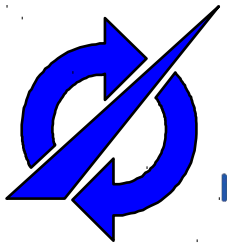
4th International Congress on Advanced Applied Informatics
July 14, 2015, Okayama Convention Center, Okayama, Japan



ITMO UNIVERSITY

Application for e-Tourism: Intelligent Mobile Tourist Guide

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Motivation:
Smartphones can Help the Tourist.

- There are more than 700 million smartphones with active iOS and Android OS*.
- Global Mobile data traffic is growing rapidly last years*.
- Tourism has manifested as one of the most well suited sectors to mobile technology and mobile applications
- German Apple Store accounted around 780.000 apps and 36.000 travel apps (category Travel) representing a market share of 4,62% of all available apps*.

*S. Wagner, T. Franke-Opitz, C. Schwartze, F. Bach, “Mobile Travel App Guide: Edition 2013 powered by ITB”, *Pixell Online Marketing GMBH*, 2013, Web: http://www.itb-berlin.de/media/itb/itb_media/itb_pdf/publikationen/MTAG_2013.pdf.

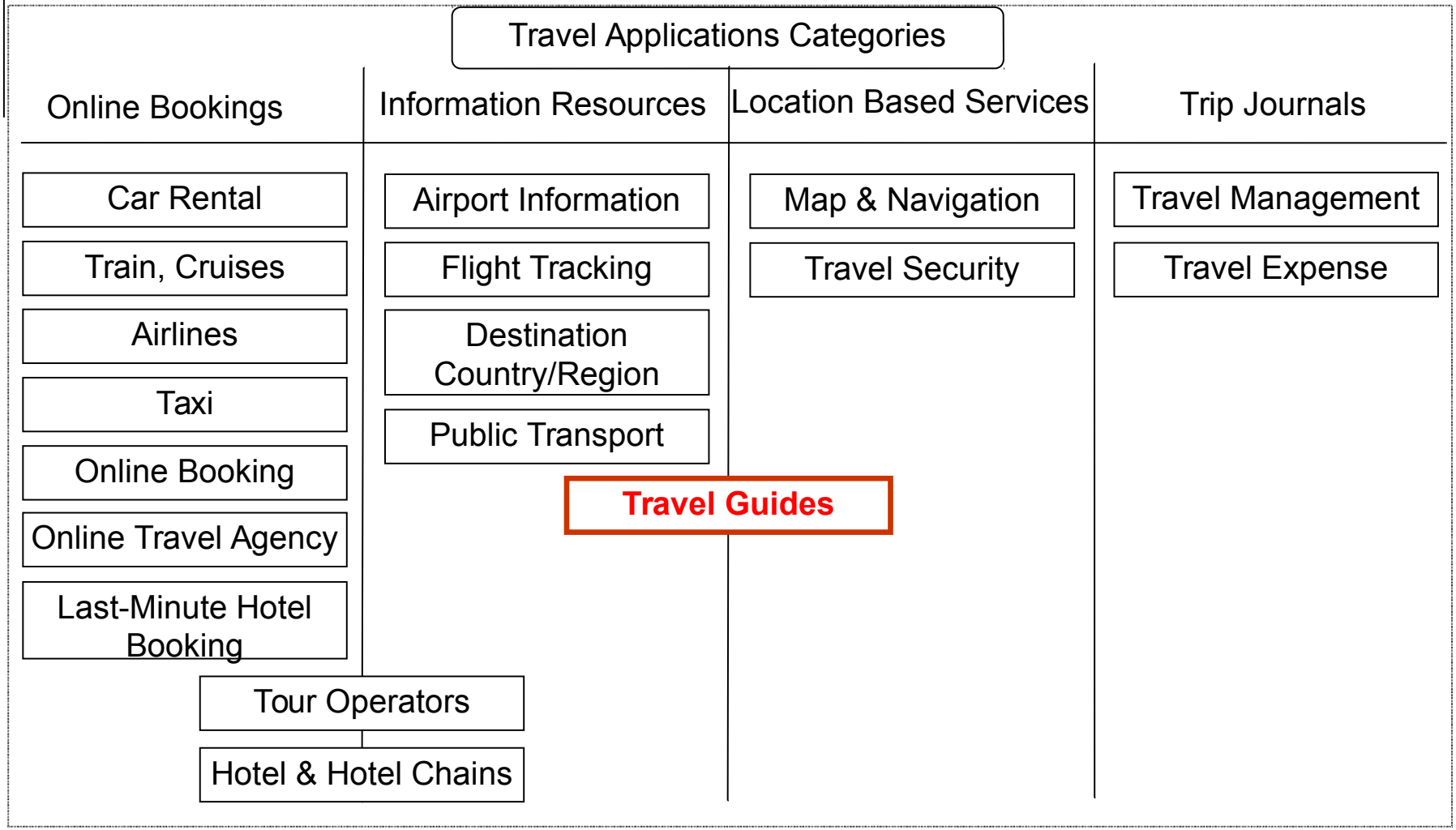
Introduction:
Major Touristic Problems

- Main Problems
  - Information about public transport
  - Ridesharing possibilities
  - Information and recommendation of interesting places
  - Provide the tourist text and graphic descriptions
- Tourist Support
  - Pre-travel phase, that provides range of services to facilitate travel-related information search;
  - Travel phase, that provides the tourist real-time information about the destination (interesting places, transportation possibilities);
  - Post-travel phase, try to get feedback from the tourist for improvement the system recommendations in the future.

