

Enhancing the intelligence of IoT applications using Semantic Web technologies

University François-Rabelais Tours

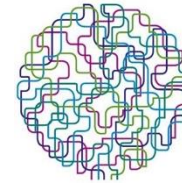
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This presentation is for

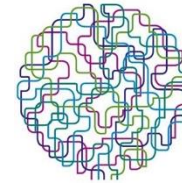
- Workshop 4** internet of Things

Description of the Organization



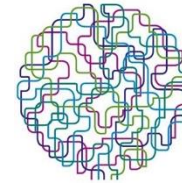
- François-Rabelais Tours University
 - Multidisciplinary University of about 22000 students
- Computer Science Laboratory
 - 39 Associate- and Full- Professors
 - 3 research teams.
 - Databases and Distributed Systems team
 - Pattern Recognition and Image Analysis
 - Optimisation and transport
 - Experience in regional, national and EU projects.
- Center Loire Valley – Touristic Region
 - Castles, gardens, museums, etc.
 - The region supports projects related to tourism : e.g., SmartLoire

Description of the your research interest



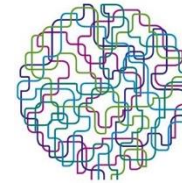
- Research interests
 - Internet of Things (IoT)
 - Automatic reasoning techniques and the semantic Web
 - Data and applications integration using Web services technologies
- Experience
 - SmartLoire : IoT and Semantic Web for Smart Tourism
 - Regional founded project
 - 1 Phd Thesis (2015-2018)
- Collaboration
 - With European and Turkish researchers and SME in the context of Horizon 2020 related calls

IoT-03-2017: R&I on IoT integration and platforms (1/2)



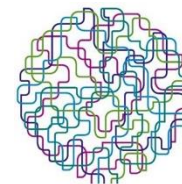
- Project: Enhancing the intelligence of IoT applications using Semantic Web technologies
- Motivation: current IoT applications
 - are mainly focused on sensors
 - lack of semantics and automation in a dynamic open Web of Things where “things events” can appear or change at every moment
- Objectives: bring
 - a semantic layer to IoT applications
 - dynamicity and automation by taking profit from the semantic Web and the semantic Web services experiences

IoT-03-2017: R&I on IoT integration and platforms (2/2)



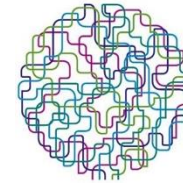
- Expected results:
 - propose knowledge representation formalisms to semantically describe “things events”
 - propose reasoning techniques to dynamically manage (discover, use, aggregate, replace, etc.) “things events”
 - take into account interoperability (syntactic and semantic) and scalability concerns to easily reuse and integrate IoT applications
 - take into consideration non-functional aspects: privacy, security and QoS
- Project validation: a Mobile application that helps a tourist to
 - dynamically access, reuse and aggregate semantic touristic information from sensors and services (airports , hotels, touristic area, etc)
 - find the best itinerary (program) based on different information (schedule of public transportation, description of touristic area, meteorological information, geocoding operations, etc.)
 - find solutions to unexpected events
 - satisfy her/his preferences and constraints
 - enhance her/his user-experience by gathering and analyzing IoT devices data

Consortium - profile of known partners

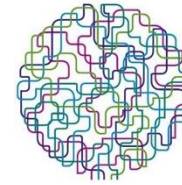


No	Partner Name	Type	Country	Role in the Project
01	University of Manchester	RTD	UK	Privacy/Security: Tackle security, confidentiality and ethics problems
02	Korgün	SME	Turkey	Mobile Application Development: Take into account design and development aspects of the mobile application (presentation layer) and non-functional considerations (ergonomics, esthetics, referencing problems, etc.).
03	Netaş	SME	Turkey	Querying interface: Video questions&answers and recommendation
04	François-Rabelais Tours University	RTD	France	Propose adequate smart knowledge/representation & reasoning techniques (Semantic Web on an open Web of things) to dynamically and automatically find, reuse and aggregate adequate touristic “things events” to tourists requests. Propose solutions to semantic interoperability using use cases and conflict resolution Tackle scalability problems

Consortium - required partners



No	Expertise	Type	Country	Role in the project
01	Smart sensors	IND	EU Member or associated country	Propose smart solutions to produce and communicate data using different smart sensors (cameras, lights indicating touristic area, sensors indicating number of parking place, etc).
02	Web services, SOA, cloud computing	SME	EU Member or associated country	Implementation of Web/Cloud services publishing different types of reusable data in a service oriented computing paradigm. Consider technical interoperability using Web services and cloud computing
03	Web/Mobile Marketing	IND	EU Member or associated country	Promote the developed mobile application, establish a business model, etc.
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