

Mobilib is a set of libraries for multimodal mobility planning, real-time tracking and advanced spatio-temporal analytics.

It is designed for movement data capture, management, advanced processing and exploitation.

- Simplifies the digital management of transportation resources, such as road networks, public transport networks and schedules
- Enhances operational efficiency of logistics through optimization algorithms
- Provides utilities to map tracks of moving entities to known spatial elements
- Enables knowledge extraction from advanced spatial and temporal data mining

In addition to this, Mobilib offers fast prototyping generic templates for Web Applications and Web Services.

Application Domains

Mobilib's business logic provides three types of services for Intelligent Transport Systems, to cover the workflow of movement/transportation processes of human and goods:

Planning & Optimization

- Dynamic constrained algorithms
- Routing and scheduling

RT Data Acquisition

- RT Tracking and Map Matching
- Transport resources management
- Cartography management
- Simulation and demand modelling
- Distributed data storage and management

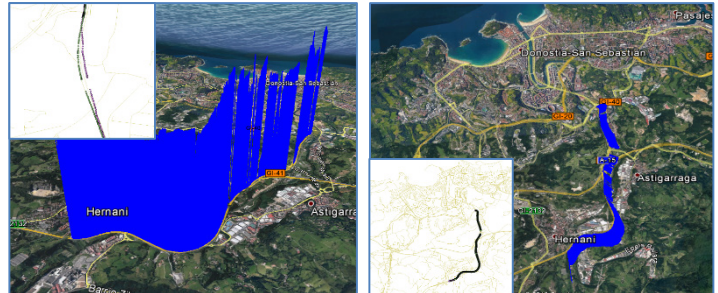
Analytics & Learning

- Spatio-temporal analytics
- Predictive - learning

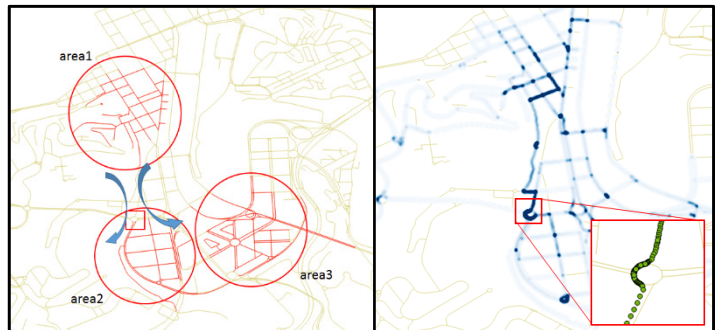
Use cases

Data Acquisition & Management

RT Tracking and Map Matching

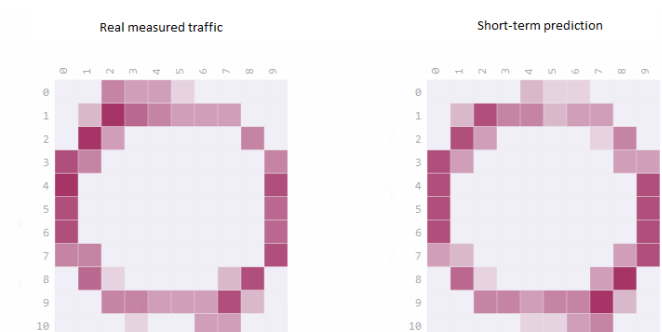


Simulation and Demand Modelling



Analytics & Learning

Predictive Learning: Short-term traffic situation in a roundabout



Modules and Architecture

Module	Description	Language
mobilib-sdk-bi	Utilities for Business Intelligence. Multidimensional data handling and charting.	Java (JDK 1.7)
mobilib-sdk-gis	Conversion utilities for different geospatial data formats and SRIDs.	
mobilib-sdk-graph	Functionalities for graph and network analysis based on node and edge representations.	
mobilib-sdk-mapmatching	Map-matching algorithms to associate geolocated data to known spatial elements.	
mobilib-sdk-mining	Extraction of patterns from spatial and temporal data. Predictive learning. Usually used together with mobilib-sdk-bigdata module.	
mobilib-sdk-roadnetwork	Network model configurations and conversions.	
mobilib-sdk-routing	Optimization for routing and scheduling algorithms for transportation of goods and humans.	
mobilib-sdk-simulation	Generation of simulated vehicle counts and label-plate identifiers. Utilities for interacting with external simulators.	
mobilib-sdk-tracking	Tools for managing and analysing trajectories of moving elements: speed/acceleration statistics, detection of stops, search for similarities	
mobilib-sdk-transit	Utilities for public transport data management: schedules (in GTFS format) and real time data capture (fleet positions, smart-card registrations)	
Transversal modules		
mobilib-sdk-core	Data management, web services, authentication, authorization and accounting, encryption, realm, http client, SQL, utilities and exception management.	Java (JDK 1.7)
mobilib-sdk-bigdata	Distributed and scalable storage and processing of data based on HDFS and Spark.	
...cloud, dlibs, fonts, i18n, mail, net, resources, sessions	Other general purpose modules for fast prototyping web services and web applications to be used together with mobilib-sdk-core	

