DroneLab technologies

Technical Proposal for Drone based Property Mapping Services For Andhra Pradesh Revenue Department

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1 SUMMARY OF THE PROJECT

PDRL is a drone technology company offering value-added drone-based software solutions and ecosystems to cater to the requirements of industries to fulfil various unmet needs and gaps in their business processes. PDRL's capability to offer such solutions has been demonstrated at various industrial expositions and events.

PDRL has developed a massively scalable Saas platform - **AeroMegh** to transform Drone Data into Actionable Insights. AeroMegh Intelligence services are simple and unified that can be easily adapted by users, such that the user can get hang of it in the start itself.

Dronelab Technologies is a leading provider of drone-based services solutions across India, offering innovative and data-driven services for various industries. With a strong focus on accuracy, efficiency, and safety, our team leverages cutting-edge aerial platforms, high- resolution sensors, and advanced data analytics to deliver precise mapping and inspection outputs. Our expertise spans property mapping, land surveys, infrastructure inspections, environmental monitoring, and more, serving both public and private sector clients.

PDRL along with **DroneLab Technologies**, proposes a comprehensive property mapping solution designed to deliver accurate, timely, and actionable insights for property management. Using advanced drone technology, we will conduct monthly aerial surveys to assess plot conditions, detect encroachments, and identify any changes to the property over time. Additionally, our interactive dashboard will provide stakeholders with real-time access to maps, reports, and historical data for continuous monitoring and decision-making. This service ensures better oversight, faster decision-making, and reduced manual inspection efforts.

In the context of Drone based Property Mapping Services, PDRL & DroneLab Technologies offer:

- **Drone-Based Aerial Surveys**
- **Plot Condition Assessment**
- **Encroachment Analysis**
- **Change Detection**
- **Dashboard Visualization**

2 OBJECTIVES

- To provide high-resolution, accurate property mapping for informed decision-making.
- To detect and report any encroachments promptly.
- To monitor changes in property conditions over time.
- To provide an interactive dashboard for real-time monitoring and historical data access.
- To deliver monthly reports for continuous and reliable property oversight.

This document outlines how drone technology can address key operational challenges in Property Mapping Services, supporting tech-driven, sustainable execution model focused on efficiency, safety, and project transparency.

3 PROPOSED SOLUTION

3.1 PLOT CONDITION ASSESSMENT

3.1.1 Description

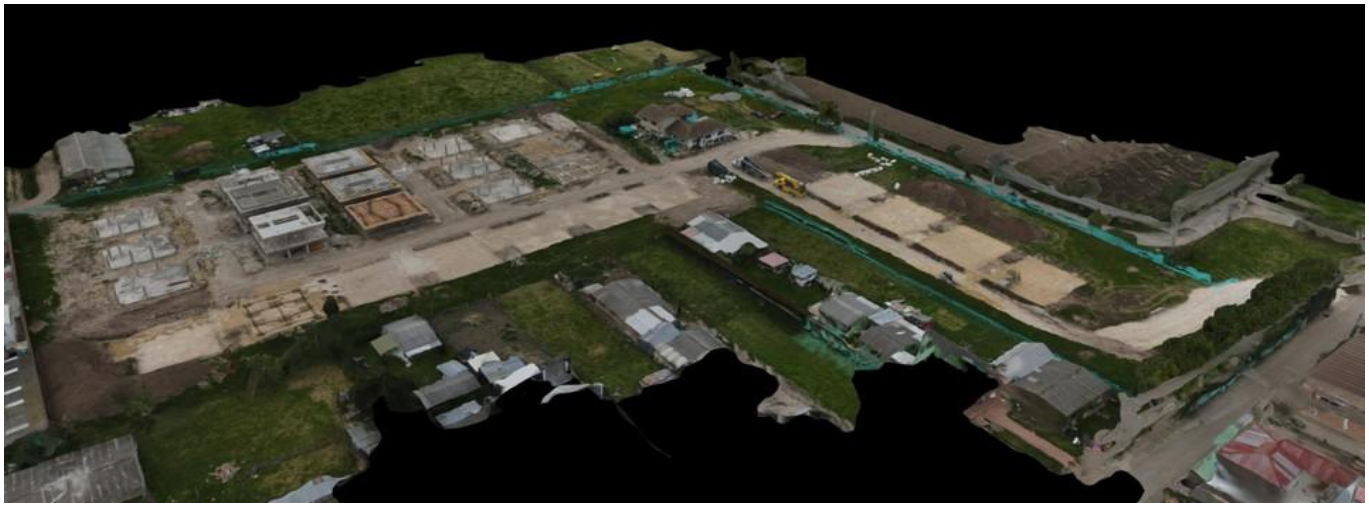
- High-resolution drone imagery will be used to capture and evaluate the physical condition of each plot, documenting land use, boundary status, and visible structures.

3.1.2 Methodology:

- Conduct monthly drone flights to capture geo-referenced high-resolution imagery.
- Analyse imagery to assess land use, boundaries, and visible infrastructure.
- Highlight any areas requiring maintenance or attention in the monthly report.

3.1.3 Benefits:

- Clear, visual condition records.
- Early detection of degradation or misuse.
- Reduced need for ground inspections.



3.2 ENCROACHMENT ANALYSIS

3.2.1 Description

- Compare current property data with baseline records to identify unauthorized occupation, construction, or boundary shifts.

