

# Safe, Sustainable and Resilient Infrastructure Through Digitalization

Address By  
Mr. M V Satish  
Advisor to CMD & Lead Ambassador to Middle East  
Larsen & Toubro



***LARSEN & TOUBRO***

# 8D BIM For Safety In Technology Centre IV Site



## BIM FOR SAFETY



Unsafe Working at Height



Unguarded Machinery



Fire



Open Shafts and Edges



Unsafe Scaffolds



Unstable / Unsafe Structural Members



Unsafe Electrical Equipment & Connections



Unsafe Excavations



Falling Objects



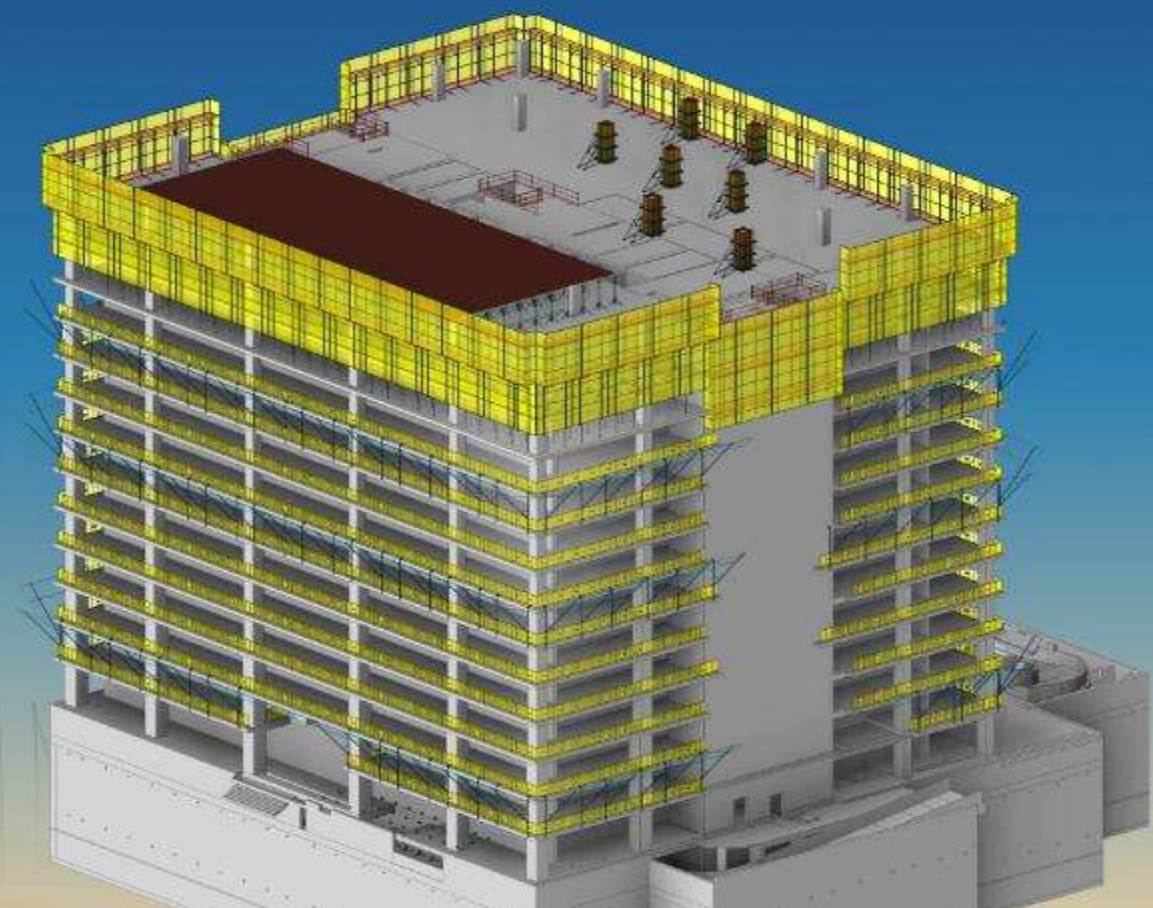
Struck by Foreign Body



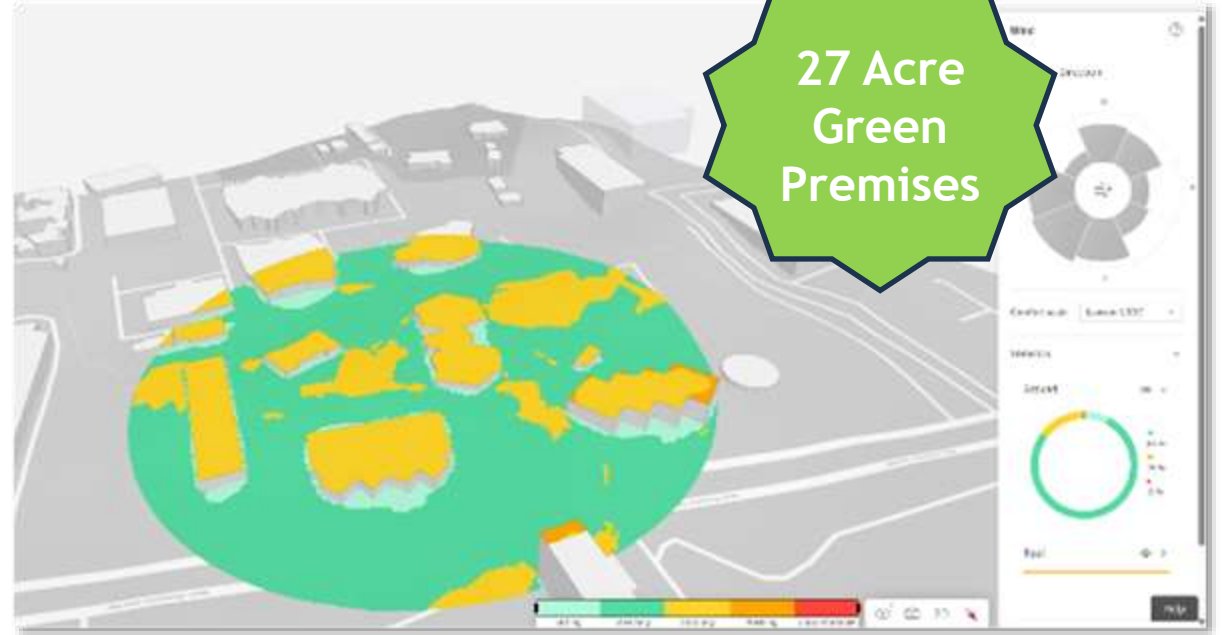
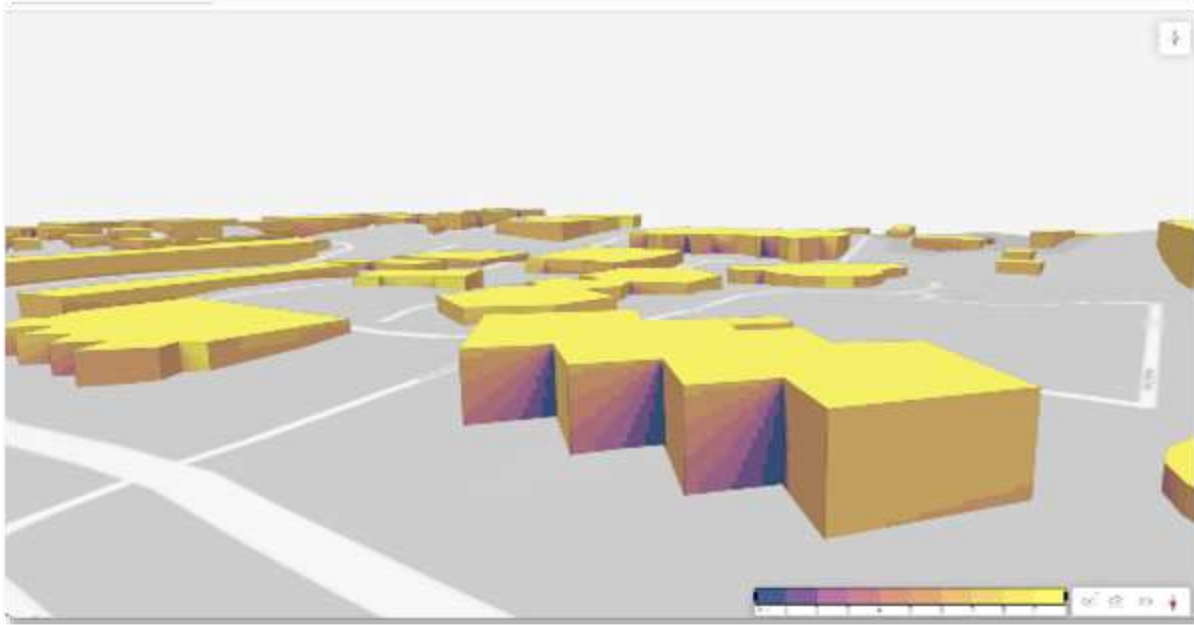
Unsafe Lifting Operations



