Mindtree NxT

Geospatial NxT creates a rich central database for enterprise GIS

Background

A government entity was undertaking a massive irrigation project covering more than 4,500 square kilometers. The full scope of work included survey, design, procurement, construction, and installation of pumping systems. To start the project, a massive land survey of the entire project area was required to account for terrain features that could impede construction progress. The project also necessitated a bathymetric survey to understand the bodies of water.

Challenges

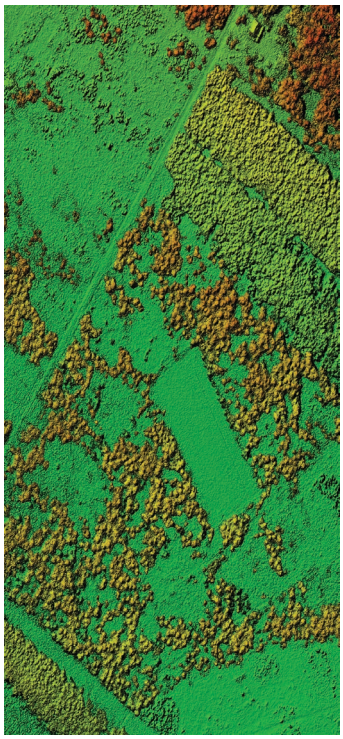
Traditional means of land surveying would have been problematic due to the size of the land area and challenging geography – with elevation variations of up to 300 meters. Dense forest areas also posed challenges, with wildlife and thick vegetation making it unsafe for manual survey. Also, because of the variety of the landscape, the team was running into challenges related to gaining permits and permissions for access in some areas.

- The project required detailed surveying prior to construction
- Dense forestry complicated traditional survey efforts
- Both geographic and bathymetric surveys were needed

Solution

To overcome these challenges, the project team opted for helicopter-based light detection and ranging (LiDAR) for bathymetric and geographic surveys. While the raw LiDAR data comprised everything on the ground, including irrelevant information such as buildings and power lines, the post-processed data used pre-determined algorithms to remove these features. The concept of digital twin was achieved for this project using enterprise GIS dashboards.

- Helicopter-mounted LiDAR gathered data quickly and accurately
- Advanced algorithms processed LiDAR data
- Digital twin produced on enterprise GIS system



Benefits

Accurate geographic data prior to and during construction is critical to project success. By working with the Geospatial NxT team from Mindtree, the client achieved multiple benefits:

The survey was completed in three months versus a year or more, with traditional effort

Improved site visibility through the superimposition of site photographs, videos and drone images

Site revisits and verification was eliminated

Optimized pipeline alignment, design, and excavation

Real-time alerts through the integration of GIS and SCADA systems helped teams locate maintenance items easily, which decreased unplanned downtime

About Mindtree

Mindtree [NSE: MINDTREE] is a global technology consulting and IT services company that enables enterprises across industries to drive superior competitive advantage, customer experiences and business outcomes by harnessing digital and cloud technologies. A digital transformation partner to more than 275 of the world's most pioneering enterprises, Mindtree brings extensive domain, technology and consulting expertise to help reimagine business models, accelerate innovation and maximize growth. As a socially and environmentally responsible business, Mindtree is focused on growth as well as sustainability in building long-term stakeholder value. Powered by more than 35,000 talented and entrepreneurial professionals across 24 countries, Mindtree — a Larsen & Toubro Group company — is consistently recognized among the best places to work.