

Indigenous & Integrated GIS Platform for Counter Terrorism and Public Safety

IGiS (Integrated GIS and Image Processing Software)



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COUNTER TERRORISM STRATEGY : GIS ROLE



GIS Role for Counter Terrorism

- Risk Management
- Target Identification & Locational Analysis
- Trend Analysis
- Interoperability
- Data Fusion & Single Source of Truth



- Data Gathering and Mapping
- Predication of Attack Based on Activities
- Combat Operation – Planning , Execution

Implementation Phases

Better Situational Awareness , Faster Response, Efficient Resource Utilisation & Seamless Information Sharing

GIS IMPLEMENTATION : MONITORING / SURVEILLANCE



3 KEY AREA

Platforms
(Aircraft, UAV, Satellite)



Resource Management
Systems/Electronics/ Optronics



Human / Suspicious Activity
Reporting



COMMAND CONTROL CENTER

**MAPPING , INTELLIGENCE, SURVEILLANCE &
RECONNAISSANCE**

Integrated GIS Based Solution for Mapping / Monitoring / Surveillance

GIS IMPLEMENTATION : PREPAREDNESS

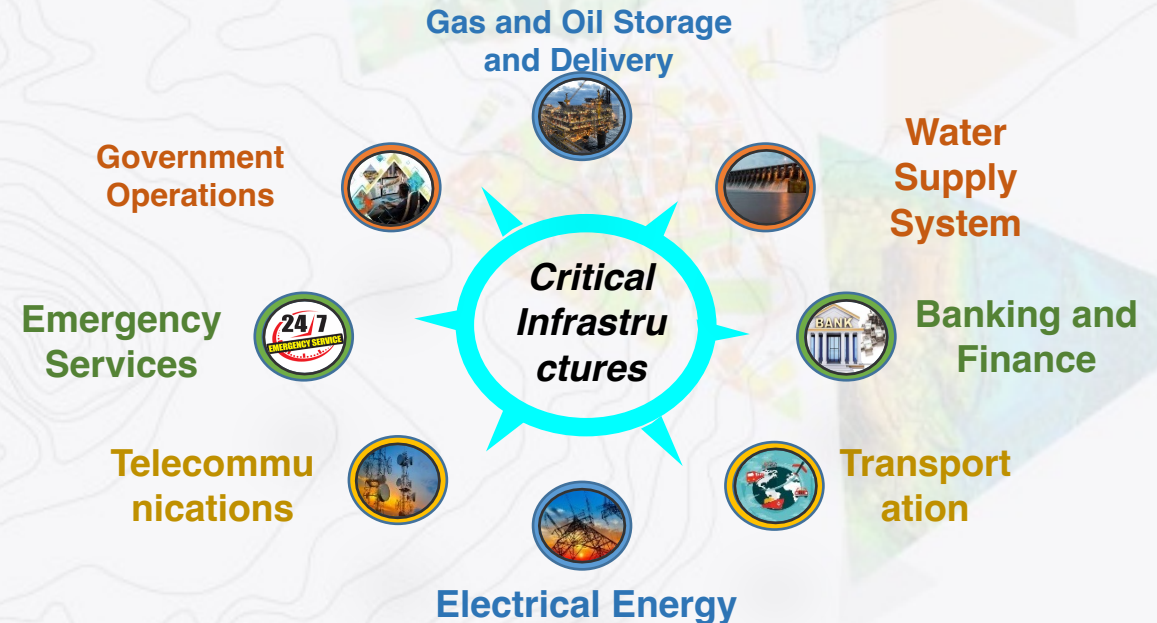


Common Operational Picture (COP) :
Common Platform for Spatial & Non-Spatial Data.

- Situational Awareness
- Data Fusion
- Command and Control
- Incident Management

Risk Management & Trend Analysis

- Facility Characterization- “Peeling the Onion” Approach
- Threat Analysis - “Targeting” or DBT (Design Based Threat)
- Policy & Process Analysis - “Enterprise Approach/Systems”
- Crime Mapping and Analysis
- System Effectiveness (Physical Protection Systems-PPS & Surveillance)



Analyse, Identify, Prevent, Mitigate & Respond

GIS IMPLEMENTATION : RESPONSE & MITIGATION



Actionable Insights – Step 1

Terrorist / Terror Group Surveillance

Special Reconnaissance

Intelligence gathering and visualization

Contingency Planning

Timely decision support

Real-time management of field operations

Accuracy of rapid response

Development of training & combat plans

Area assessment – Terrain, layout, location etc.