Introduction: Summary

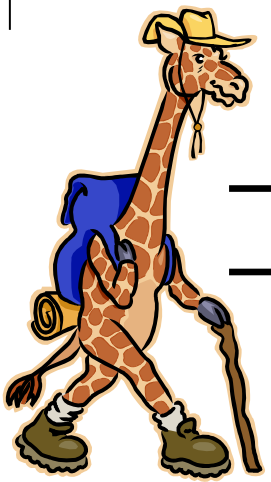
- Development of **mobile applications** that can **recommend** and provide information about interesting for the tourist attractions nearby and **recommend** of transportation means to reach them taking into account **current situation** in the location region and the tourist preferences is an actual task with good business potential.

Introduction: Classification of Mobile Travel Applications



Intelligent Mobile Tourist Guide: General Description

https://play.google.com/store/apps/details?id=ru.nw.spiiras.tais



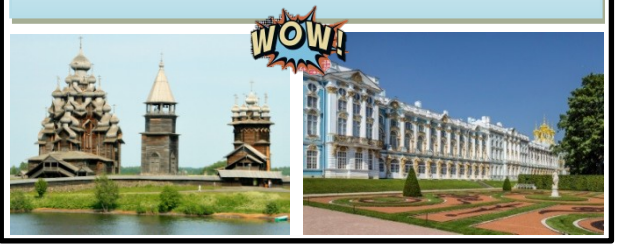
Location

Preferences

TAIS

Search

Recommended Attractions



Internet Sources

Wikipedia

Geo2Tag

wikivoyage

Panoramio

