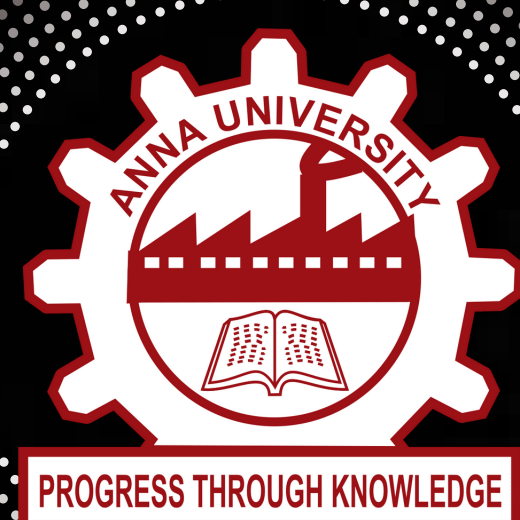




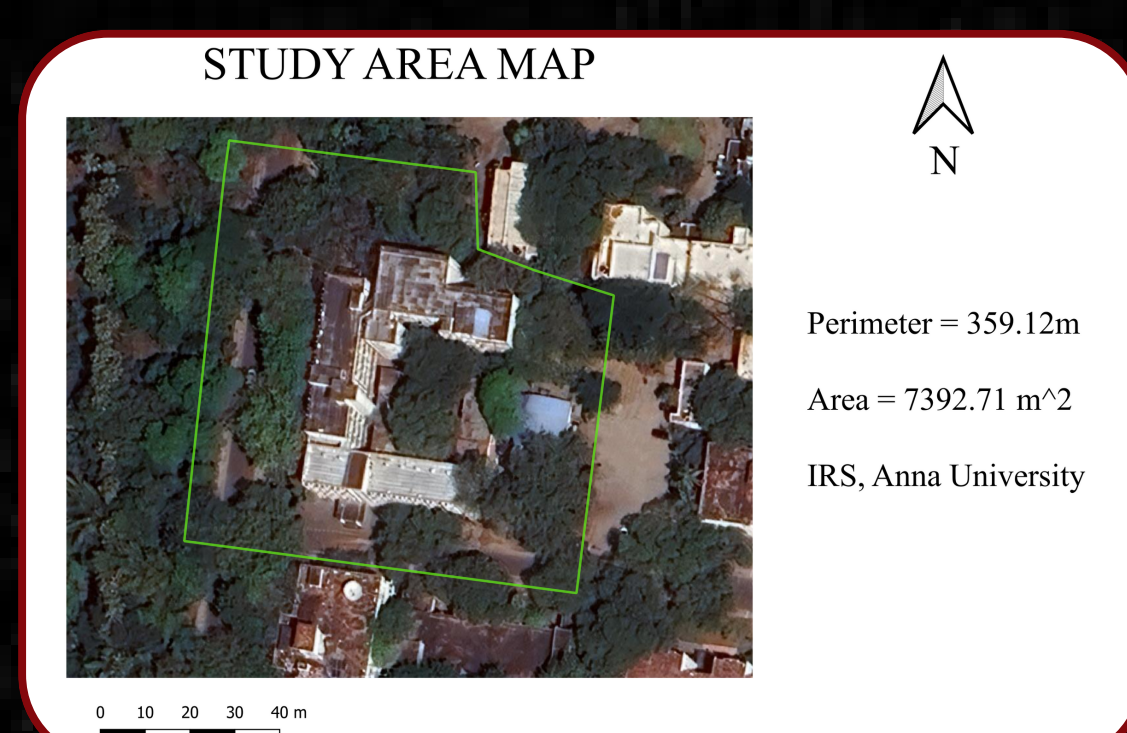
INTEGRATING TERRESTRIAL LIDAR AND LARGE LANGUAGE MODELS FOR 3D OUTDOOR SCENE UNDERSTANDING AND COMPLEX SPATIAL REASONING



INTRODUCTION

This project uses LiDAR technology to capture detailed 3D scans of real-world environments and applies machine learning to automatically detect and classify features like buildings, benches, and trees. By transforming raw point cloud data into organized, meaningful information, and integrating an AI-powered interface that responds to natural language queries, the system makes spatial data accessible and useful for everyone. The goal is to support smarter decision-making and create more responsive, user-friendly environments.

