Track & Know Consortium

The Track & Know consortium is composed of 14 complementary partners, coming from addressed research, technological and commercial domains, that have a proven track record of high quality research capacity.

Inlecom Group BVBA – Belgium

Cambridge Medical Academy Ltd. – United Kingdom

Consiglio Nazionale Delle Ricerche – Italy

Fraunhofer Gesellschaft Zur Foerderung Der Angewandten Forschung E.V. – Germany

Intrasoft International SA – Luxembourg

Konnekt-able Technologies Limited – Ireland

National Center for Scientific Research "Demokritos" – Greece

NHS Royal Papworth Hospital – United Kingdom

SISTEMATICA – Italy

Universiteit Hasselt – Belgium

Sorbonne Universite – France

University of Piraeus Research Center – Greece

Universitaet Zuerich – Switzerland

Vodafone Innovus - Greece

Track & Know

Find out more about Track & Know

If you are interested in getting updates on Track & Know and participating in upcoming events, please visit our website or follow us on social media. You can also sign up for our regular newsletter or contact the project coordinator:

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Researchgate

Big Data for Mobility Tracking Knowledge Extraction in Urban Areas

Track & Know

Introduction

Track & Know is a three-year research and innovation project funded under the European Union's H2020 programme. The Track & Know project brings together interdisciplinary partners from the transport, insurance, emergency healthcare industries, academia and research along with users and data-provision partners focusing on real-life and user-defined challenges. The consortium aims to address the open issues arising from the automotive transportation in modern metropolitan areas and increase the contextual awareness in urban mobility by delivering intelligent information and predictive analytics to user-interest groups, stakeholders and city managers.

The overall objective is to research, develop and exploit a new software framework that aims to increase the efficiency of Big Data applications in the transport/mobility, motor insurance and health sectors. A variety of toolboxes (that contain specific methods / functions / algorithms for various types of data aggregation, manipulation and further analysis) are developed within the project, and integrated in a software platform.

Objectives

Track & know objectives and their achievement approach are in line with the EU Big Data Value Reference Model from the Big Data Value Association.

**The key technical objectives are as follows:**

1. Development of a scalable, fault tolerant platform for the management of Big Data coming from various sources
2. Development of efficient, interoperable and scalable Track & Know toolboxes and their integration in the platform
3. Testing, validation and evaluation of the Track & Know toolboxes addressing different industrial domains, such as mobility, health and insurance

Apart from the above, Track & know developments will be scaled up through wide dissemination, exploitation actions, liaison, clustering and correlation with other European and large-scale pilots and projects.

Big Data Platform

Track & Know Big Data platform integrates online data streams, heterogeneous, contextual and archival data, that enables experts and stakeholders to advance their operational, processing and decision making activities. The platform is a fully featured industrial grade solution:

- that is able to scale out and accommodate various big data from different domains, interoperating with all modern data storage technologies as well as other persistence approaches.
- that can support all important big data languages including Python, Java, R and Scala as well as other traditional programming approaches.
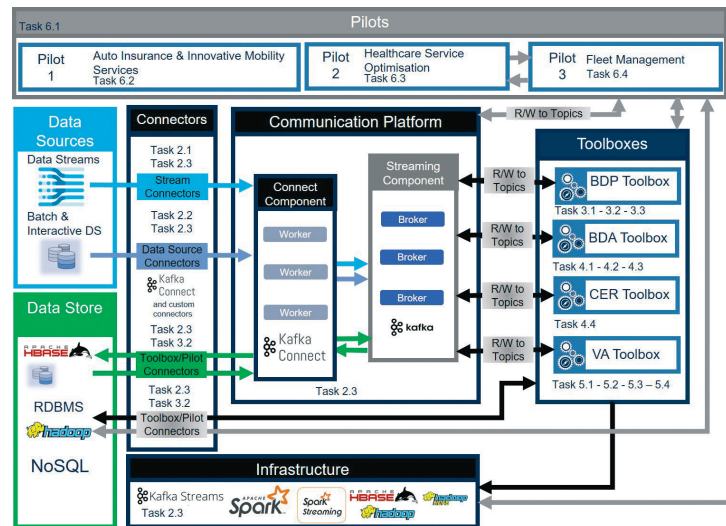
Toolboxes

Four toolboxes will be developed within the Track & Know project, which are core of the Big Data platform and carry out a variety of different tasks.

A **Big Data Processing (BDP) toolbox** is developed to implement data acquisition technology that captures data from heterogeneous data sources. The BDP toolbox extends the current solutions and delivers a tool for efficient access, indexing, partitioning and load balancing for big spatiotemporal data.

The **Big Data Analytics (BDA) toolbox** is developed to analyse heterogeneous data and to draw conclusions about the spatiotemporal distribution of mobility patterns. The BDA toolbox delivers scalable data mining techniques (such as clustering, sequence mining, hot-spot analysis) for voluminous offline and online trajectory data.

A **Complex Event Recognition (CER) toolbox** (as part of BDA toolbox) detects complex event occurrences by analysing patterns in simple events. To do that, it uses contextual information and results from the BDA toolbox. The CER toolbox will advance the state-of-the- art by developing online learning techniques for complex events in big mobility data.

A **Visual Analytics (VA) toolbox** develops interactive and scalable methodologies to visualize data at all steps of the analysis.

Pilots

The Track & know Big Data platform and developed toolboxes are used to answer a variety of business questions in three different pilots. Questions within these three pilots are as follows:

Auto Insurance & Innovative Mobility Services: In-depth and accurate crash probability estimation, cost-benefit analysis of switching to electric mobility, carpooling potential and their underlying benefits.

Healthcare (Primarily for Obstructive Sleep Apnoea patients): Medical service optimisation to improve response time and reduction of unnecessary travel, diagnoses potential based on exploration of driver behaviour.

Fleet Management: Predictive maintenance, exploration of ways to detect data anomaly and reduction of false alarms, cost reduction potential and driver behaviour improvement to reduce accidents.