Automatic Detection and Geotagging of Stationary Objects from Street Level Imagery

Fast, accurate and fully automated assets discovery in geographic areas from street images

Technology Overview
AIImapIT constitutes an innovative AI solution for discovery, detection and GPS mapping of stationary objects. The system can be trained to detect any street furniture (post boxes, various poles and street-lamps, traffic lights and signs, transport stops, benches, etc.), vegetation (individual trees), small facade elements (cameras, antennas, security alarm boxes, etc.) and minor landmarks from street level imagery (e.g., Google Street View, Mapillary, OpenStreetCam, Bing Streetside, etc.). Currently, infrastructure and utility companies use costly manual inventory campaigns to populate and keep their asset database up to date. Assets such as road signage (signs, traffic lights) and telegraph / electricity network infrastructure (poles) are often distributed over large geographic areas which makes the process of data collection particularly labour-intensive, time-consuming and subject to human errors. AIImapIT replaces manual inventory campaigns by a customisable fully automated computer-based solution.

What Problems Does It Solve?
Depending on the asset being monitored, the following problems can be solved:
- Automation of inventory campaigns
- Early discovery of damaged / faulty assets
- Less reliance on human input - data entry & re-entry
- Incorrect location of the assets
- Knowledge of missing assets especially in remote road locations
- Configuration management
- Life cycle and interaction of the asset with its environment over time
- Maintenance campaigns optimization

Markets
- Asset Monitoring & Management Utility Companies and Government
- Autonomous navigation (3D city)
- Urban planning (e.g. new town, industrial park etc.)
- Environmental Monitoring (biodiversity)

Benefits
- AIImapIT outperforms existing automatic solutions in terms of sensitivity, capacity to automatically process complex scenes and mapping accuracy.
- A test case on telecom poles (study conducted for eir) demonstrated 97% recall and 95% precision rates. Object position accuracy: within 2m.

Features
- Scalable
- Fully automated
- Customisable to any type of objects visible from the road
- Easily Integrated into existing systems and GIS

Opportunity
We are actively seeking partners to develop the technology in specified areas and to commercialise it. There are various support mechanisms and grants available to further the development of the technology.

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Video at https://youtu.be/iQhvHW1DqB0
More information at https://doi.org/10.3390/rs10050661
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