STUDY AREA



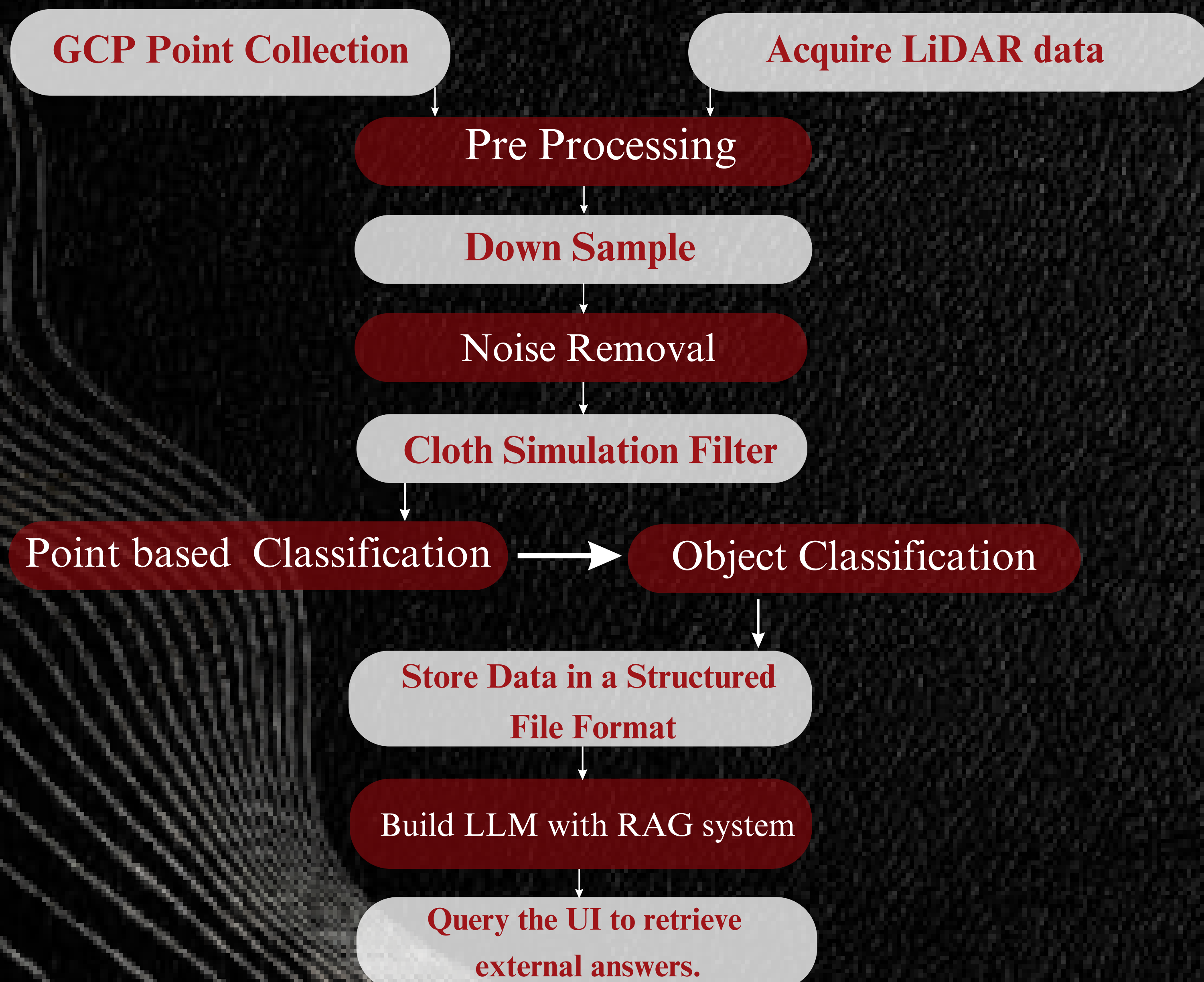
IRS, Annauniversity

INTRUMENT USED



RIEGL VZ 400i

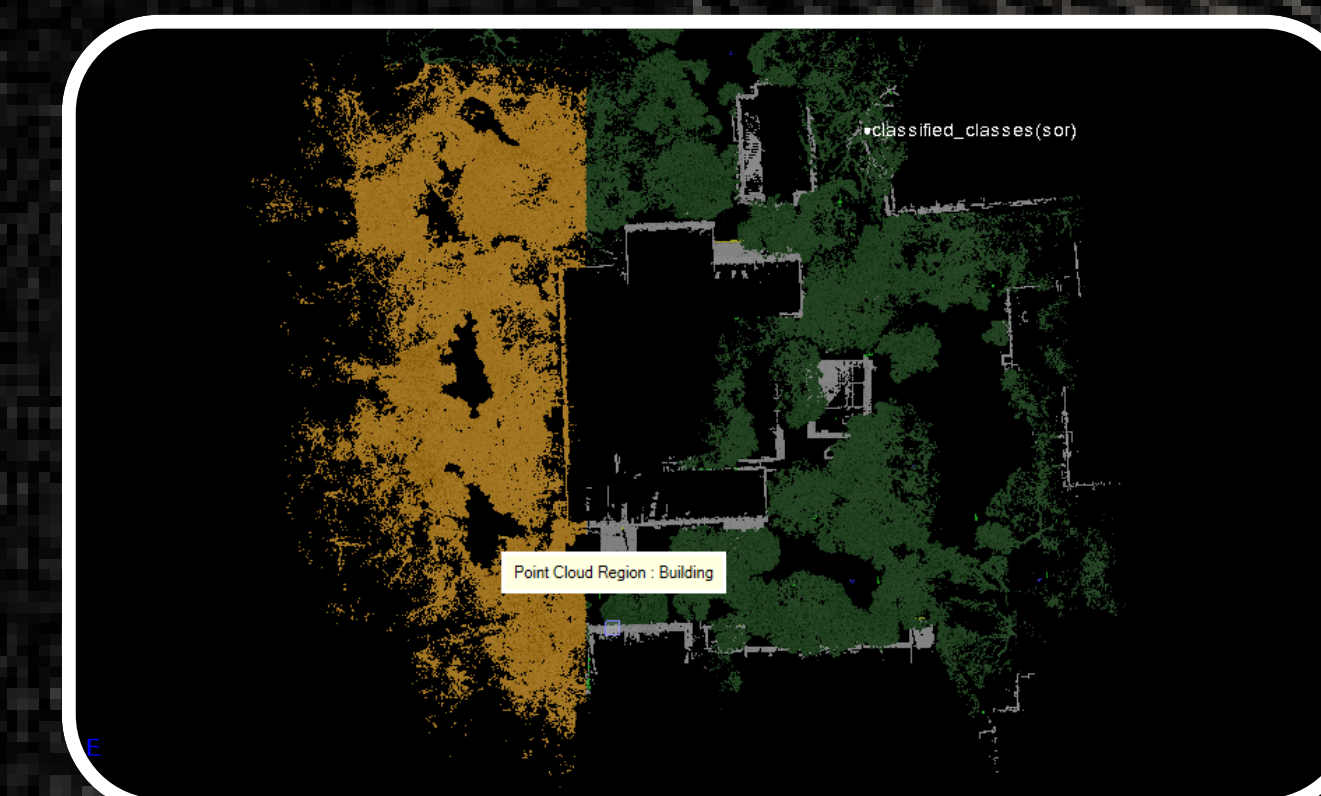
METHODOLOGY



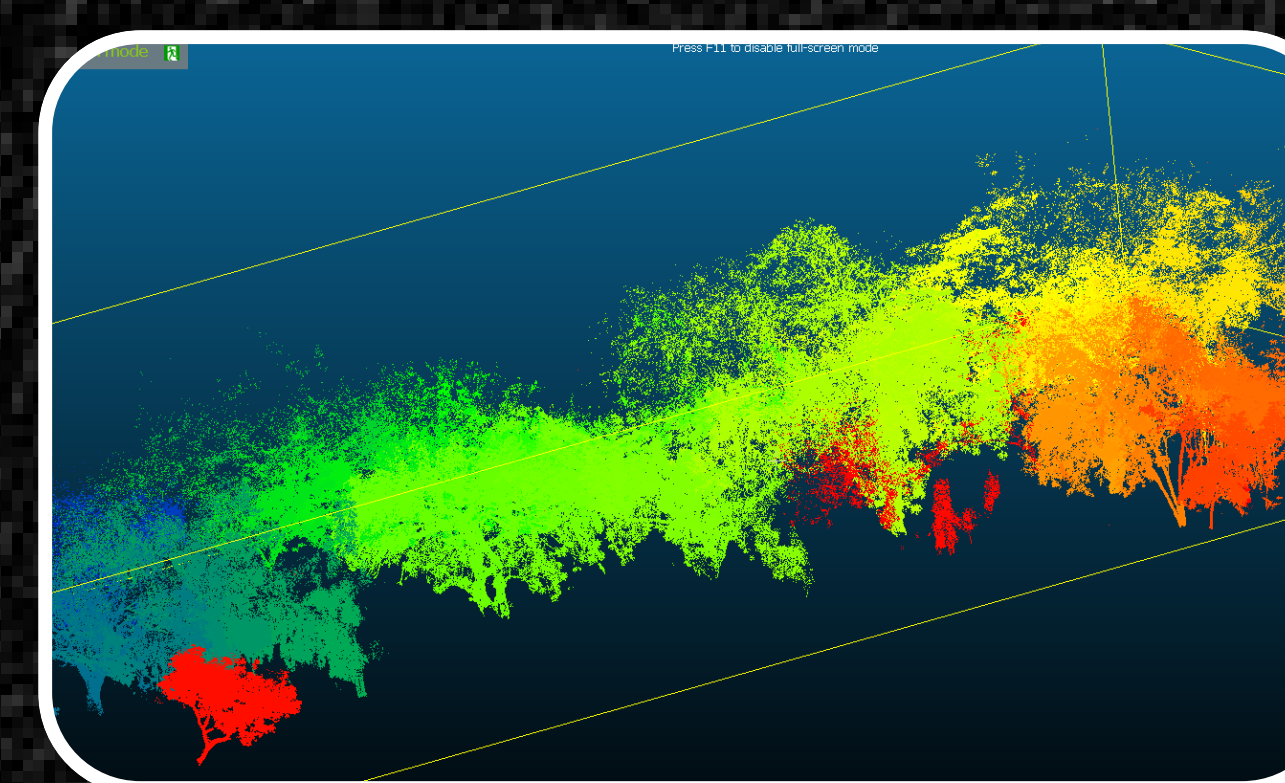
RESULTS



Classified las file (point based)



Yellow marked area is (POI) for tree count



Final output las file



Tress points clustered into one object



User Interface

CONCLUSION

We developed an AI-powered system that accurately detects and classifies campus assets from LiDAR point cloud data. The system structures spatial metadata in GeoJSON format and enables natural language querying through an LLM interface. This approach significantly enhances the efficiency, accessibility, and intelligence of campus asset mapping and management.

PROJECT BY

SANJAY KHANNA D

(2021107301)

RAVICHANDRAN N

(2021107303)

MUTHU KUMARA SAMMY

(2021107305)

UNDER THE GUIDANCE

Dr. B. DIVYA PRIYA,

Assistan Professor,
IRS