

HOW DRONES DATA & AGRONOMIST ANALYSIS HELPED TO BOOST YIELDS OF INDIA'S PADDY FIELD



Throttle Aerospace Systems Pvt Ltd

"Art of Acceleration"

Overview

The document explains how TAS Mapper series UAS equipped with multi-spectral sensor helped to study 25 hectares of paddy field in South India in a day and also to justify how we can leverage the technology to provide inputs to farmers.

Objectives

1. To create georeferenced 2D maps of paddy field.
2. Apply variable filters.
3. Create field health report.

Deliverables

1. 3D Map generation of the entire field.
2. Detailed field health report.

1 Project Workflow.

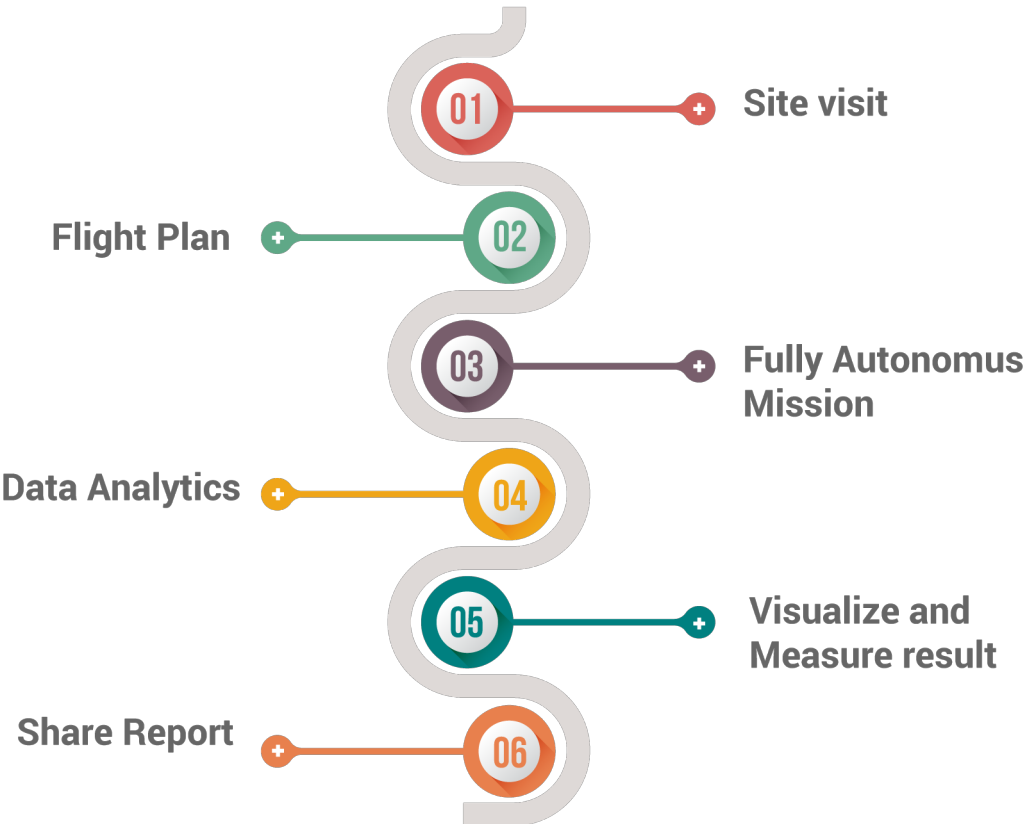


Figure 1: Processing Data

2 Flight Parameters.

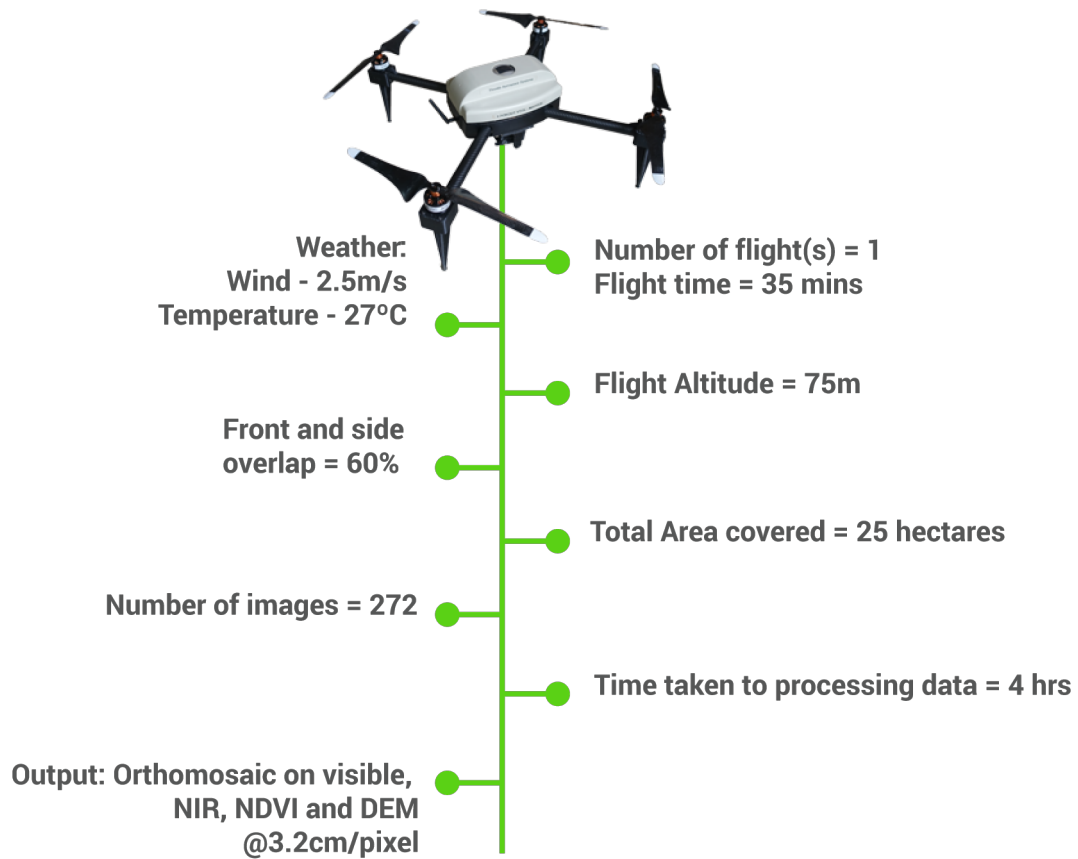


Figure 2: Summary

Case study: How drones data and agronomist analysis helped to boost yields of India's paddy field.