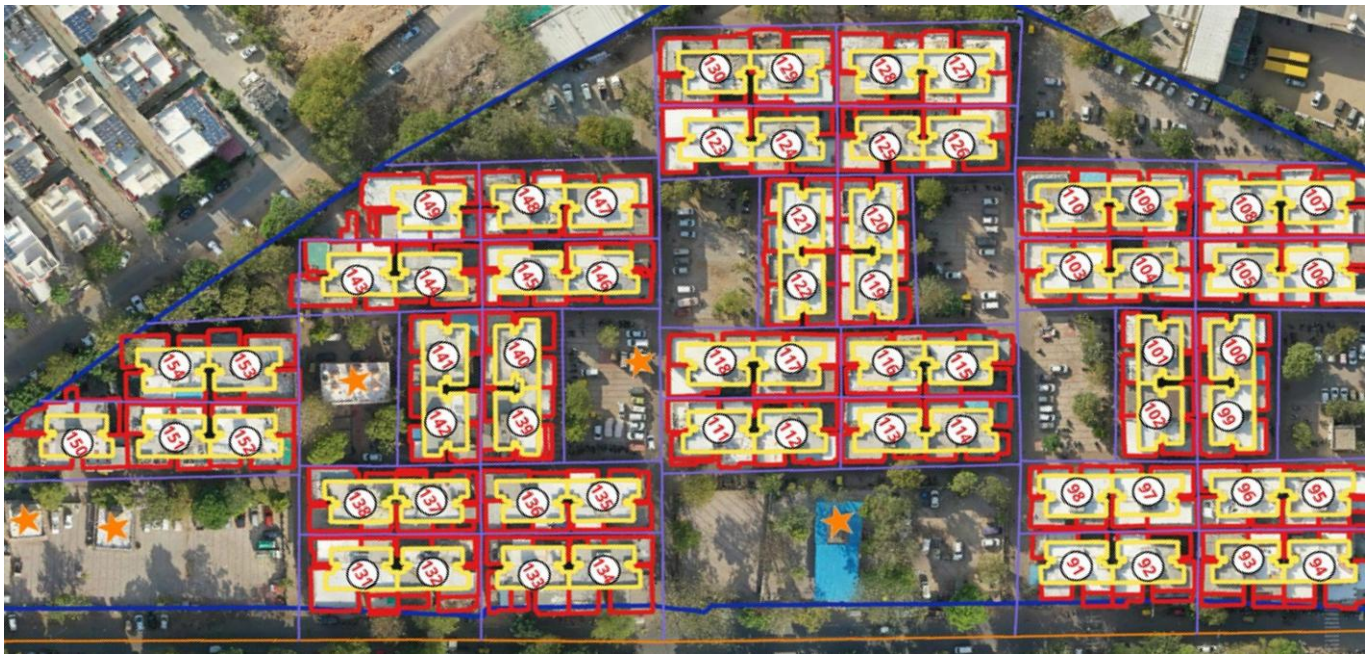
3.2.2 Methodology:

- Capture updated property imagery during scheduled monthly flights.

- Compare with baseline maps and previous survey data for deviations.
- Flag and annotate any encroachment areas for follow-up action.

3.2.3 Benefits:

- Immediate alerts on encroachments.
- Legal documentation for dispute resolution.
- Preserves property ownership integrity.



The yellow line represents the allotted area, while the red lines indicate the encroaching constructions

3.3 Change Detection

3.3.1 Description

- Detect and document changes in property features over time, including new structures, vegetation growth, or land use modifications.

3.3.2 Methodology:

- Collect current month's drone imagery for the entire property.
- Use time-series comparison with past datasets to detect alterations.
- Categorize and record each change for historical tracking and analysis.

3.3.3 Benefits:

- Historically change records.
- Supports planning and compliance checks.
- Identifies unapproved developments early.

3.4 Dashboard Visualization

3.4.1 Description

- A secure, cloud-based dashboard providing 24/7 access to maps, analytics, and reports.

3.4.2 Methodology:

- Upload processed maps, analytics, and change records after each survey.
- Update dashboard with interactive layers and historical timelines.
- Provide secure, role-based access for authorized stakeholders.