Unsafe Cantilever Loading Platform



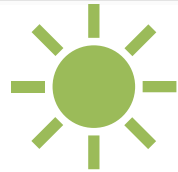
# 6D BIM For Sustainability In L&T Manapakkam Campus



## Early-Stage Sustainable Design

Rapid evaluation of massing options for energy, daylight, and carbon impact.

Informed decision-making before detailed design.



## Climate & Environmental Analysis

Integrated simulations for solar radiation, wind, daylight, and noise.

Reduces reliance on external tools → faster sustainable planning.



## Energy & Carbon Insights

Predicts operational energy demand and CO<sub>2</sub> footprint.

Helps optimize façade design, orientation, and material use.



## Urban & Site Context Integration

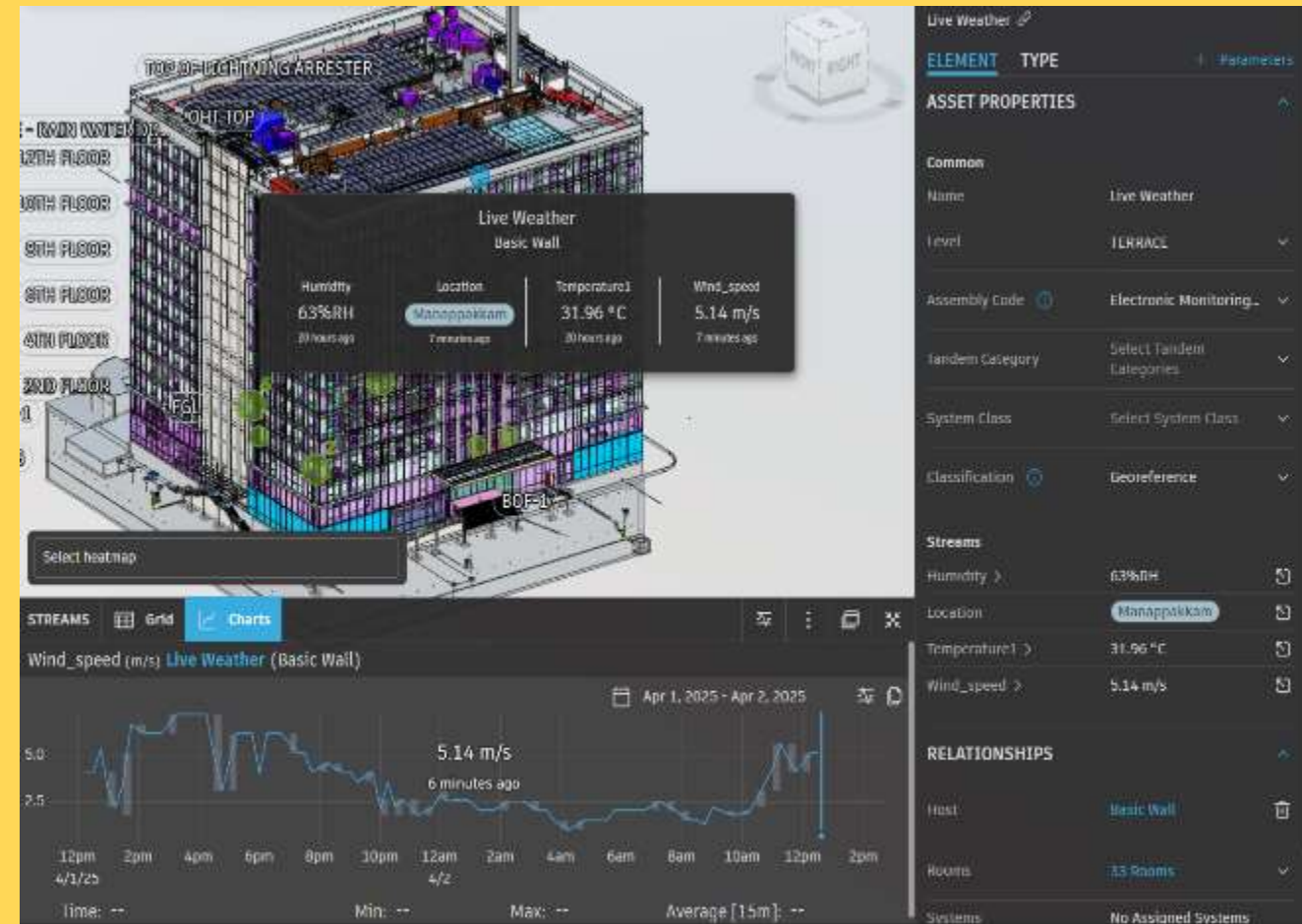
Data-driven analysis of site conditions, zoning, mobility, and green spaces.

