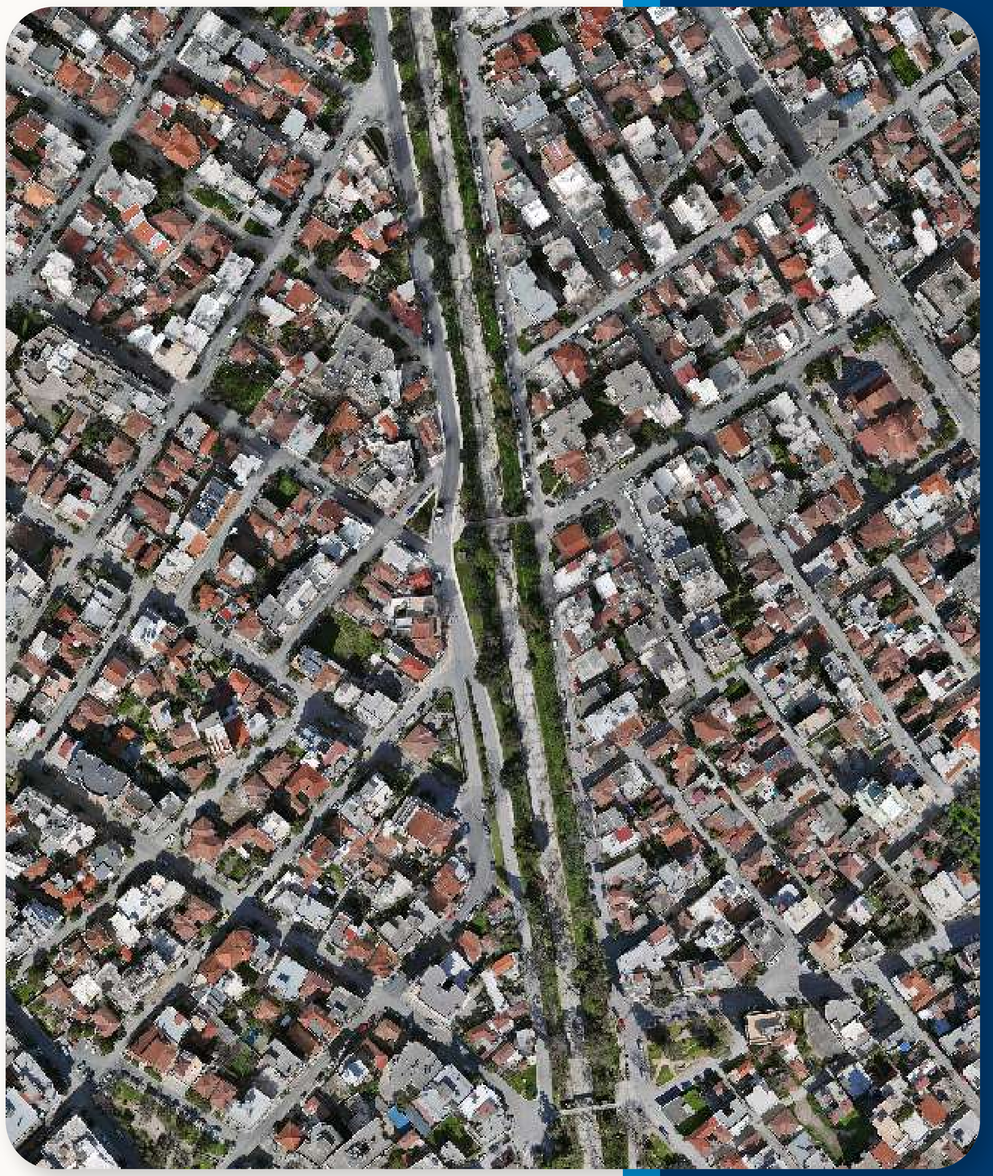
ARGO·E GROUP

CITY OF VOLOS DIGITAL TWIN

A landmark project combining aerial and mobile mapping into a unified geospatial platform.



Photogrammetry and Aerial Mapping + 3D Scanning and Digital Twin
Data Acquisition & Mapping + Geospatial Data Analytics

www.argo-e.com

OVERVIEW

THE PROJECT

In the context of ACTION 10 “Digital Twin of the City of Volos with an integrated unified road map and simultaneous mapping of critical infrastructure networks of the Municipality, mapped in a GIS platform”, IT firms ACTIVE and DOTSOFT commissioned our team to create a Digital Twin of the city of Volos, aiming to enhance urban planning, infrastructure management and smart city initiatives. The project combined aerial photogrammetry, mobile mapping and advanced geospatial processing to deliver a fully integrated 3D model of the city.