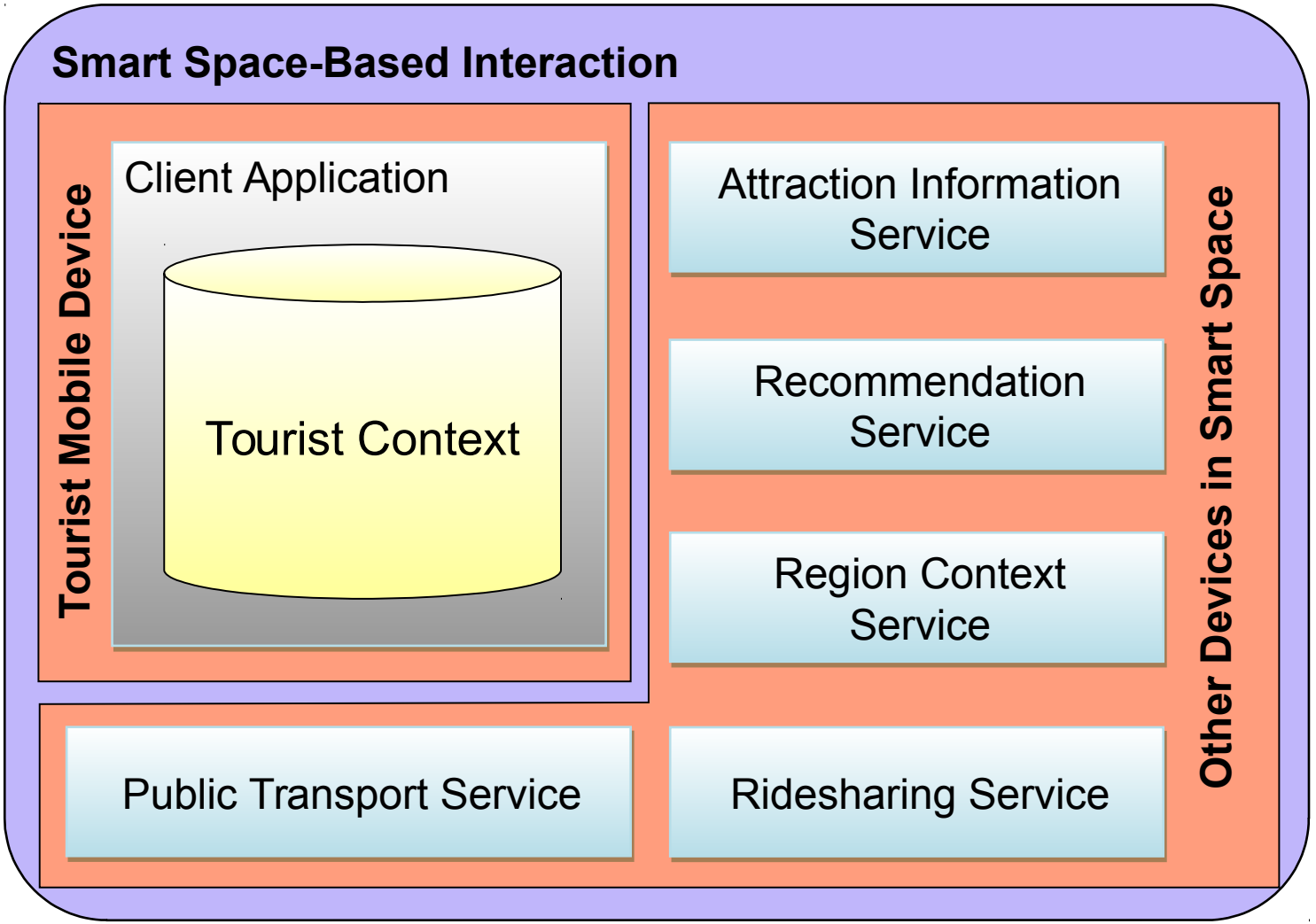
wikimapia

Wikitravel

Based on Smart-M3 information sharing platform

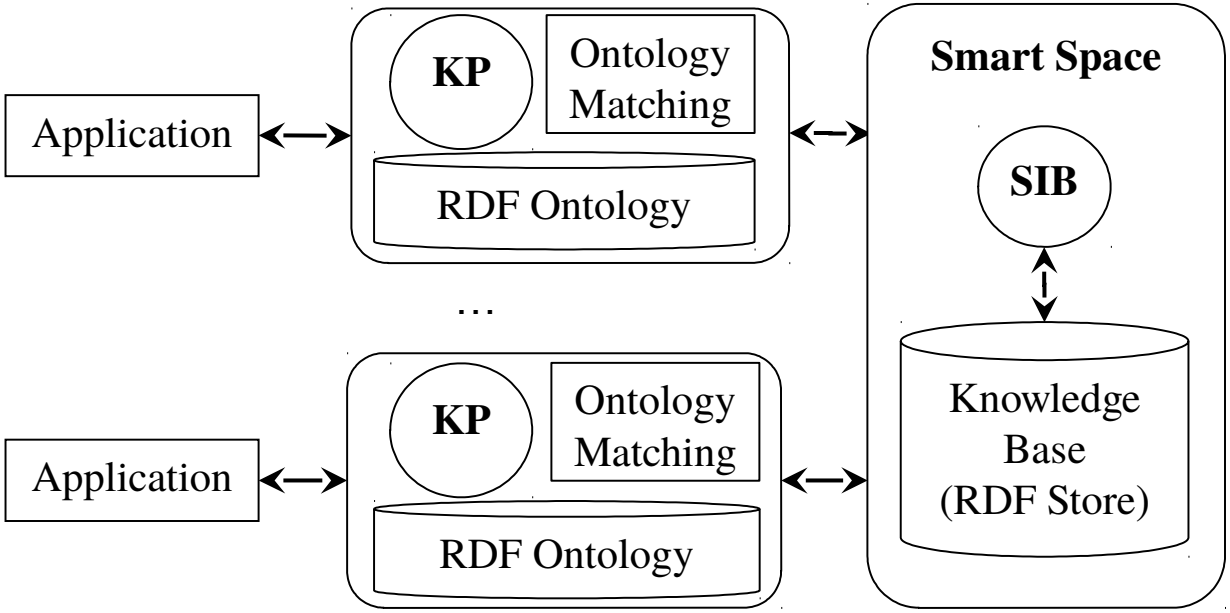
1000+ downloads in Google Play

Intelligent Mobile Tourist Guide: System Architecture



Intelligent Mobile Tourist Guide: Smart-M3 Platform

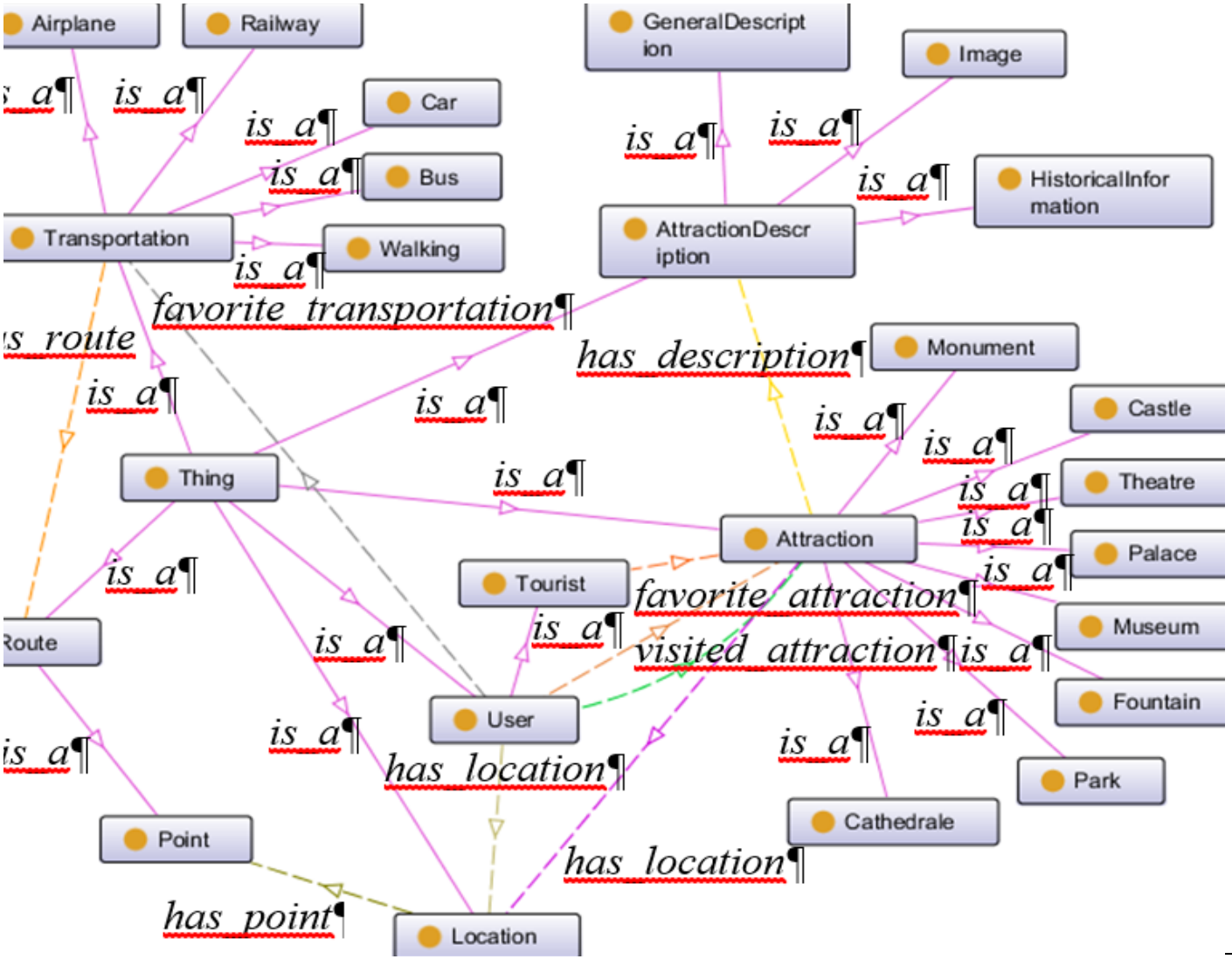
- Smart-M3 includes:
  - SIB: Devices and software entities (applications) **can publish their embedded information** for other devices and software entities through simple, shared Semantic Information Brokers.
  - The interface for managing information in the SIB is provided by Knowledge Processors (KP)
- The understandability of information is based on the usage of the **common RDF ontology** models and common data formats.



