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Request for Proposal (RFP)

UAV-Based Building Footprint Digitization Project

1. Project Title

High-Precision Building Footprint Digitization Using UAV Orthophoto for 200,000+ Residential Units

2. Project Overview

The project involves large-scale digitization of more than 200,000 residential structures using high-resolution UAV-derived orthophoto as the base reference. The objective is to generate accurate building footprint polygons for GIS-based applications such as urban planning, infrastructure development, taxation systems, and spatial analytics.

The work will be executed on georeferenced orthomosaic imagery, ensuring high positional accuracy and consistency across the dataset. The final output must be structured, validated, and ready for integration into enterprise GIS platforms.

3. Scope of Work

The selected vendor shall be responsible for:

- Digitization of building footprints from UAV orthophoto
- Creation of accurate polygon geometries representing rooftop extents
- Ensuring proper snapping between adjacent polygons
- Maintaining gap-free and overlap-free topology
- Structuring data on a ward-wise basis
- Performing quality checks and validation before submission
- Delivering final datasets in required formats

4. Technical Requirements

All work must comply with the following standards:

- Digitization must be performed on high-resolution orthophoto
- Polygon boundaries must accurately follow visible building edges
- Proper snapping must be ensured between adjacent structures
- No gaps, overlaps, or sliver polygons are permitted
- All geometries must be valid (no self-intersections or errors)
- Uniform digitization standards must be maintained across all wards
- Coordinate Reference System (CRS) must remain consistent throughout

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5. Data Structuring

- Data must be organized on a **ward-wise basis**
- Each ward shall be delivered as a separate dataset/file
- Proper naming conventions must be followed
- Attribute structure should be consistent across all datasets

6. Deliverables

The final deliverables shall include:

- Building footprint polygon dataset (200,000+ features)
- Ward-wise segmented datasets
- Data in **Shapefile (.shp)** and **GeoJSON (.geojson)** formats
- Clean, validated, and GIS-ready datasets

7. Quality Control & Validation

The vendor must implement strict quality assurance processes, including:

- Topology validation (no gaps, overlaps, invalid geometries)
- Snapping verification
- Visual inspection against orthophoto
- Internal QC before submission

The client reserves the right to:

- Review and validate submitted data
- Reject datasets not meeting required standards
- Request corrections without additional cost

8. Technical Evaluation

As part of the evaluation process:

- The bidder must submit a **complete dataset for at least one ward**
- The sample will be evaluated for:
    - Accuracy of digitization
    - Topology compliance
    - Snapping and edge alignment
    - Overall data quality

Only bidders meeting the required standards will be shortlisted.

9. Eligibility Criteria

The bidder must meet the following requirements:

- Experience in GIS digitization, UAV mapping, or geospatial projects
- Capability to handle large-scale datasets (lakhs of features)

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- Access to GIS software (QGIS, ArcGIS, or equivalent)
- Availability of trained GIS professionals
- Established quality control workflow
- Ability to deliver within defined timelines

10. Timeline & Delivery

- The project timeline will be defined prior to execution
- Ward-wise delivery may be required in phases
- The vendor must adhere strictly to agreed milestones

11. Data Confidentiality

- All project data shall be treated as confidential
- The vendor shall not share or reuse data without permission
- Data security must be maintained at all stages

12. Revisions & Corrections

- Any errors identified during validation must be corrected by the vendor
- Corrections must be completed within the specified timeframe
- No additional cost will be provided for rework

13. Ownership of Data

- All final outputs shall be the sole property of the client
- The vendor shall have no ownership rights over the data

14. Payment Terms

- Payment may be linked to milestone-based delivery
- Ward-wise approval may be considered for phased payments
- Final payment will be released after complete validation

15. Submission Requirements

Interested bidders must submit:

- Company profile
- Relevant project experience
- Sample work / portfolio
- One ward dataset (mandatory for technical evaluation)
- Proposed timeline

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Final Note

This project requires **high accuracy, consistency, and scalability**. Only vendors with proven capability in large-scale GIS digitization and strict adherence to topology standards should participate.