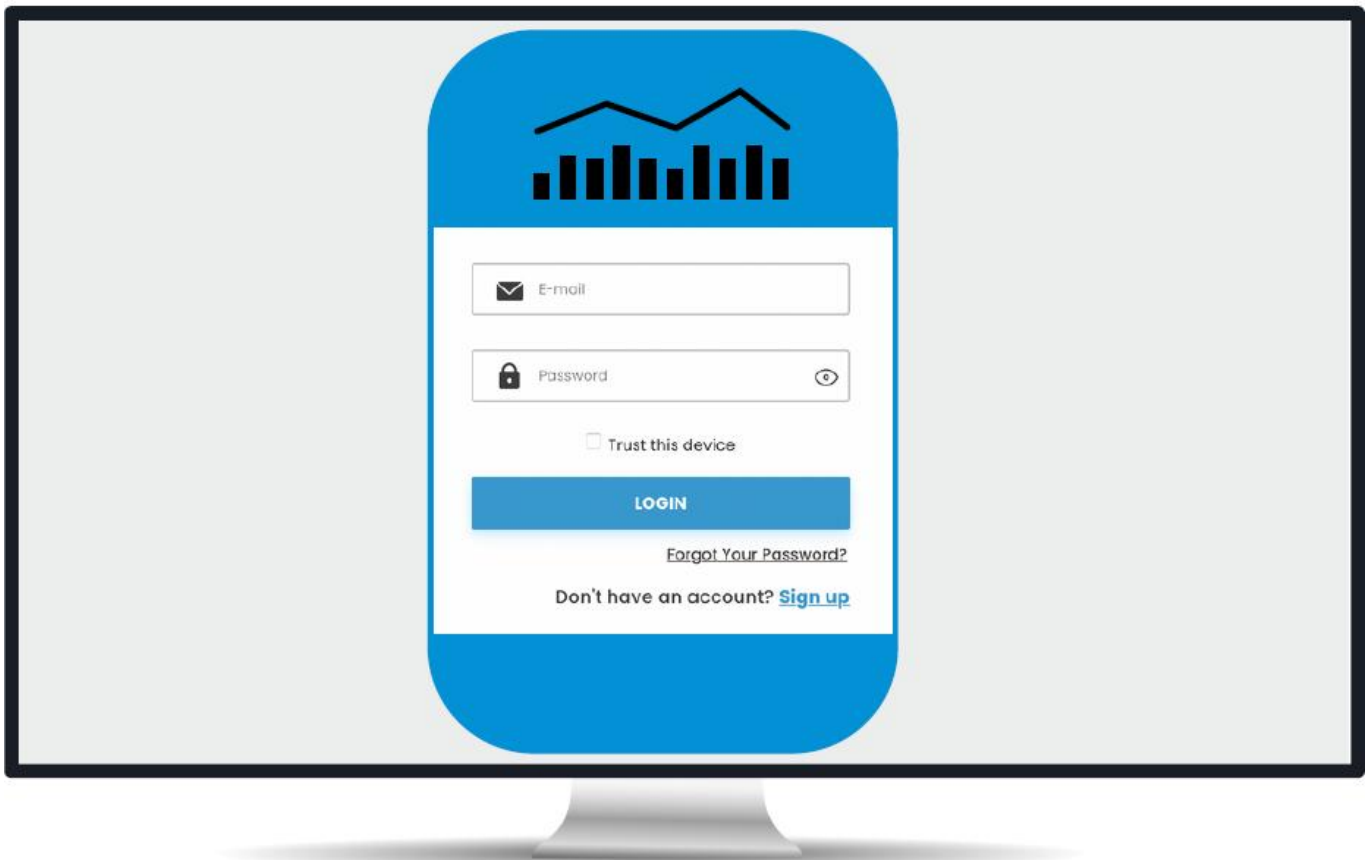
3.4.3 Features

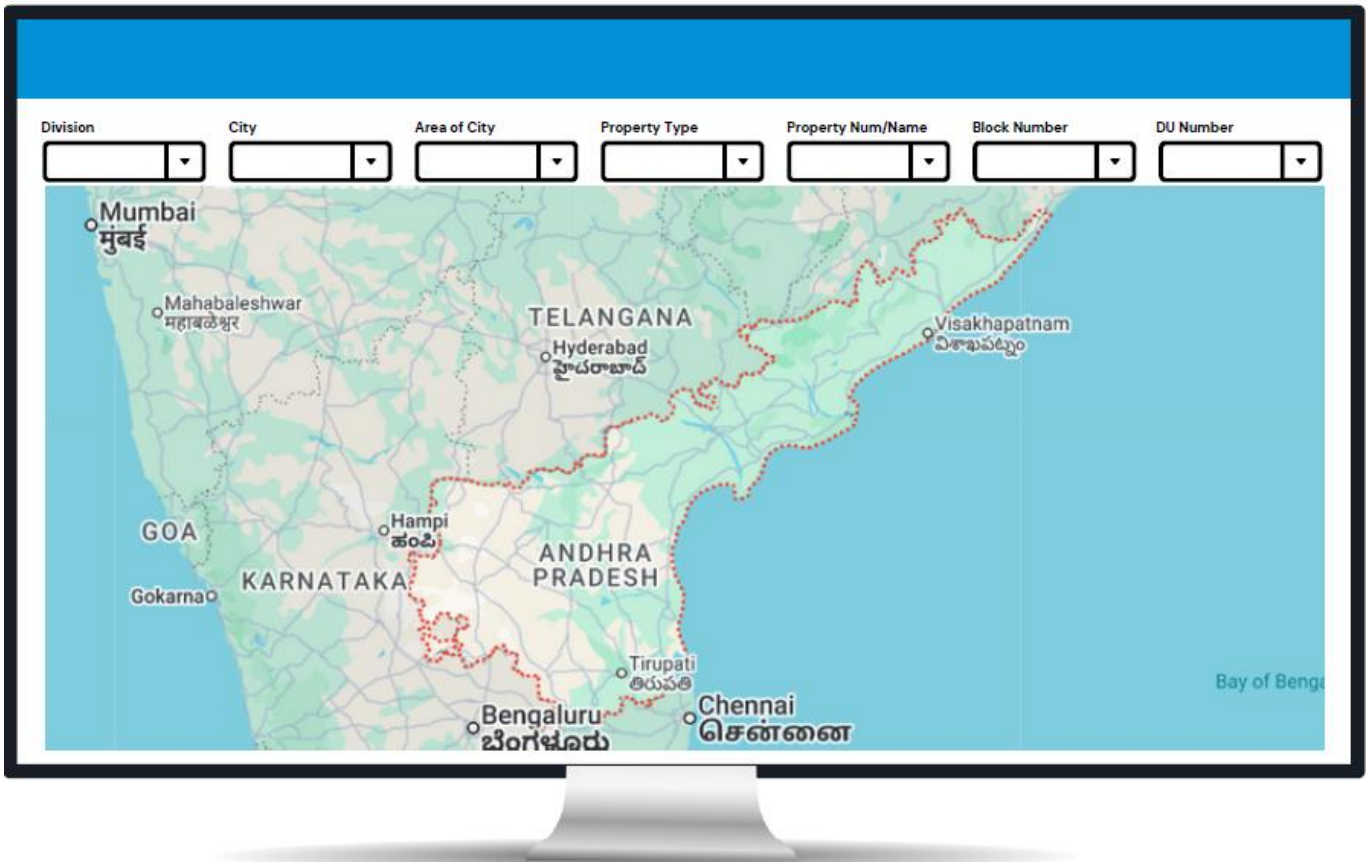
- Interactive maps with zoom & layer control.
- Historical timelines for changes and encroachments.
- Downloadable reports and GIS data.