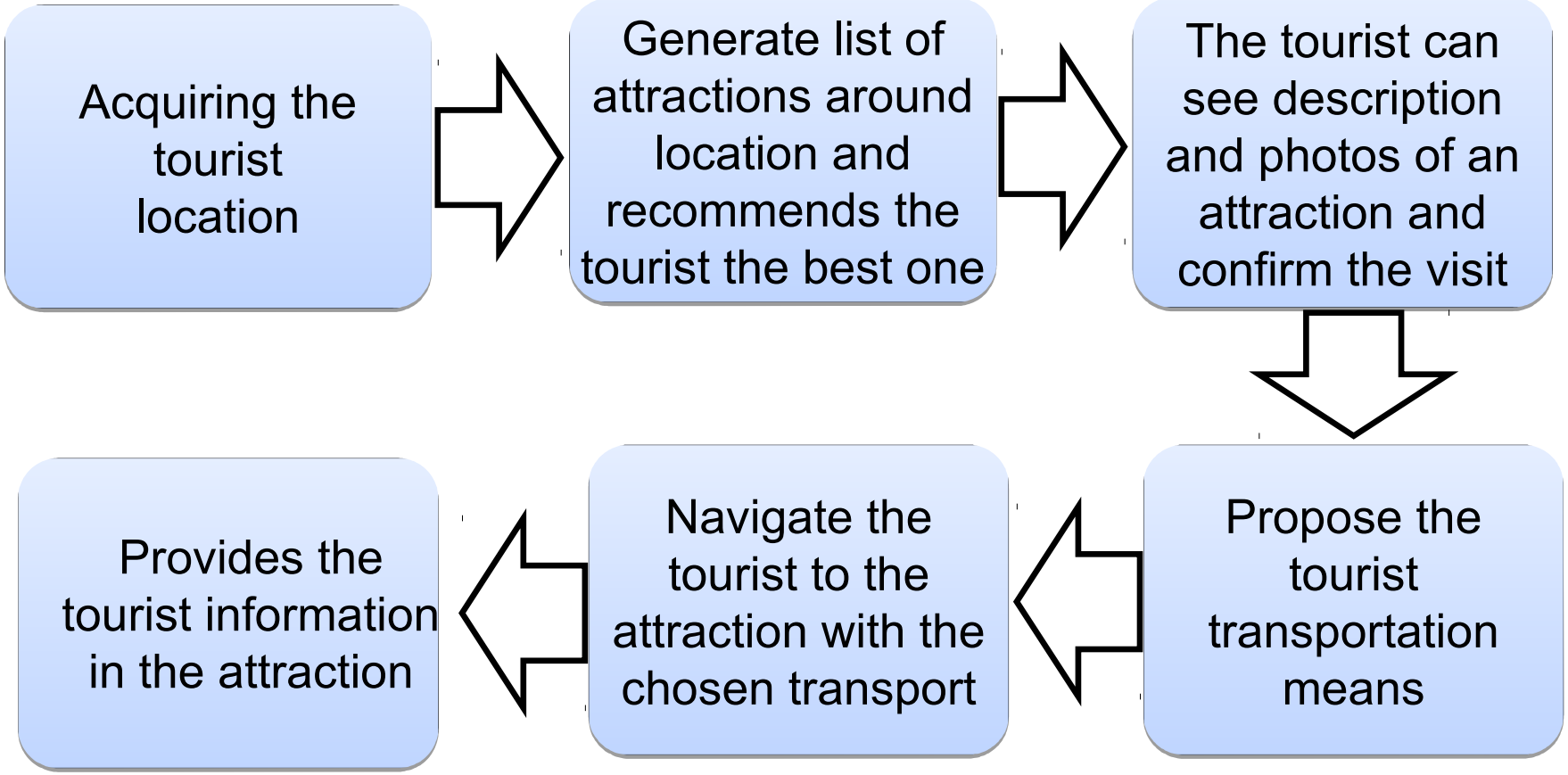
- Smart-M3 allows user KP to:
  - add,
  - remove,
  - change, and
  - subscribe,

