Project Results

TWIRL
To enrich and personalise applications

Today's mobile market envelops a wide variety of approaches to combine information from different data sources. The challenge is to interconnect all this information, morph it together, enrich it and supply it to users at the right moment and in the right format, and thereby take advantage of it. The ITEA 2 TWIRL project rose to this challenge by creating an open platform able to process, query, enrich, interlink and fuse data originating from real world applications and knowledge extracted from virtual data sources, thereby making applications richer, more personalised and more social.

A BRIDGE TO NOVEL DATA-DRIVEN ECOSYSTEMS …

The open and extendible integration platform developed by TWIRL offers standard interfaces that significantly ease the design and development of augmented reality applications. Furthermore, the development of out-of-the-box building blocks has proven useful in creating applications that interlink virtual world information with real world applications. An open platform able to process, mine, interlink and fuse data originating from real world applications like traffic monitoring or weather forecasts and online data sources such as open linked data, social communities & forums, blogs, wikis and RSS, facilitates the creation of new knowledge. And by connecting and analysing information, the real world and

web 2.0 are bridged and the emergence of novel data-driven ecosystems of products and services are enabled together with facilitated time-critical decision-making in highly dynamic and data-intensive environments.

… AND DEMONSTRATION OF REAL-WORLD APPLICABILITY

To demonstrate the real-world applicability of the project results, TWIRL provided three powerful demonstrators – complex context- and user-sensitive intelligent systems that offer enjoyable user experience: to plan, enjoy and return from a trip, to enrich the multimedia user experience in a digital home setting, and to enable mobile applications to host interactive, personalised campaigns and items. The application areas most impacted include mobile devices and applications in which developers will be able to easily create new products and services based on the augmented reality paradigm. Content providers will also benefit from being able to optimise their content and distribution by making content available for more application areas.

RESULTS AND EXPLOITATION PROSPECTS

The amount of results developed in TWIRL is impressive. Several connectors (API and data format) to different sources of information (like Flickr and Wikipedia) were created along with search engine enhancement with search recommendation/location and an open platform to merge heterogeneous data coming from different internet sources, and the University of Lille developed an algorithm for monument recognition from pictures. Furthermore, an augmented dashboard was also developed for the three demonstrators.

Fast exploitation is evident in Tmob's augmented reality drive in Turkey with credit card campaigns for banks and campaigns for retail store chains while Smartsoft has begun applying multiple channel payment on TVs. In France, Pertimm has integrated the search 'recommendation' into its e-Commerce Solution product and is also planning to implement the 'Similar items search' component to offer products that are similar and relevant or offer related products and accessories. Cassidian, the project coordinator, has used the developments in the open source platform WebLab hosted by the OW2 consortium and new real-world projects (in Defence & Security) have started using the

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■ Partners
Altfactor
Cassidian
Institut Mines-Télécom ParisTech
Institut Mines-Télécom SudParis
Ipernity
Kartek Kart ve Bilisim Teknolojileri Ticaret LTD STI SmartSoft
Lille 1 University
Mondeca
PERTIMM
Siveco
TILDA Telekom
Tmob

■ Countries involved
France
Romania
Turkey

■ Project start
June 2012
■ Project end
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■ Contact
Project Leader :
Marc Contat, Cassidian
Email :
marc.contat@cassidian.com

Project website :
twirl-project.eu

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last platform. ipernity is developing new features using TWIRL 3rd-party components and hopes to develop new business by selling the use of its photo database through its TWIRL input connector. Finally, Mondeca, which developed the decision rules of the system, is preparing new offers based on the prototype towards actors and institutions in the tourism sector.

BUSINESS VALUE FOR EUROPEAN LEADERSHIP

The augmented products and services created using TWIRL offer value to both business, for instance as enterprise mash-ups or in business intelligence, and consumers, as in smart-phone applications, by improving their decision making. A detailed analysis of the current state-of-the-art will help organisations and end users to gain an overview of current approaches and technologies while a specified open and extendible architecture will provide a concrete framework on which to base future applications and which can be reused within future projects. The promotion of open standards and open interfaces and specifications will allow third parties to adopt and extend the TWIRL platform and generate a significant impact on mobile, multimedia, services and information mining industries, both within and outside Europe. In laying the foundations for future projects and products based on virtual information and real data, and also for the use of BigData and the Internet of Things (Smart and Connected Objects), TWIRL can help boost European leadership in enriched, personalised applications.

Major project outcomes

DISSEMINATION
- 21 publications in conference proceedings (Int. Conf. on eLearning and software for Education, IEEE/ACM ASONAM, Int. Conf. on Pattern Recognition (ICPR), Int. Conf. on Image Processing (ICIP), WWW, Int. Conf. on Computing, Networking and Communications, IEEE P2P, IEEE GLOBECOM, EuroITV 2012, Int. Conf. on Intelligence in Next Generation networks (ICIN), etc.)
- 4 publications in journals (Peer-to-Peer Networking and Applications, IEEE Network Magazine, Journal of Multimedia 2014, Multimedia Tools and Applications 2014)
- 4 participations in international fairs (ITEA2 Co-Summit 2012 and 2013, Open days of the Franco-Chinese Computer Science, Automation and Applied Mathematics (LIAMA) laboratory, Workshop of the Asian Institute of Technology (AIT), Research Innovation and Creation (RIC) day of Lille 1 University)

EXPLOITATION (SO FAR)
- New products:
  - Search recommendation engine integrated into product e-Commerce Solution
  - Semantic Annotator & Classifier
  - Debate Component for TV shows: building communities of learning and sharing around common interests
  - Loyalty card application through mobile application
- New services:
  - Commercial agreement for Edutainment with PORT Networks for South Eastern Electronic Program Guide
  - Fast exploitation on augmented reality:
    - Credit card campaigns for banks
    - Campaign offerings for retail store chains
- New systems:
  - Generic Platform for eTourism applications

STANDARDISATION
- 5 contributions to standardisation bodies (W3C - Social Interest Group & Social Web Working Group, ITU-T – SG13: Future networks including cloud computing, mobile and next-generation networks & Joint Coordination Activity on Internet of Things (JCA-IoT), IETF, oneM2M, ORDA)

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