Monitoring of potential targets

Geospatial Intelligence (GEOINT)

Step 2: Tactically Response Application

Includes :

- General Site Characteristics
- Impact Estimates
- Threat Definition
- Key Staff Contacts (24/7 Contacts)
- Site Population Statistics
- Site Security Characterization (PPS , Access Control, Lighting, Surveillance , Route Analysis Vulnerabilities)
- Quick Reaction/Response Checklists
- Surrounding Infrastructure

**The Right Information for Right People at
The Right Time**

IGiS Enterprise Solution For Rasthriya Raksha University & National Security Guard

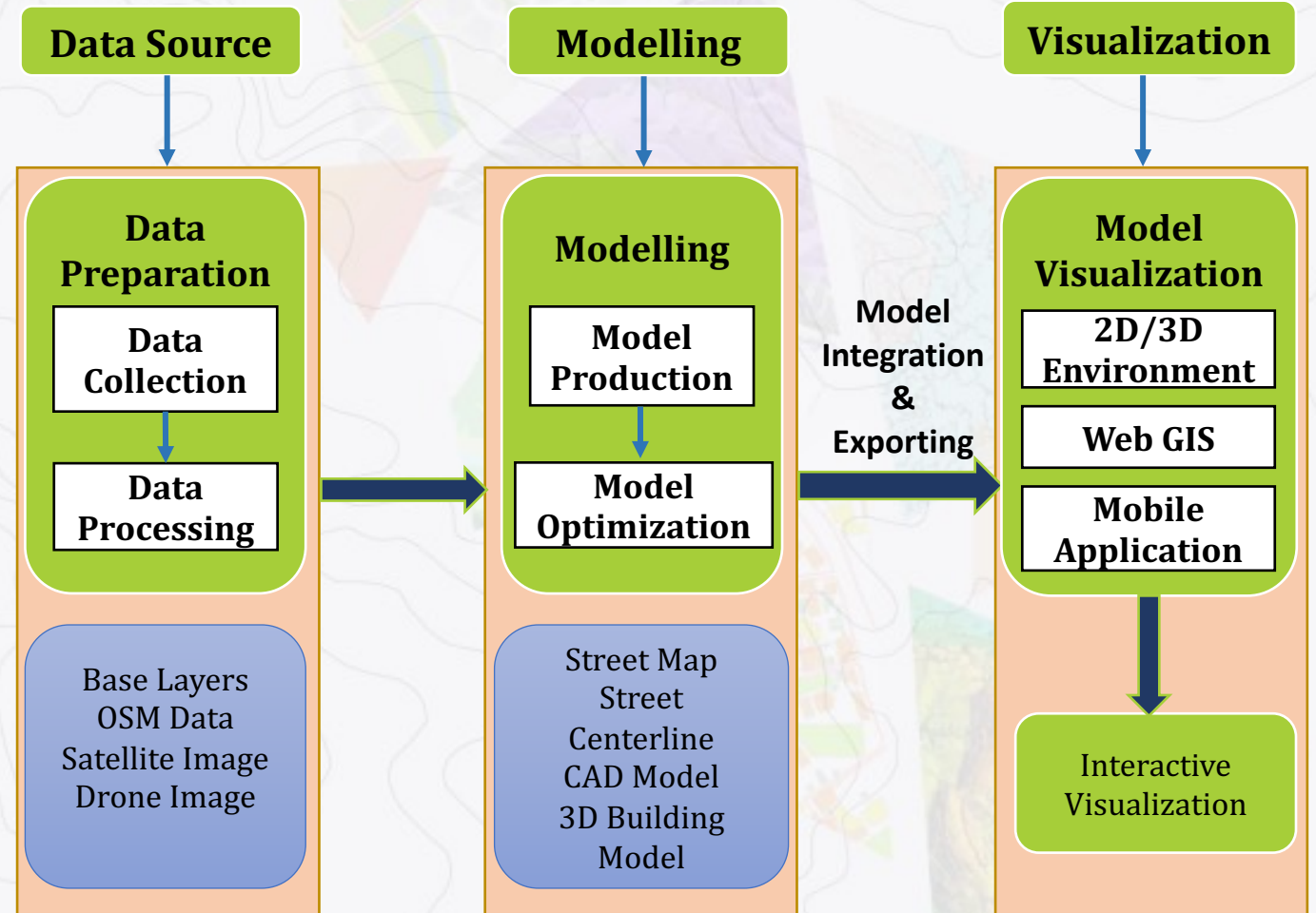
Developed As a Part of Hackathon by RRU for NSG