on information in SIB.

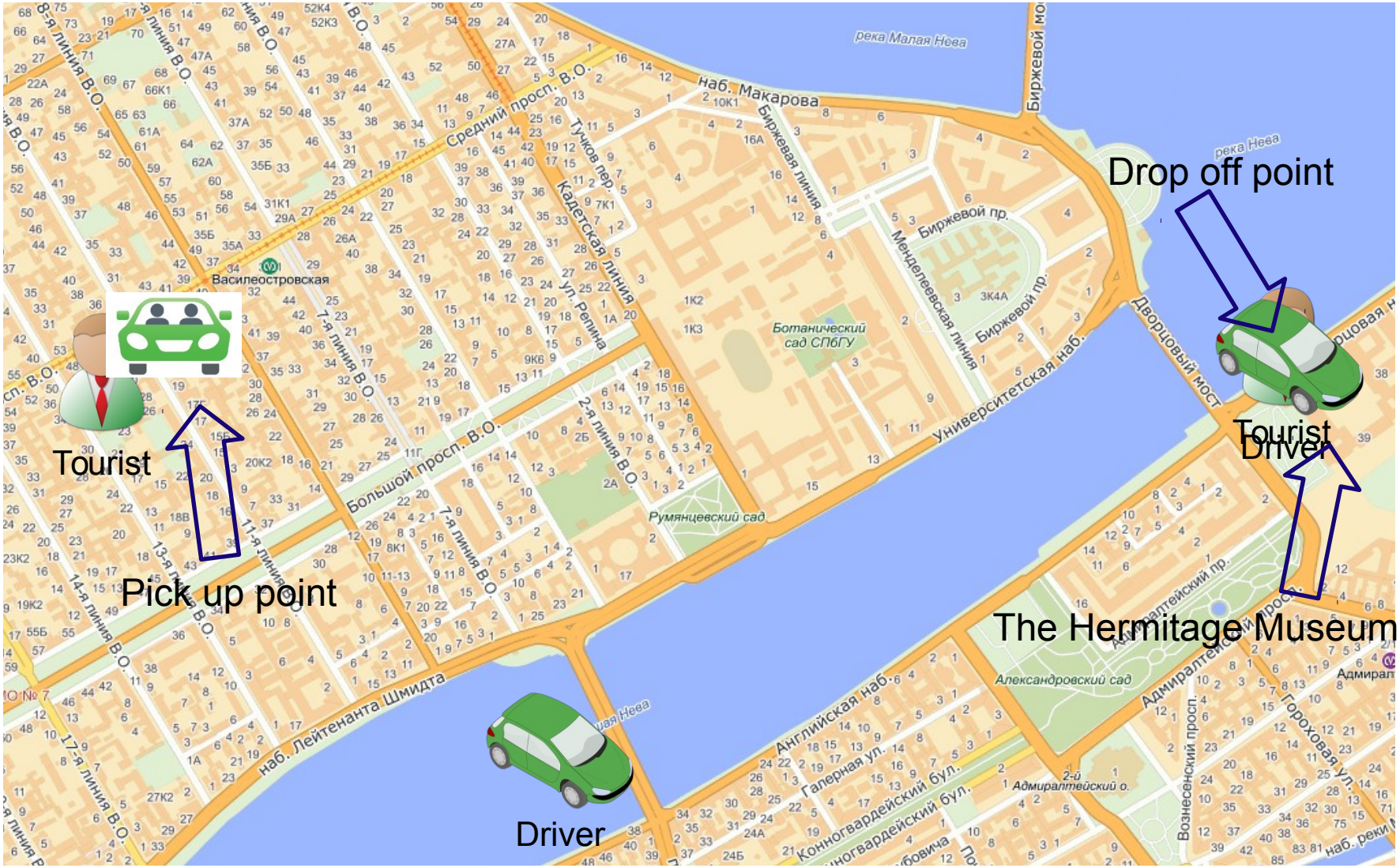
Intelligent Mobile Tourist Guide: Ontology for Services Interaction



