



Design & Development of Web GIS Based Asset Mapping & Land Management System

Introduction

Industrial areas of the state are always the talk of the town since they are one of the prime sources for earnings and attracting new opportunities for the state's development. The socio-economic development of the state, the development of specialized parks/industrial clusters with specialized infrastructure facilities generates multiple revenue streams for the state's development. But everything is not a cake-walk. Land Base Management in Industrial Areas has always been a challenging and tedious task for the authorities. When it comes to state-level, there are multiple districts with huge industrial area lands. These lands, due to their size and complex structure are not easy to manage since they rely on decades old technology of paper-based record keeping. The ownership of these lands is also ambiguous since for a single piece of land there are n nos. of land owners. This results in duplicity of the records and hence the revenue losses. To overcome the complex process of land management, Ceinsys has designed and developed a web-based land management enterprise solution for the industrial areas which has proved as boon for the industrial area development and curbed down the revenue losses.

Purpose

Design and development of Land Management System for identification and demarcation of encroachments for industrial area planning and eradicating the flaws.

Objective

Aerial survey-based mapping of Industrial Areas and its assets & manage using web and mobile based platforms. The project also aims to facilitate investors to provide a platform for potential investors and entrepreneurs for selection of best suitable location for setting up industries using latest technology.

Solution

Ceinsys in consultation with the Industrial Authorities undertook a detailed User Needs Assessment to better understand the requirements and come up with the best suitable solution. Ceinsys commissioned a dedicated team that comprised Survey team, GIS/Remote sensing experts and software to provide end to end development of the solution included drone survey, data collation, data rationalization, conceptualization, development of the portal, mobile application, hosting services, remote web site management and application maintenance. The overall system is developed using ESRI ArcGIS server technology and a centralized RDBMS database to store land information. This solution has paved way to detect the encroached lands and provide a mechanism for urban/rural land change detection & its monitoring.

Key project activities included:

- Drone survey for the Image data acquisition of industrial area
- Geodatabase creation and High-Resolution GIS map creation
- Industrial area utility data creation
- Existing data sanitization and migration
- Enterprise GIS Portal development for internal & external users.
- Process atomization for New industrial area plan development and approval and change in existing industrial area plan
- Mobile application development for field personals
- Integration of existing enterprise systems – ERP, LAS, LMS, BPAMS,SWC, WMS
- Establishment of GIS Cell for day-to-day operation and maintenance
- Executive Dashboard for key official & Decision makers

Challenges

- Large demographical area with complex Land Management Process workflow.
- Decade old CAD technology for industrial area Planning & Maintenance.
- Records mismatch with actual ground condition create loophole for revenue loss.
- Identification & documentation of Land Encroachments.
- Multiple & duplicates record generation.
- Dependency on remote agency for data publishing.
- Missing interoperability between MIS and Geospatial Dataset
- Paper based record keeping.

Benefits

The Drone Survey and Enterprise Geospatial Solution developed is the first of its kind state of the art solution in the country in which industrial area land management and planning has been made simpler and efficient with a vision of digital transactions for state authorities as well as for potential investors.

- High Resolution up to date Imagery data collection.
- Land bank record updation and verification.
- Identification and quantification of land encroachment.
- Industry and user-friendly system.
- Single window interface for managing and tracking land management activities.
- Process atomization for Industrial area planning.
- Promotes paperless environment.
- Effective monitoring mechanism, thereby reducing the time and cost in the land management process.
- Web GIS-based tracking of land information.
- Integrated with the existing application for identification of revenue loss loop hole.
- Real time on ground land and facility status tracking through the Mobile Application.
- Better operational efficiency and decision making by Executive Dashboard.

Key Project Highlights

- Web and Mobile based land management solution
- Statewide Implementation covering 66,000 Ha of area.
- Solution implemented for 284 Industrial Areas.