IGiS IMPLEMENTATION CASE STUDY – NSG & RRU (Pre- Requisite)

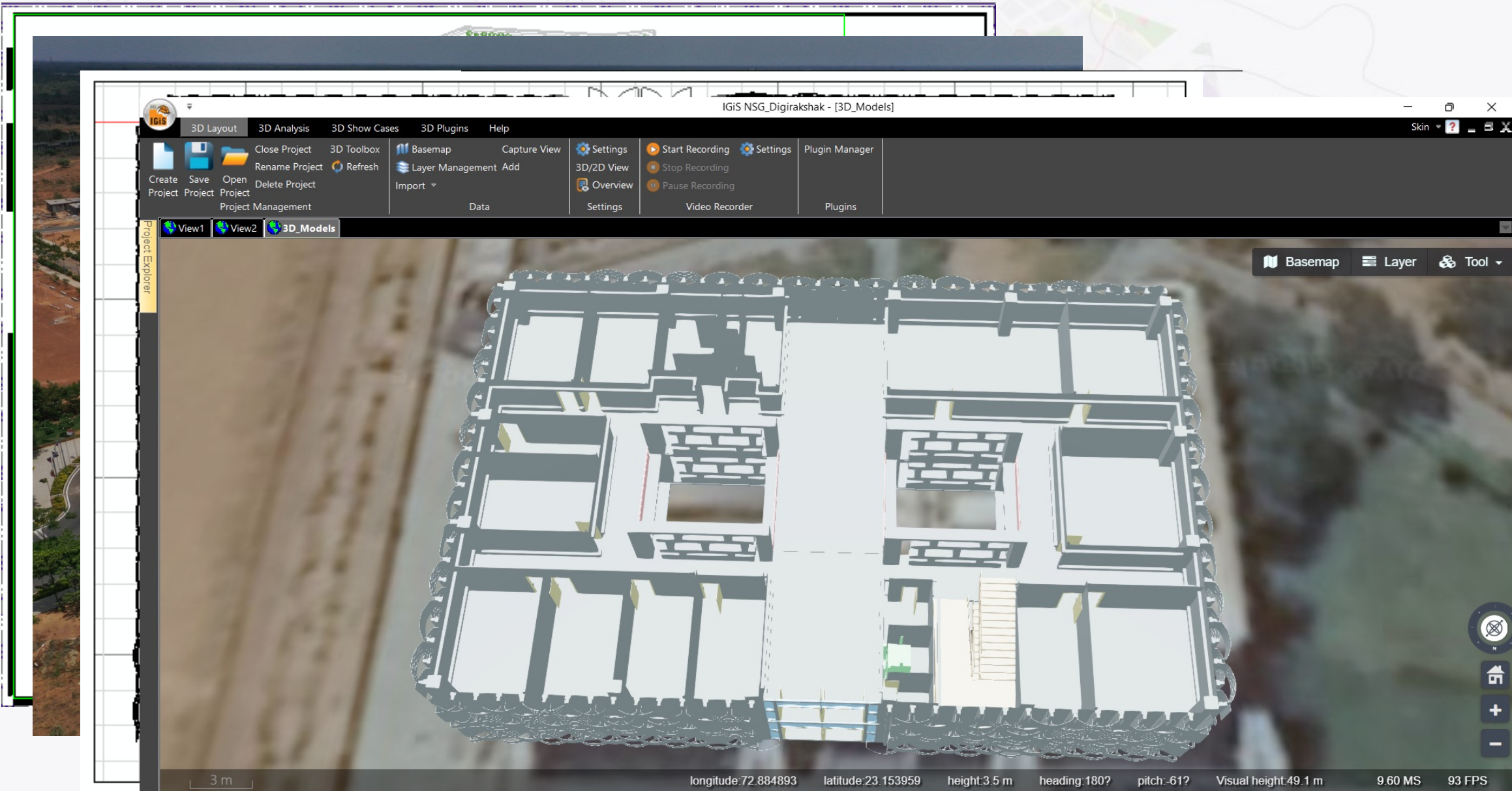


| Geospatial Tools | Description |
|------------------------------------|--|
| GIS | Base layers such as OSM Map, google satellite data, Street map, parcel information, street centerlines for regional mapping |
| Remote Sensing | Satellite imagery, Drone survey for 3D Model Generation |
| Floor Plan/Blue Prints | Floor plan/blue prints for CAD model preparation for indoor mapping |
| 2D/3D GIS Platform | Model visualization and analysis |
| Enterprise Web GIS Platform | Dissemination of model and data Analytics output over the Web and Mobile for the communication/guidance of ground combat team with command & control centre team |