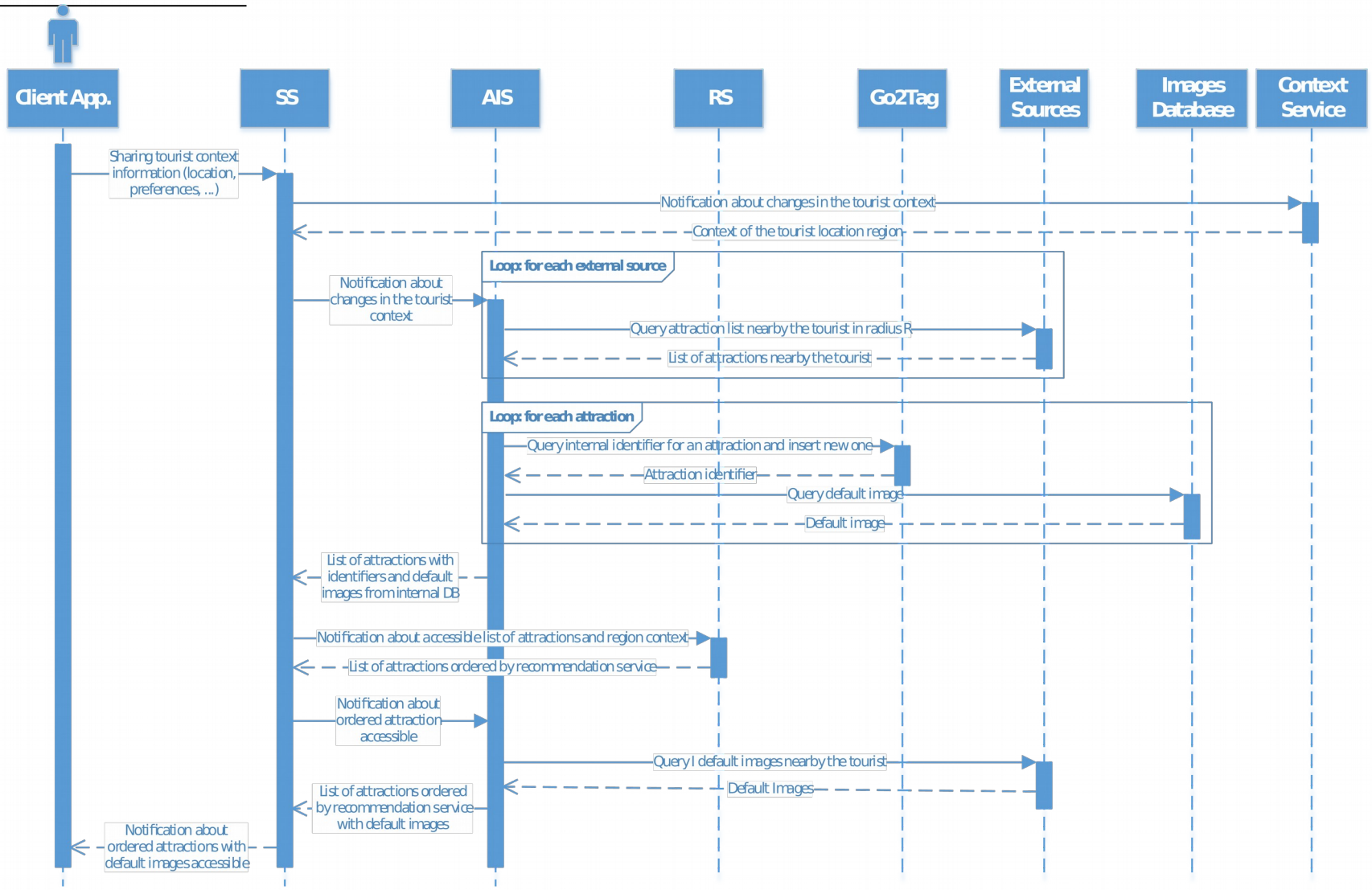
Intelligent Mobile Tourist Guide: A System Scenario