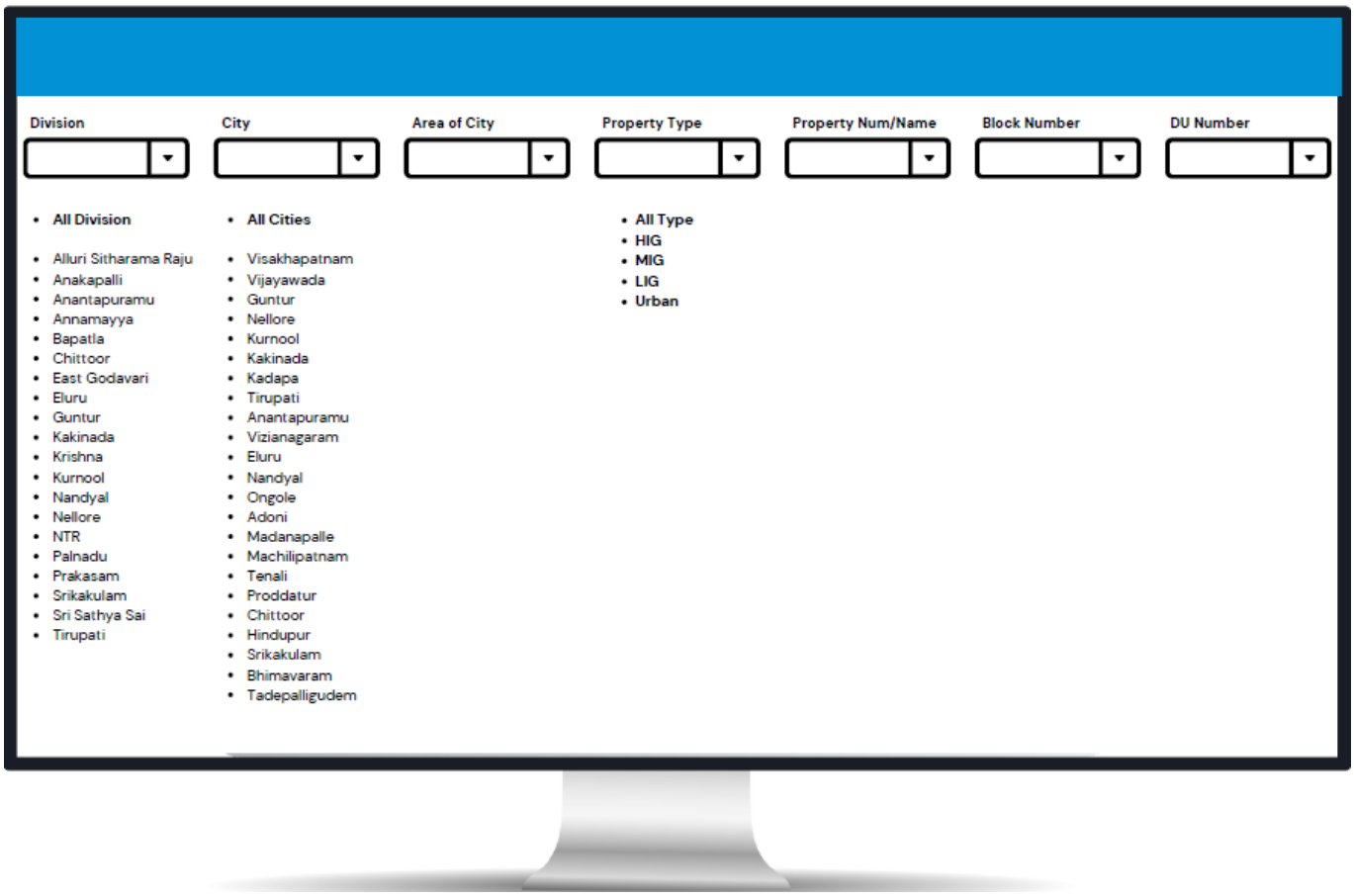
3.4.4 Benefits:

- Instant data access anytime, anywhere.
- Centralized storage for property records.

- Improved decision-making through visual intelligence.



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City
Area of City
Property Type
Property Num/Name
Block Number
DU Number
All Division
Alluri Sitharama Raju
Anakapalli
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Annamayya
Bapatla
Chittoor
East Godavari
Eluru
Guntur
Kakinada
Krishna
Kurnool
Nandyal
Nellore
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Ameelio Hospital
Hotel O Kurnool Bus Stand Formerly R R Resi
Durga Pride
D.S.R Deluxe Lodge
SAMPATH NAGAR