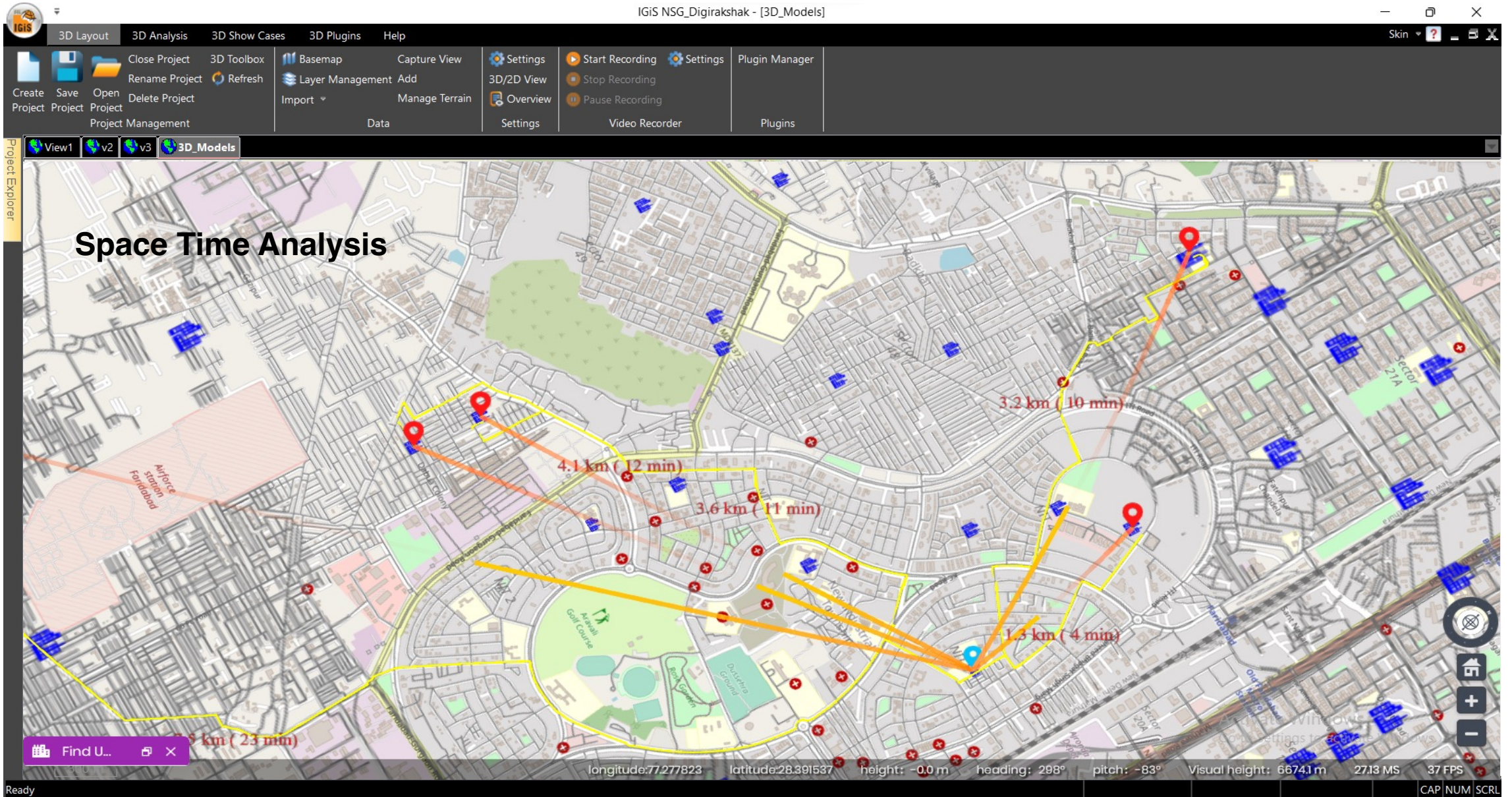
Step 1: Model Development Approach