Supports sustainable master planning and infrastructure design.

# 7D BIM for Facility Management using Digital Twin @ Technology Centre IV

- BIM model forms the foundation of the digital twin, integrating IoT, AI, and cloud data.
- Enables real-time monitoring (energy, occupancy, safety) and predictive maintenance.
- Supports sustainability through energy optimization and carbon tracking.
- Enhances decision-making, safety, and facility lifecycle management.
- Creates a closed feedback loop, bridging design with real-world performance.

## Real-time Data Monitoring: Thermal Comfort Monitoring





# BIM - GIS Integration

## Seamless Data Exchange

Combines BIM models with GIS for real-world accuracy

## Cut & Fill Analysis

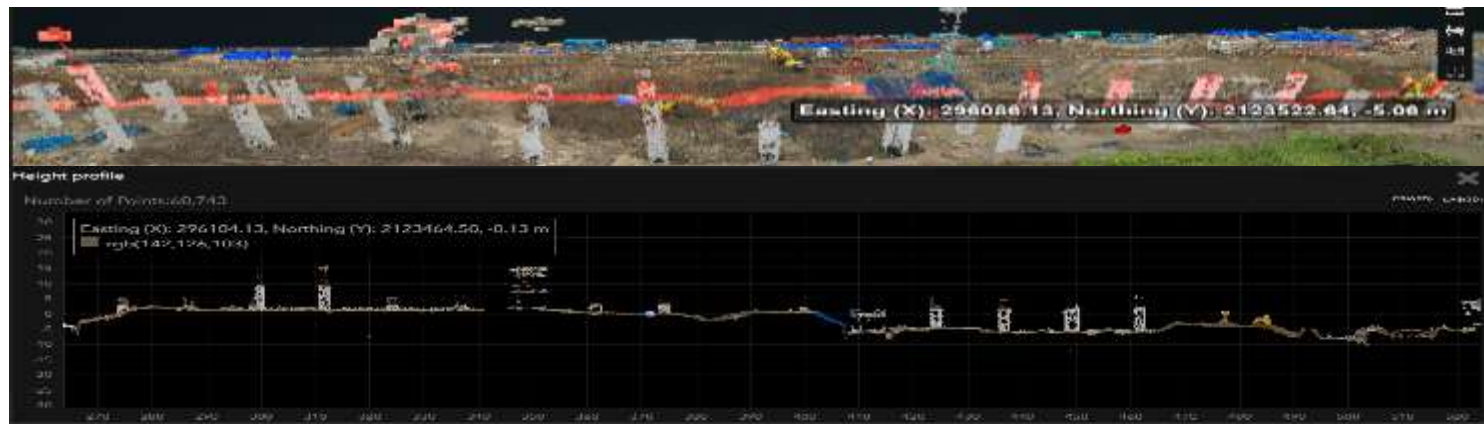
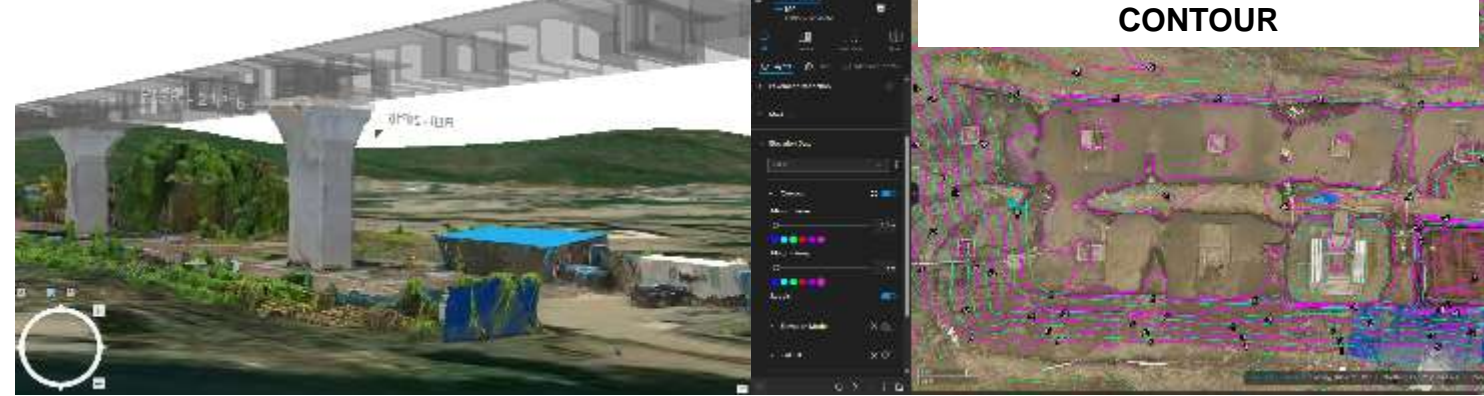
Automates earthwork volumes for cost & sustainability

## Chainage Section (Linear Infrastructure)

Profiles along alignments to identify critical design points

## Elevation / Digital Terrain Model (DTM)

3D terrain models for drainage, slope & site planning



CHAINAGE SECTION




CUT & FILL ANALYSIS

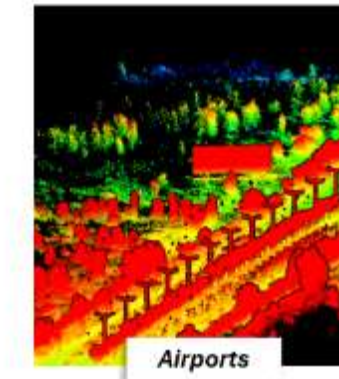
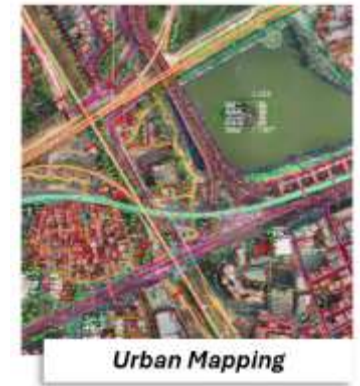
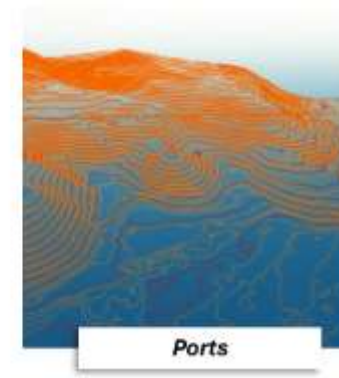
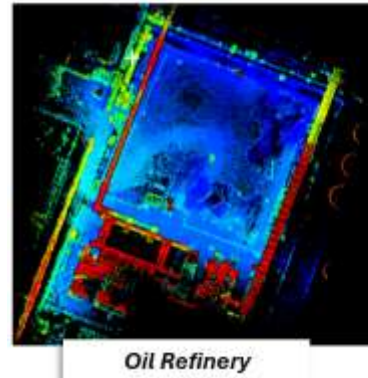
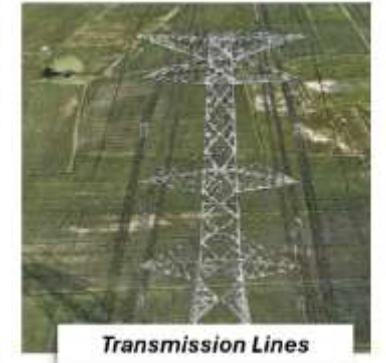
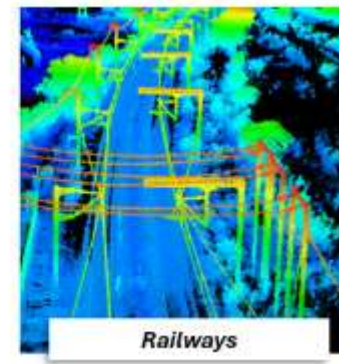
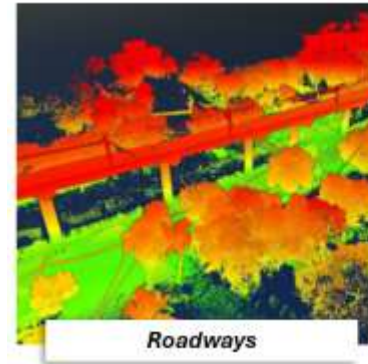