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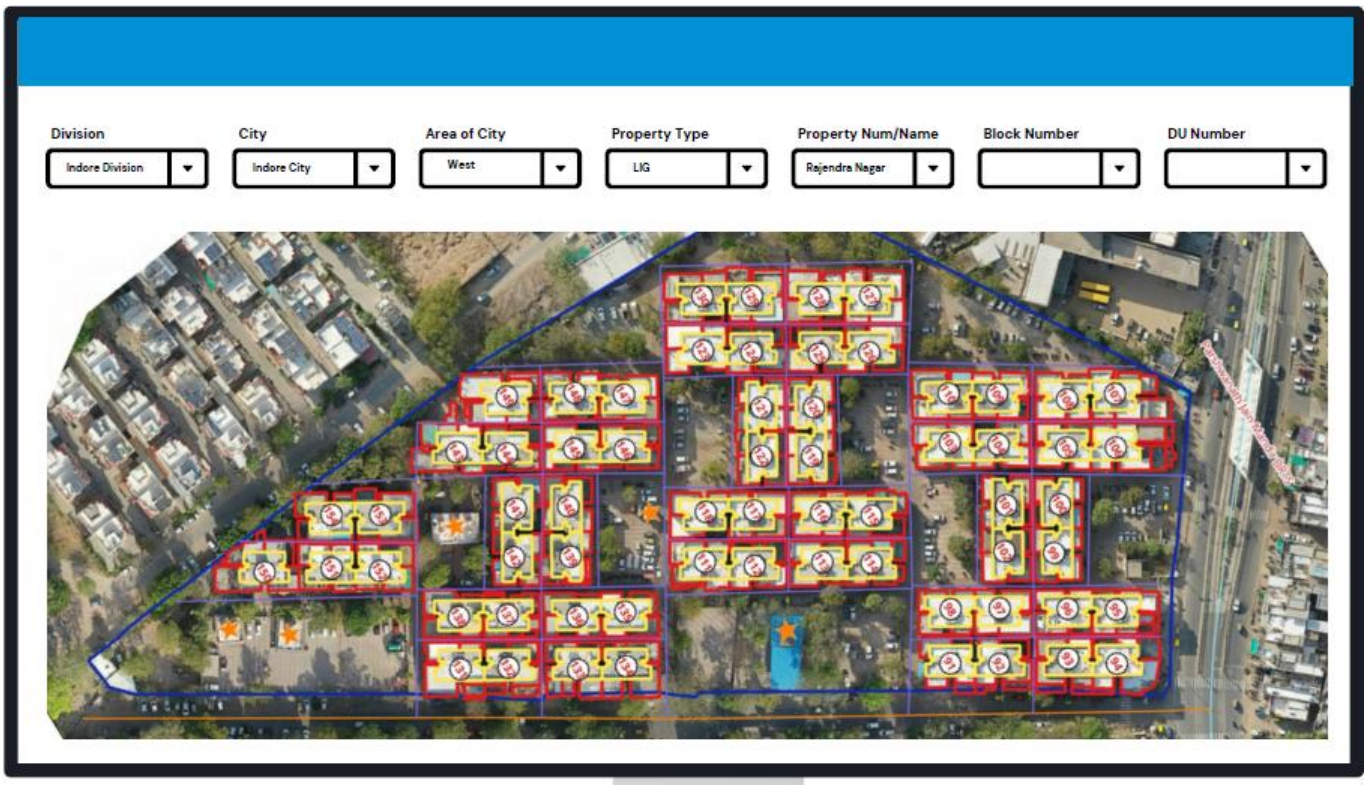
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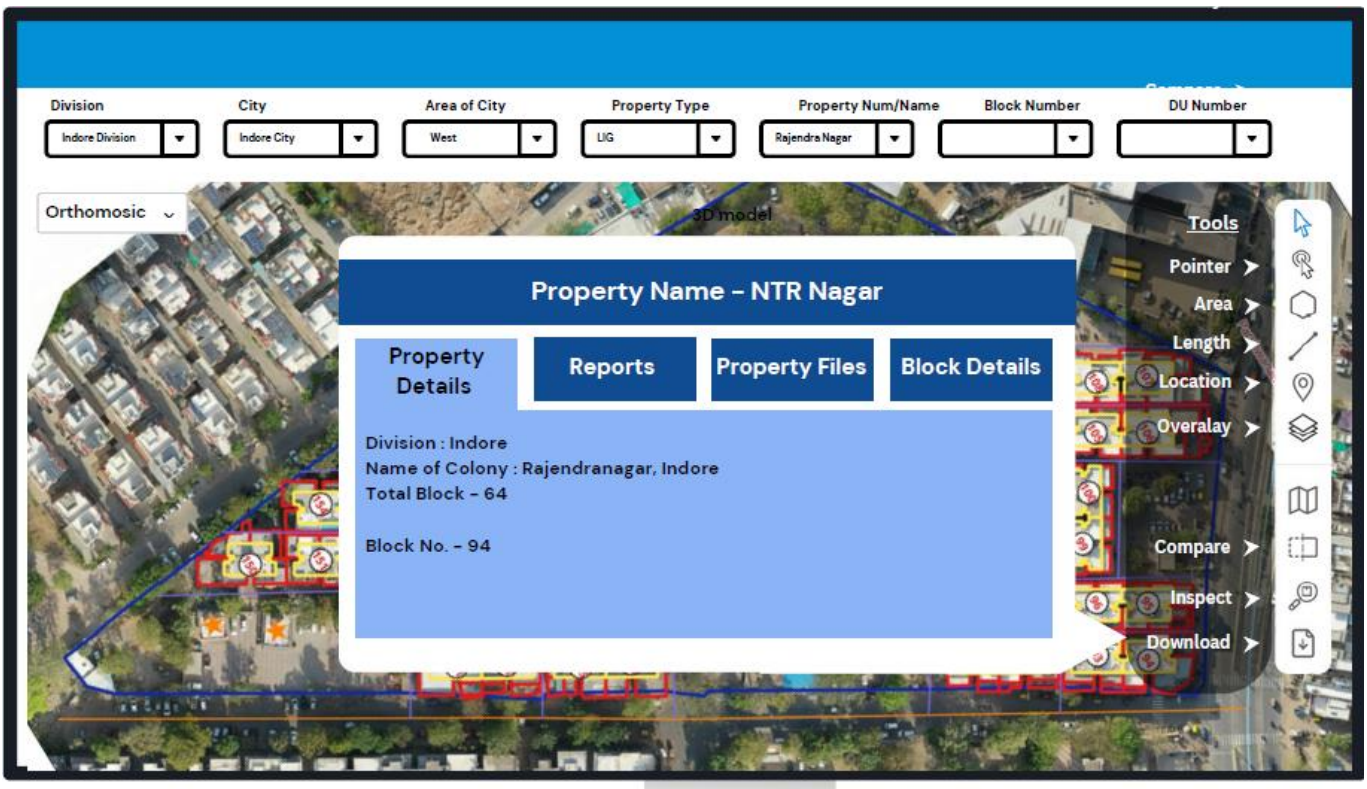
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Block Details
Division : Indore
Name of Colony : Rajendranagar, Indore
Total Block - 64
Block No. - 94