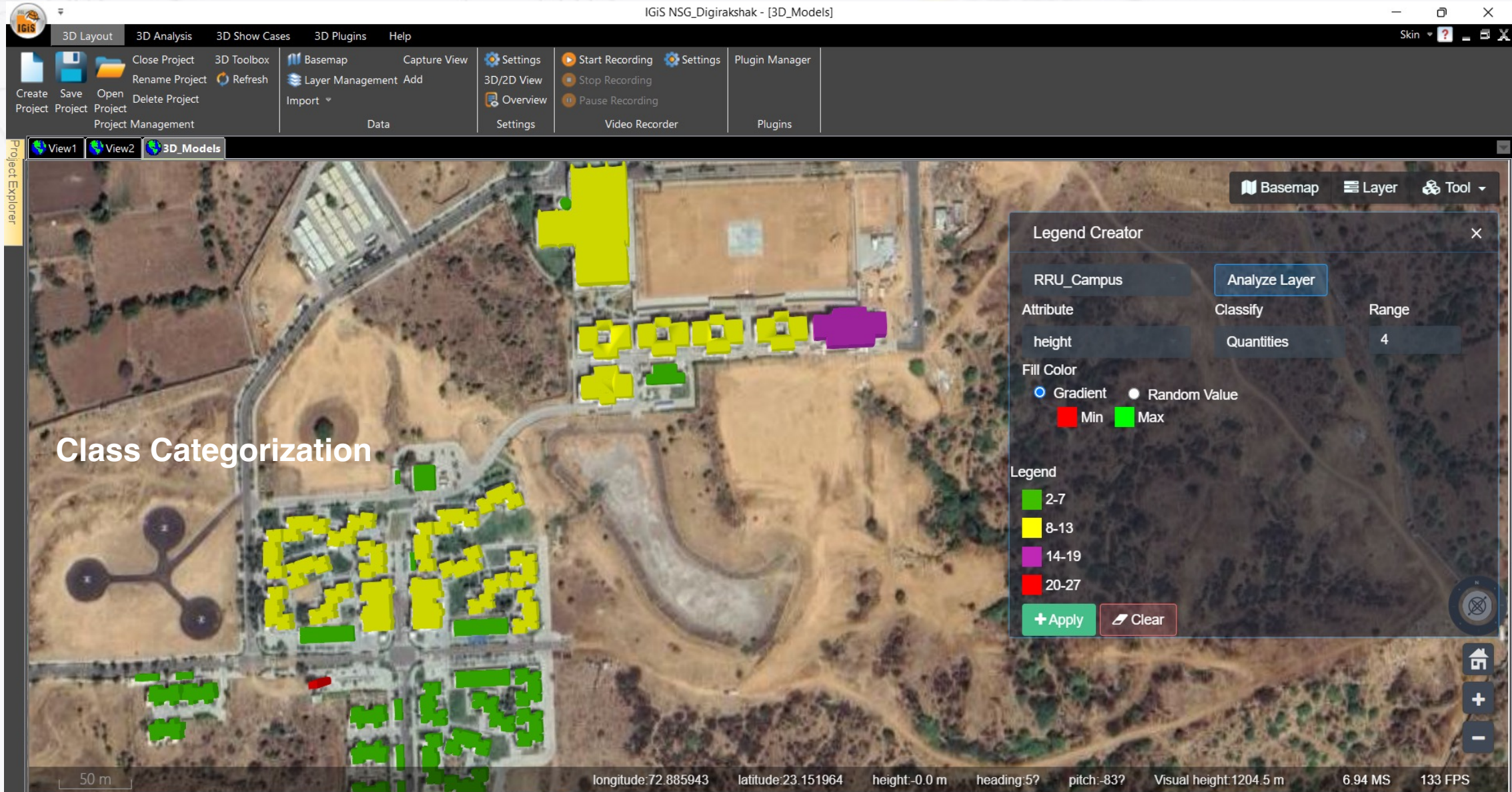
IGiS IMPLEMENTATION CASE STUDY – NSG & RRU (Models)