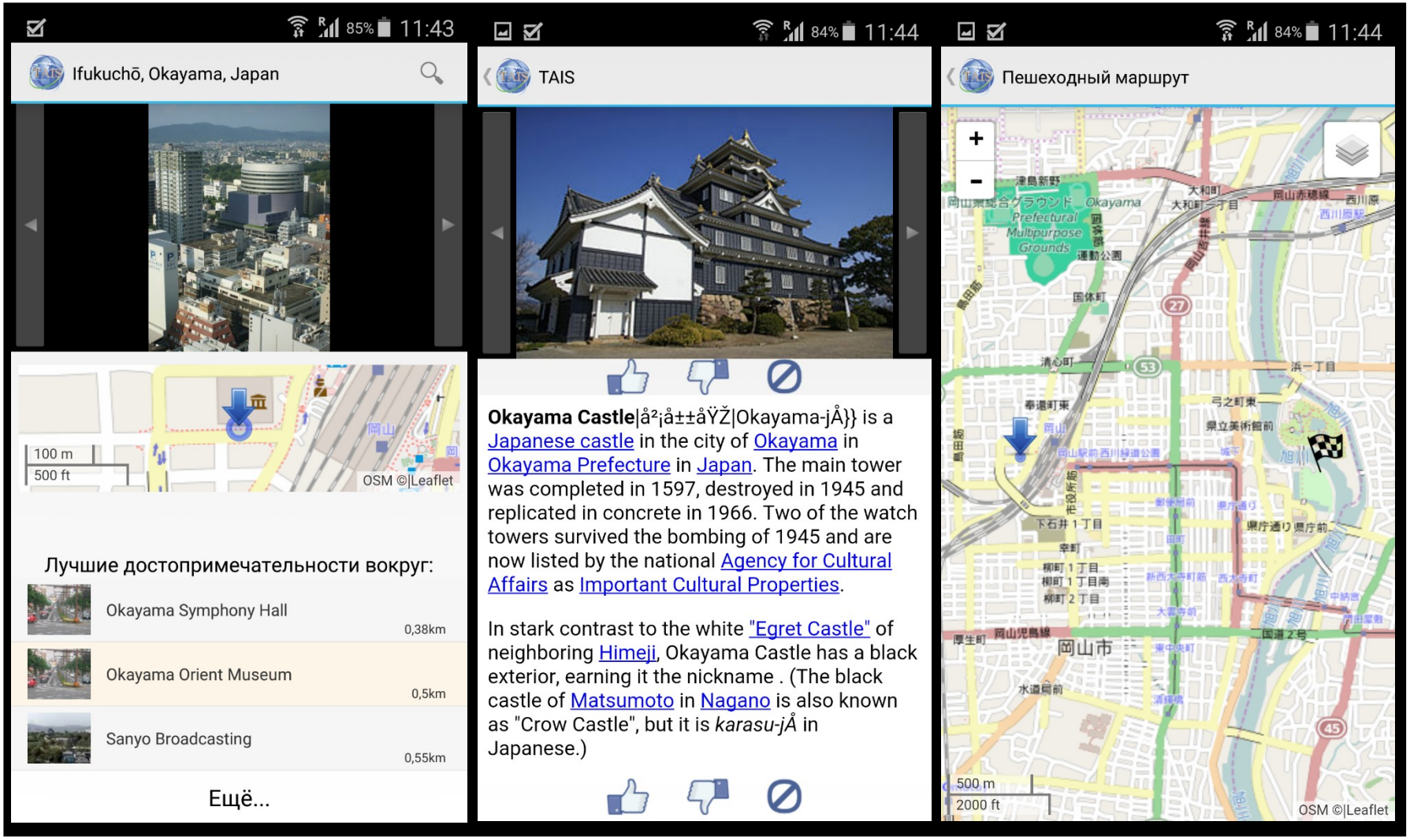
Live Scenario



Services Interaction Diagram



Implementation & Evaluation: Intelligent Mobile Tourist Guide - TAIS

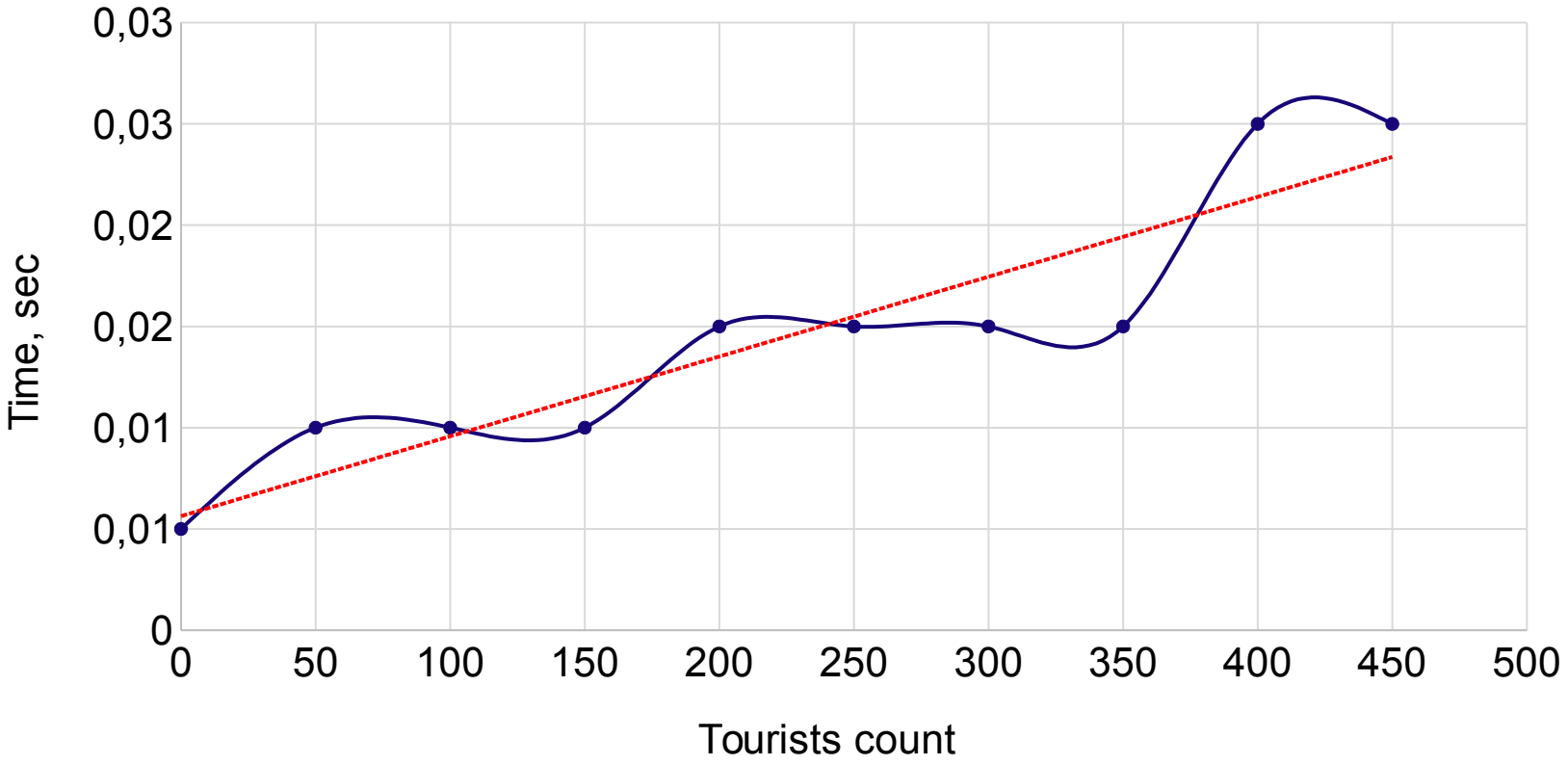


Information Sources Example: Okayama Castle Description in TAIS

Okayama Castle|å²¡å±±åŸŽ|Okayama-jÅ) is a Japanese castle in the city of Okayama in Okayama Prefecture in Japan. The main tower was completed in 1597, destroyed in 1945 and replicated in concrete in 1966. Two of the watch towers survived the bombing of 1945 and are now listed by the national Agency for Cultural Affairs as Important Cultural Properties.

In stark contrast to the white "Egret Castle" of neighboring Himeji, Okayama Castle has a black exterior, earning it the nickname . (The black castle of Matsumoto in Nagano is also known as "Crow Castle", but it is *karasu-jÅ* in Japanese.)

What Happens if We Have More Online Tourists



Characteristic name	Characteristic value	Characteristic name	Characteristic value
Host operation system	Windows Server 2008	CPU	Intel Xeon CPU E5620 @ 2.4 GHz
Hypervisor	Hyper-V	Allocated CPU cores	1
Virtual operation system	Debian 7.6 64 bit	Network Type	Ethernet
RAM	1,4 Gb	Network Speed	1000 Mbit/s

Conclusion

- Intelligent Mobile Tourist Guide – TAIS has been successfully developed in the scope of ENPI cross-border collaboration project between Europe and Russia.
- The application has been a recommended walking guide for the last two Open Innovations Association Conferences FRUCT (www.fruct.org).
- The application is based on smart space technology that allows to simply integrate and use new services.
- The main differences of the presented application from existing is extraction of information about attractions from accessible internet sources taking into account current situation and the tourist preferences. That allows the tourist to get up-to-date information and does not require to download attraction database before the trip.

Thank you for Attention. Questions are Welcome

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