Division
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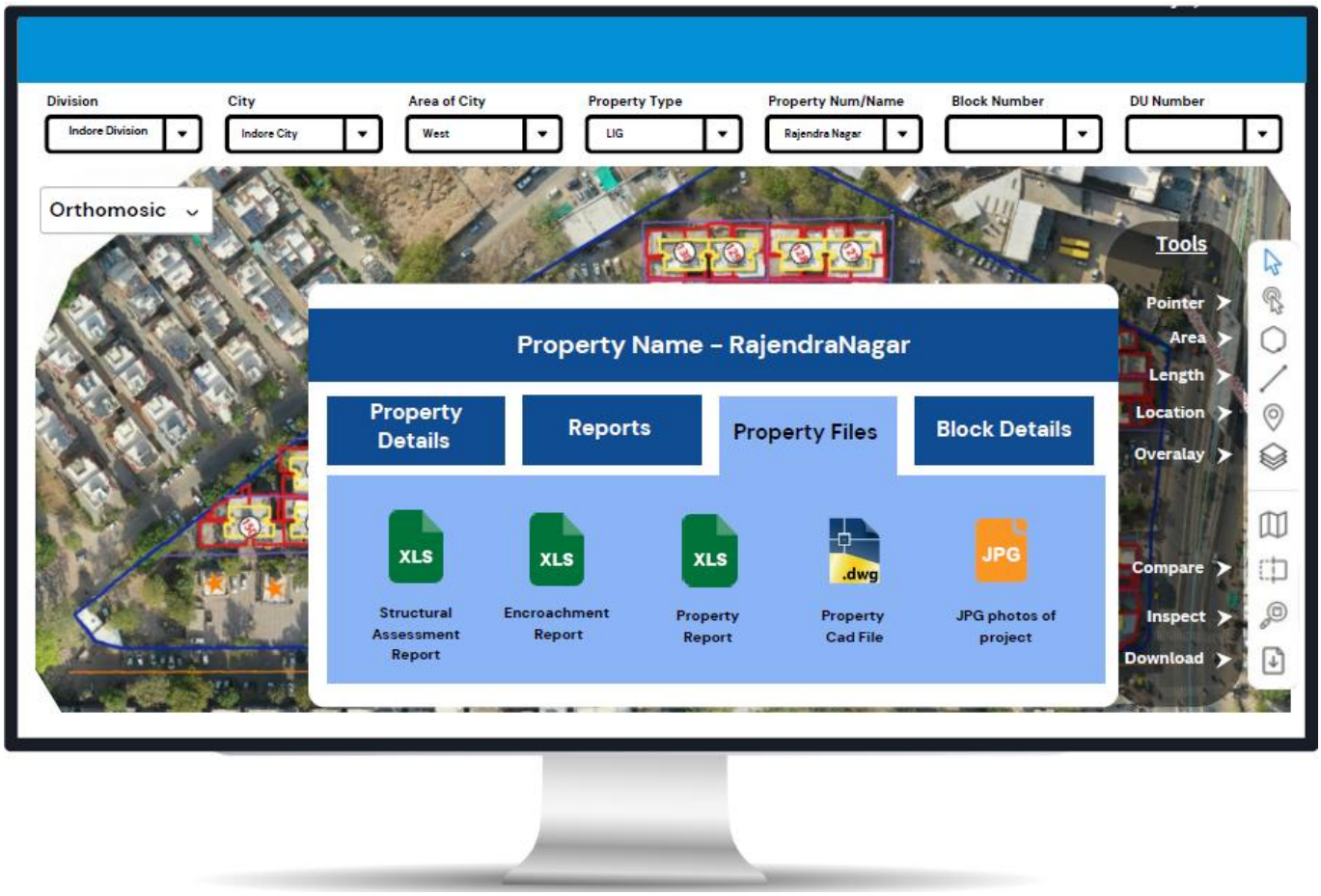
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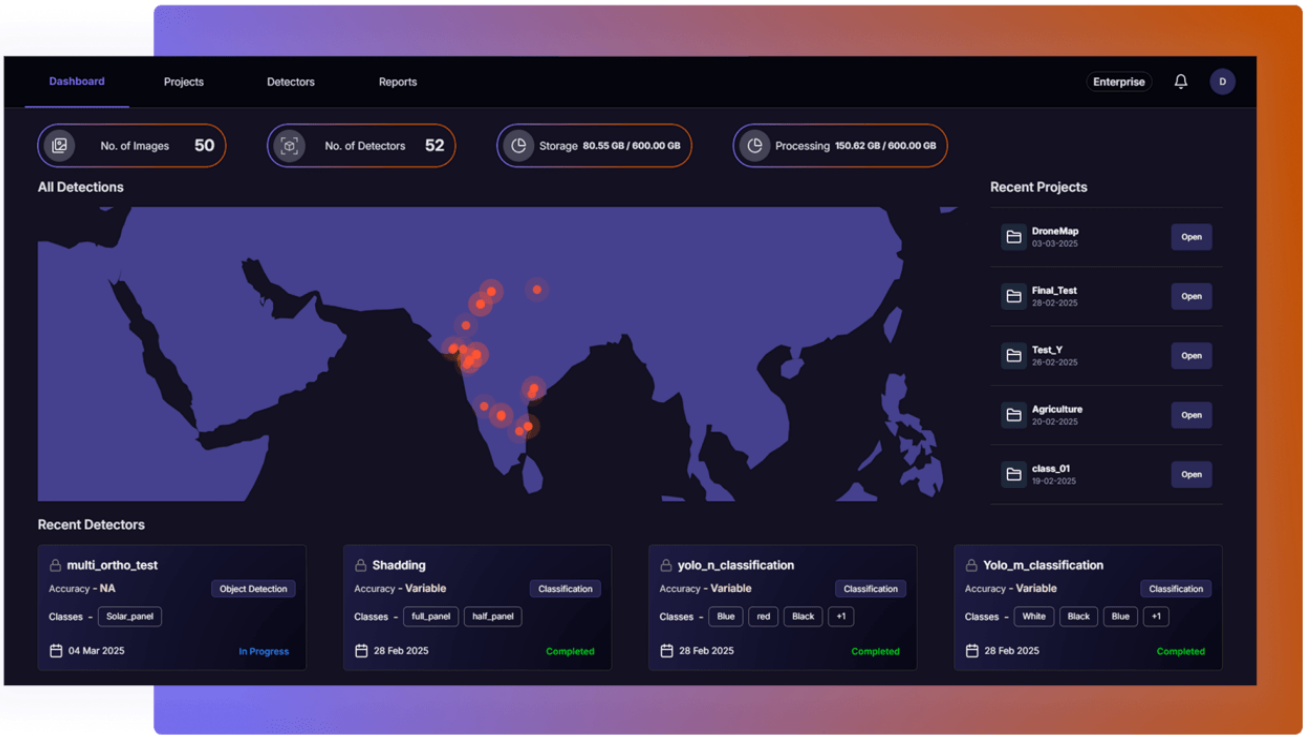
4 PROPOSED TECHNOLOGY