IGiS IMPLEMENTATION CASE STUDY – NSG & RRU (Tactical Planning)



IGiS IMPLEMENTATION CASE STUDY – NSG & RRU (Tactical Planning)



IGiS NSG_Digirakshak - [3D_Models]

3D Layout | 3D Analysis | 3D Show Cases | 3D Plugins | Help

Close Project | 3D Toolbox | Basemap | Capture View | Settings | Start Recording | Settings | Plugin Manager

Rename Project | Refresh | Layer Management | Add | 3D/2D View | Stop Recording | Overview | 3D Models

Delete Project | Import | Data | Settings | Video Recorder | Plugins

Project Explorer | View1 | View2 | 3D_Models

Basemap | Layer | Tool

Class Categorization

Legend Creator

RRU_Campus [Analyze Layer](#)

| Attribute | Classify | Range |
|-----------|------------|-------|
| height | Quantities | 4 |

Fill Color

Gradient Random Value

Min Max

Legend

- 2-7
- 8-13
- 14-19
- 20-27

[+ Apply](#) [Clear](#)

50 m | longitude:72.885943 | latitude:23.151964 | height:-0.0 m | heading:5? | pitch:-83? | Visual height:1204.5 m | 6.94 MS | 133 FPS

IGiS IMPLEMENTATION CASE STUDY – NSG & RRU (Tactical Planning)



Fly Around

IGiS IMPLEMENTATION CASESTUDY – NSG & RRU (Tactical Planning)

IGiS NSG_Digirakshak - [3D_Models]