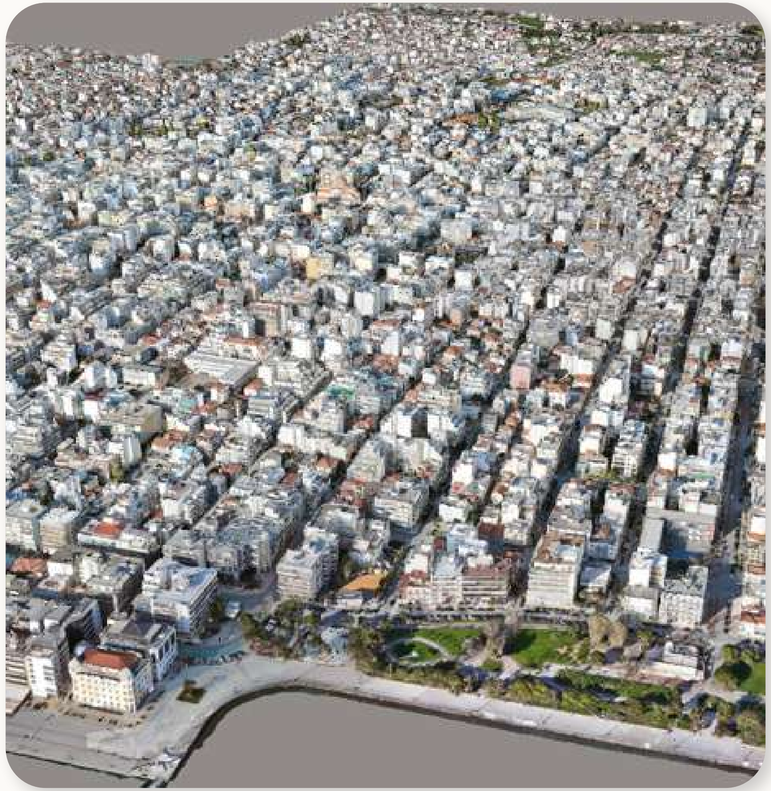
KEY METRICS

2.5 cm/px
Orthophoto
GSD

10 km²
City Area
Covered

>300 km
Road Network
Mapped

>15000 assets
Digitized
Urban Features



Textured city model in WeBGL app.

METHODOLOGY

HOW WE WORKED

1

Aerial Photogrammetry

Systematic drone flights with RTK GNSS provided high resolution imagery. Processing delivered orthophotos, DSM and DTM with centimeter accuracy.

2

Mobile Mapping

A LiDAR SLAM system mounted on a vehicle captured the entire road network, producing a dense 3D point cloud and 360° panoramic street views.

3

Integration & Processing

Datasets were processed, cleaned and georeferenced. Results were integrated in QGIS, enriched with digitized assets such as buildings and infrastructure elements.

4

Interactive Apps

WebGL applications were developed for both the 3D textured city model and the 3D point cloud, allowing stakeholders to explore Volos directly in the browser.

Inhouse Cutting-Edge Python Application for Building Footprint Digitization.

DELIVERABLES

WHAT WE DELIVERED

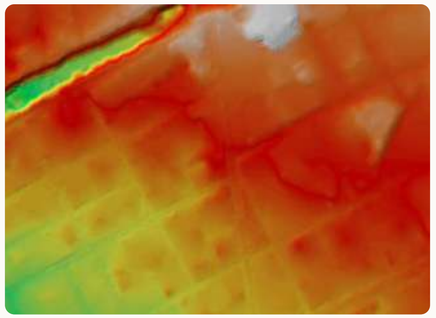
- High resolution orthophoto mosaics of the city
- DSM/DTM for elevation and terrain analysis
- Complete 3D textured city model
- Georeferenced point cloud of the road network
- 360° street view panoramas
- Digitized urban assets: building footprints, urban green, infrastructure, etc.
- Full QGIS project with spatial layers and metadata
- WebGL applications for interactive visualization

Classified Point Cloud

GIS with Street View

Classified Point Cloud

DSM



DTM

Textured City Model

IMPACT

RESULTS & BENEFITS

The Digital Twin of Volos provides the municipality with a comprehensive data environment for urban planning, infrastructure monitoring, and smart city applications. It enables efficient asset management, environmental monitoring and improved decision making for sustainable urban development.