4.1 VISUALIZATION ON AEROMEGH

AeroMegh is a cutting-edge GeoAI platform that revolutionizes geospatial analysis by harnessing the power of Artificial Intelligence (AI) and Machine Learning (ML). Designed for simplicity, speed, and accuracy, it enables users to effortlessly analyze aerial data, detect patterns, and extract actionable insights.

The platform transforms traditional geospatial workflows by automating complex processes such as object detection, image annotation, and report generation — delivering high precision with minimal manual input.

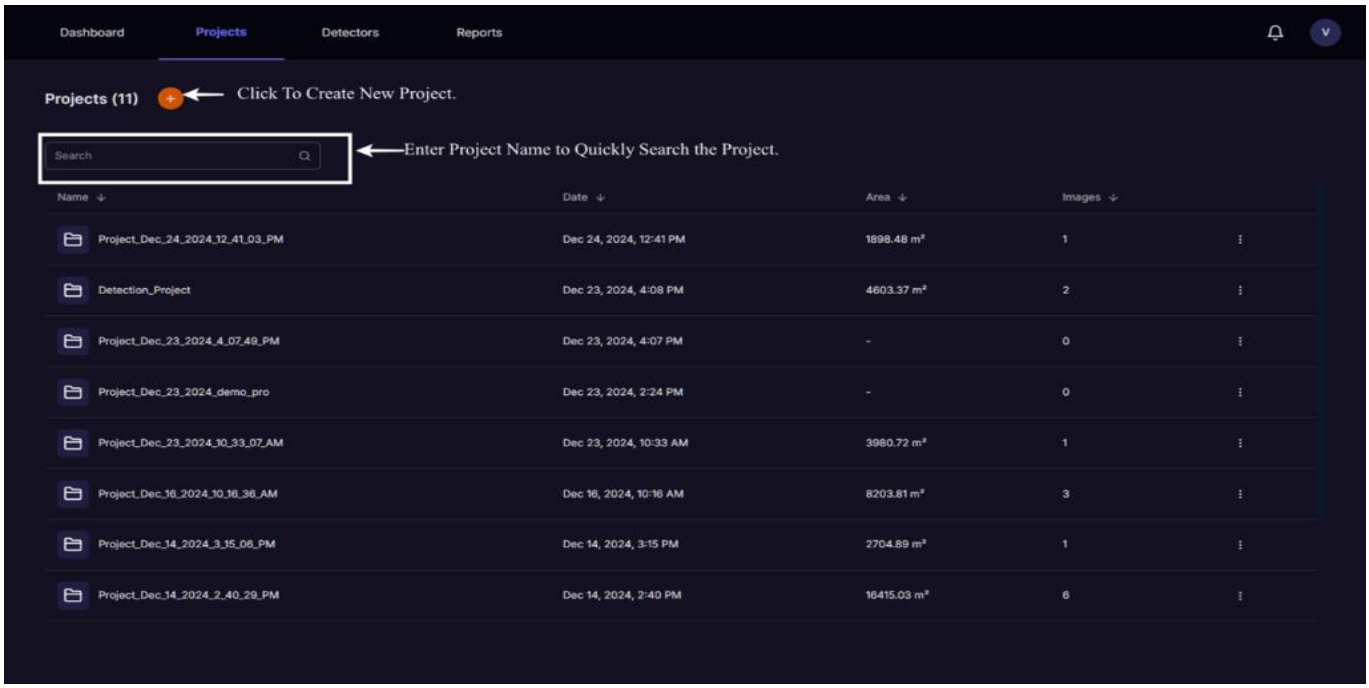
Tailored for industries like agriculture, construction, mining, forestry, solar, and utilities, AeroMegh offers an end-to-end solution through a cloud-based, scalable interface. Its intelligent tools and automation streamline every stage of the workflow, making geospatial analysis faster, smarter, and more accessible than ever before.