3 Technology a glance.

(NIR) near-infrared imagery is of particular interest to farmers. A healthy leaf reflects a lot of NIR; actually more NIR than visible green light. A stressed leaf reflects less NIR, and dead leaves less still. You can put a camera on a drone that gathers NIR aerial data, and then use those images to make a specific type of map (NDVI) that can give a highly detailed understanding of crop health that would be impossible to accrue with the human eye. Also, NIR data allow to precisely quantify the coverage, which is tough to accurately gauge with visible-range information.

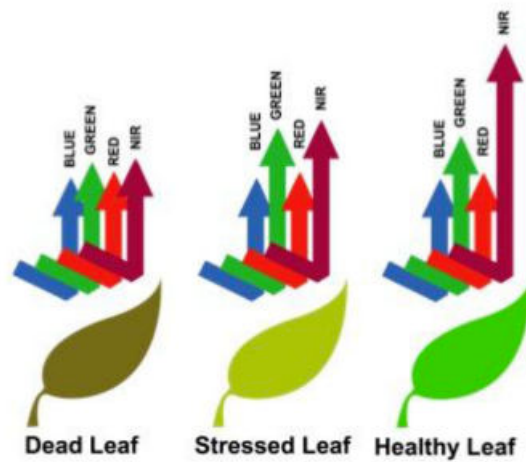


Figure 3: (NIR) near-infrared imagery

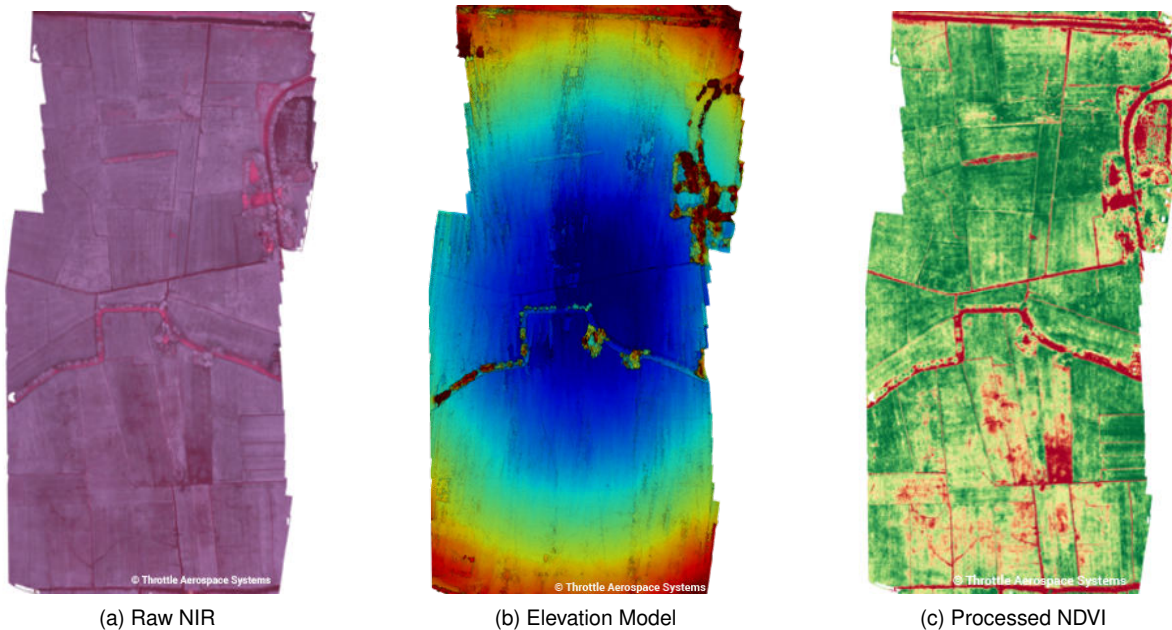


Figure 4: Raw NIR, Elevation and Processed NDVI imagery of the paddy field.