3D Layout 3D Analysis 3D Show Cases 3D Plugins Help

Create Project Save Project Open Project Project Management

Close Project Rename Project Delete Project Project Management

3D Toolbox Refresh

Basemap Layer Management Import

Capture View Add Manage Terrain

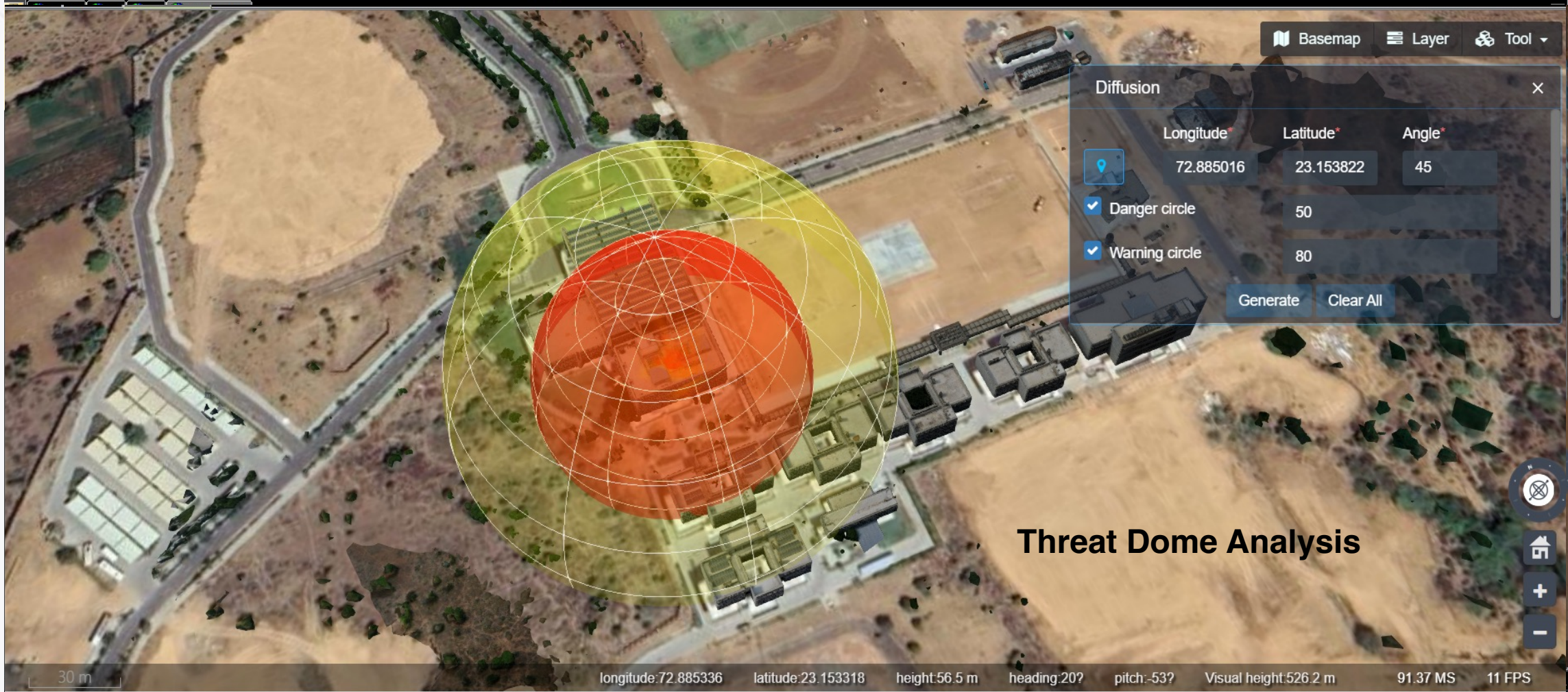
Settings 3D/2D View Overview

Start Recording Stop Recording Pause Recording

Settings Plugin Manager

Video Recorder Plugins

Skin ?



Basemap Layer Tool

Diffusion

| | Longitude* | Latitude* | Angle* |
|--|------------|-----------|--------|
| <input type="text"/> | 72.885016 | 23.153822 | 45 |
| <input checked="" type="checkbox"/> Danger circle | | 50 | |
| <input checked="" type="checkbox"/> Warning circle | | 80 | |

Generate Clear All

Threat Dome Analysis

30 m longitude:72.885336 latitude:23.153318 height:56.5 m heading:20? pitch:-53? Visual height:526.2 m 91.37 MS 11 FPS

IGiS IMPLEMENTATION CASESTUDY – NSG & RRU (Response)



Roaming route

Stop roaming View profile

| | |
|----------------------|----------------|
| Route name | Walk |
| Perspective mode | Lock the first |
| Viewing | 5 |
| Viewing angle height | 1 |
| Total length | 112.84 m |
| Roamed length | 1.80 m |
| Total duration | 55 sec |
| Roaming time | 1 sec |
| longitude | 72.885038 |
| longitude | 23.153971 |
| Roaming elevation | 0.26 m |

The horizontal distance from the roaming object, unit: m

longitude:72.884883 latitude:23.153998 height:4.4 m heading:182? pitch:-11? Visual height:1.2 m 15.06 MS 69 FPS

ear9Month29Day12:26:10 2022Year9Month29Day12:26:20 2022Year9Month29Day12:26:30 2022Year9Month29Day12:26:40 2022Year9Month29Day12:26:50 2022Year9Month29Day12:27:00

THANK YOU



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