4.1.1 Key Features of AeroMegh

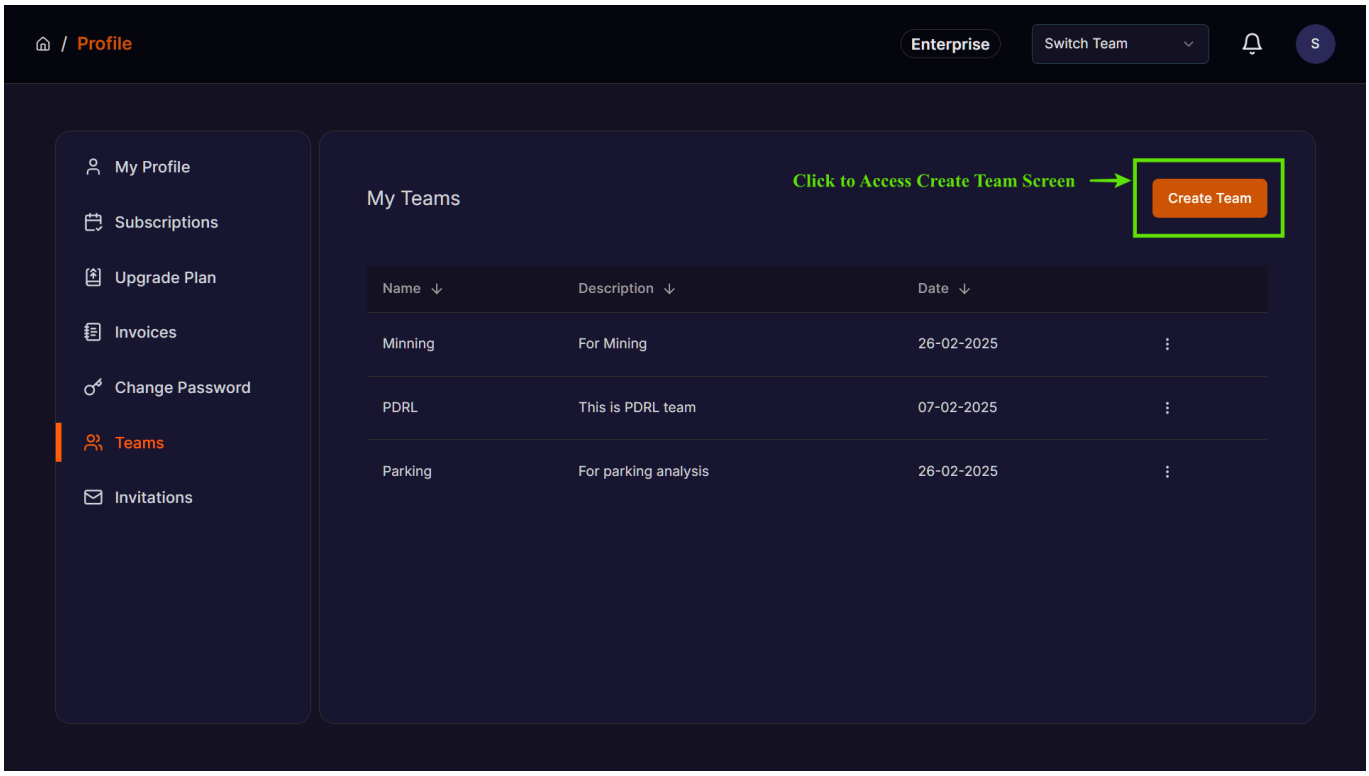
4.1.1.1 Create Projects

Organize all your aerial and geospatial data under structured projects, making it easy to manage images, annotations, and analysis in one central place.



4.1.1.2 *Teams Collaboration*

Collaborate with your team members effortlessly. Share access, assign roles, and work together in real time on projects, detectors, and reports.

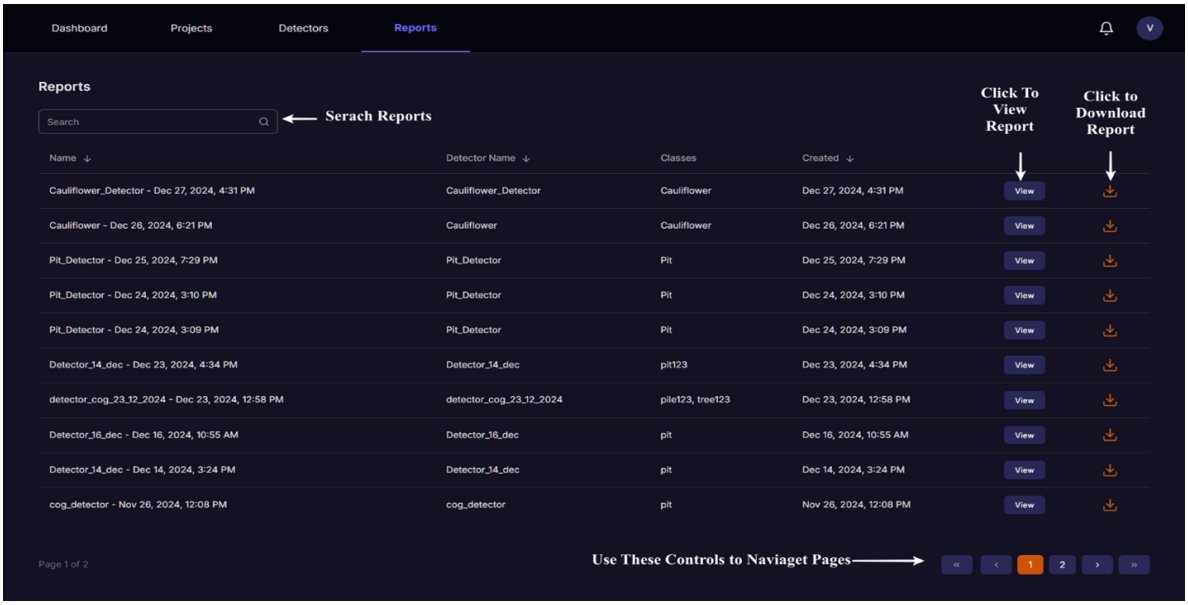


4.1.1.3 *Annotate Images*

Use simple tools to draw and mark objects or areas of interest on aerial images for precise and detailed analysis.

4.1.1.4 *Generate Reports*

Export your results into professional reports in multiple formats (PDF, CSV, etc.) for easy sharing, documentation, or further use.



4.1.1.5 *Measure Elevation, Volume, and Perimeter*

Use built-in tools to calculate elevation profiles, surface volumes, and perimeter boundaries with precision.

4.1.1.6 *Visualization of Annotated Images:*

Aeromegh Intelligence enables to visualize output of automatically analysed images, as annotated, marked, counted, categorized images. Each image can be visualized individually, and summary report is also possible.

- The user can download the report in pdf format that can be stored on the computer.
- A detailed image-wise analysis report will be available, showing the number of objects detected per image.
- The report can also be shared with other team members.

5 TIMELINES

Activity / Service	Week 1	Week 2	Week 3	Week 4
Flight Planning & Scheduling				
Drone Survey & Data Collection				
Plot Condition Assessment				
Encroachment Analysis				
Change Detection				
Dashboard Update				
Report Preparation & Delivery				