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4 Obtained 3D image.

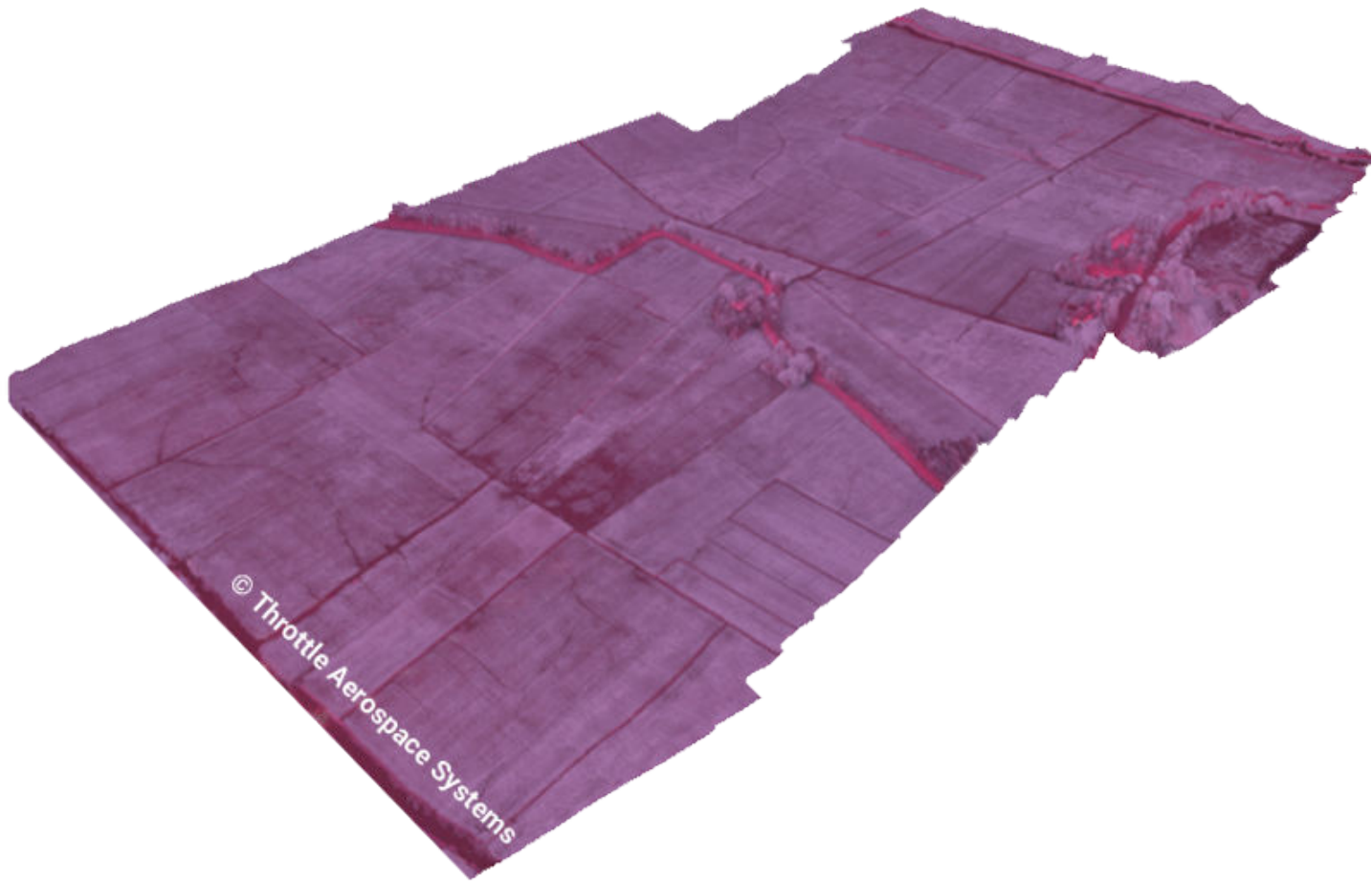


Figure 5: 3D image of the paddy field.

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5 Processed NDVI image of paddy field.



Figure 6: Processed NDVI imagery

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6 Results.

1. Help estimate crop yields within fraction of time than traditional method.
2. Optimizes plant inputs.
3. Saves crop scouting time.
4. Helps to understand water flow and water quality.