# GEOSPATIAL TECHNOLOGIES

# Our Scanning & Mapping Capabilities

-  AERIAL LIDAR
-  DRONE LIDAR
-  MOBILE LIDAR
-  BACKPACK LIDAR
-  HAND-HELD LIDAR
-  TERRESTRIAL LIDAR

# Precisely Scanned and Mapped-Digital Geospatial Datasets



# Geo BIM Solution for Project Lifecycle



Data driven Virtual replica and Common Datum Environment for acquiring, integrating, Analyzing and Managing the spatial and non-spatial data. Enhancing multidisciplinary coordination, automating workflows and insight-based decision making across project lifecycle.

90% Better  
Collaboration

25% Less Design  
Conflicts

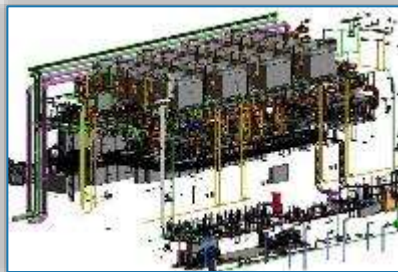
5-10% Lower  
Operational cost

100% Digitalization  
and Remote access

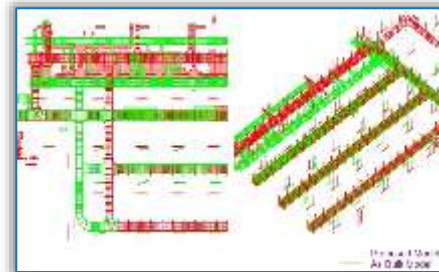
## Key Services provided



As-Built BIM Models



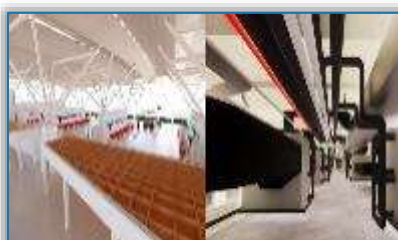
VDC Implementation



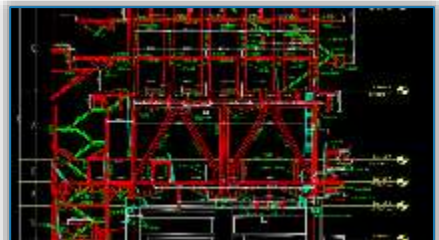
4D5D Construction Progress



CAD to BIM



360° As Built



As-Built GA Drawing, BOM

## Solution plethora



Digital Twins



ARVR Industrial  
Metaverse



O&M and Incident  
Management



ACC/BIM360  
CDE Integration



BIM Automations and  
Development

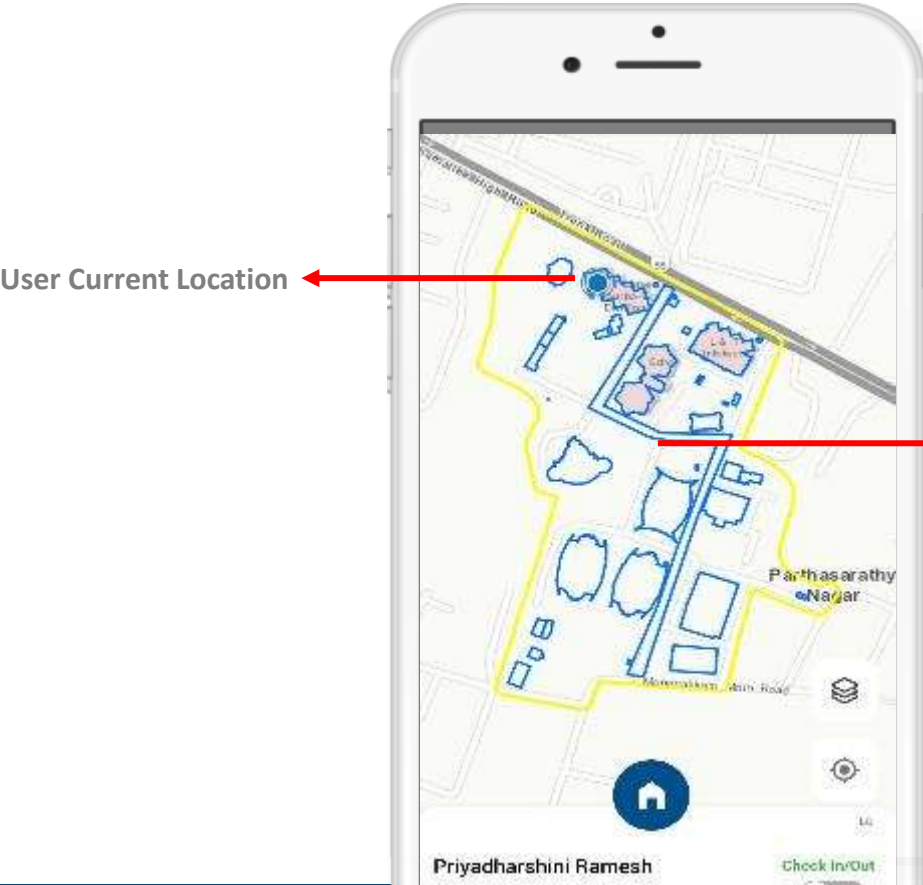


Technical Support,  
Integrations and  
Implementation

