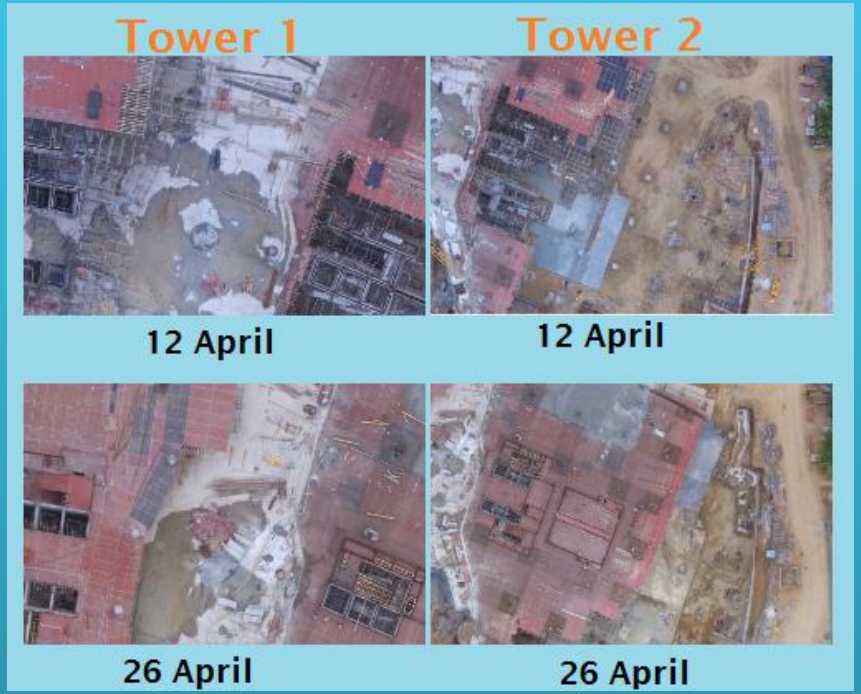
Drones sent on automated and manual missions were used to check on the progress of construction on a regular basis.

Project managers could see live video streams of ongoing work, the level of engagement of labour, movement of assets and more in a much safer and a more effective manner.

Project supervisors, engineers and managers **spent more time analyzing site inspection outputs and went on foot only to specific locations** based on what they saw in the drone outputs.

This made them **twice as more efficient** in their day to day work and also **enhanced the quality of their work experience**.

Further, comparing orthomosaics of the site across different dates was a great tool used by decision makers to **check, document and keep visual digital records of the progress of construction.**



Benefits

- Exceptional turn-around times
- More control over vendors
- Higher efficiency of employees and contractors
- Enhanced work safety
- Better project management and execution
- Tremendous amount of savings in terms of change orders

About HUVIAiR

HUVIAiR Technologies is a Drone Data Solutions Company for the Construction Sector.

The HUVIAiR solution enables construction companies to embed drone data based insights across all stages of construction projects.

By using drone data technology, we help construction companies to **save on time and cost** while **increasing accuracy and safety.**

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