# My Access - Attendance Integration

A Geofence-based Mobile GPS application designed to accurately capture location-based attendance when the employees are present within the geo-fenced area created within the office premises

A digital way to manage and capture employee attendance!



User Current Location

Virtual Geofence Boundaries created within L&T Campus

- Office Campus
- Building Blocks within Office



# Geodatabank

- Geo Databank is a **GIS-Based SAAS Platform** that exclusively sets out to be an **Indexed & Organized Digital Repository** for storing and accessing Geospatial Data.
- It is a single-stop solution for Geospatial Data Visualization, Data collaboration, GIS analysis, and Data Reusability.



## Problem Statement



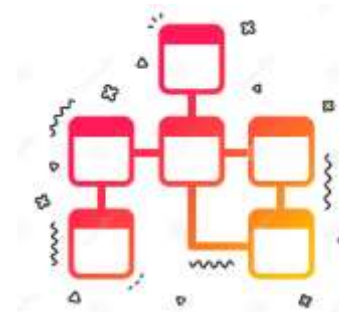
Data acquisition via in-house or through any government agency is a very tiresome, expensive, and time-consuming process



After a Project closure, project-related data are archived and become inaccessible for reuse by prospects leading to less data visibility



Exhaustive chain of contact permission is required to access archived data



Similar data stored under different schemas and nomenclature by different business units leads to duplication



Absence of inbuilt analysis tools on data repositories has caused users to depend on external applications, licenses

# THANKYOU