ITEA 2

INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

TWIRL

Twinning virtual World (on-line) Information with Real world (off-Line) data sources

INNOVATION REPORT

Making applications richer, more personalised and more social

Marc Contat, Cassidian

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. This is particularly relevant to social networks where more and more data are driving a need for enhancement and improvement. 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.

The TWIRL acronym says it all: Twinning virtual World online Information with Real world off-Line data sources. In this marriage of virtual and real world information, TWIRL augments real-world applications with knowledge extracted from virtual data sources. This makes the creation of augmented reality applications and devices much easier, and allows developers and end users to access online data sources in a holistic and integrated way. 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.

TWIRL approach

A bridge to novel data-driven ecosystems …

By developing 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, TWIRL has facilitated the creation of new knowledge by connecting and analysing information. As such, TWIRL has not only built a bridge between real world and web 2.0, it has also enabled the emergence of novel data-driven ecosystems of products and services as well as facilitated time-critical decision-making in highly dynamic and data-intensive environments. Furthermore, enterprises and public organisations will be inspired to use and exploit freely available public data and gain new knowledge by analysing combined information from various offline and online data sources.

… and demonstration of real-world applicability

To demonstrate the real-world applicability of the project results, TWIRL provided three powerful prototypes – complex context- and user-sensitive intelligent systems that offer enjoyable user experience:

- Augmented Life, a French-based prototype that enables the tourist and business user to plan, enjoy and return from a trip
- Augmented Entertainment – Scenario I (Romania) that enriches the multimedia user experience in a digital home setting
- Augmented Entertainment – Scenario II (Turkey) in which mobile applications host interactive, personalised campaigns and items

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The different application areas most impacted by TWIRL 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. In the field of Semantics and Information Mining, information can be integrated from various sources and, more precisely, to analyse their meaning and possible combinations. Finally, the large number of scientific partners, like Lille 1 University, Telecom SudParis and Telecom ParisTech has provided an excellent research base for all activities. TWIRL participated in W3C, ITU-T, IETF, oneM2M and made several contributions, and that of IMT-Telecom SudParis to ITU-T had particular impact.

Impressive results …

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. The University of Lille developed an algorithm for monument recognition from pictures. Since a qualification measure was missing, a fuzzy logic inference engine was developed for a debate component and an information visualisation interface for enriched search results. An augmented dashboard was also developed for the three demonstrators.

… and exploitation prospects

In terms of exploitation prospects, on the Romanian front, Altfactor presented the demonstrator to Samsung Romania and the platform is interesting showrooms while major telecom providers like T-Mobile Romania, VideoOnDemand and media representatives have also indicated interest in the platform as an add-on for commercial packages. A commercial agreement with PORT Networks is in place for a South Eastern Electronic Program Guide. In Turkey, specific fast exploitation is evident in Tmob's augmented reality drive with credit card campaigns for banks and campaigns for retail store chains. Smartsoft has begun applying multiple channel payment on TVs while Tilda's new products and services that integrate a social network capability are interesting customers in organisation domains such as events and medical professionals. In the longer term new research projects, like the ITEA FUSE project, will use the results and the mobile components will be extended to wearable devices.

In France, Pertimm has integrated the search 'recommendation' into its e-Commerce Solution product since version 3.10 so that it now provide perfectly ordered lists of results according to customer preferences and offers products that are popular among other buyers. The company 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

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consortium and new real-world projects (in Defence & Security) have started using the last platform. ipernity is developing new features using TWIRL 3rd-party components – auto-tagging, tag clustering, cross-language information retrieval, etc. – and hopes to develop new business by selling the use of its photo database through its TWIRL input connector. 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.

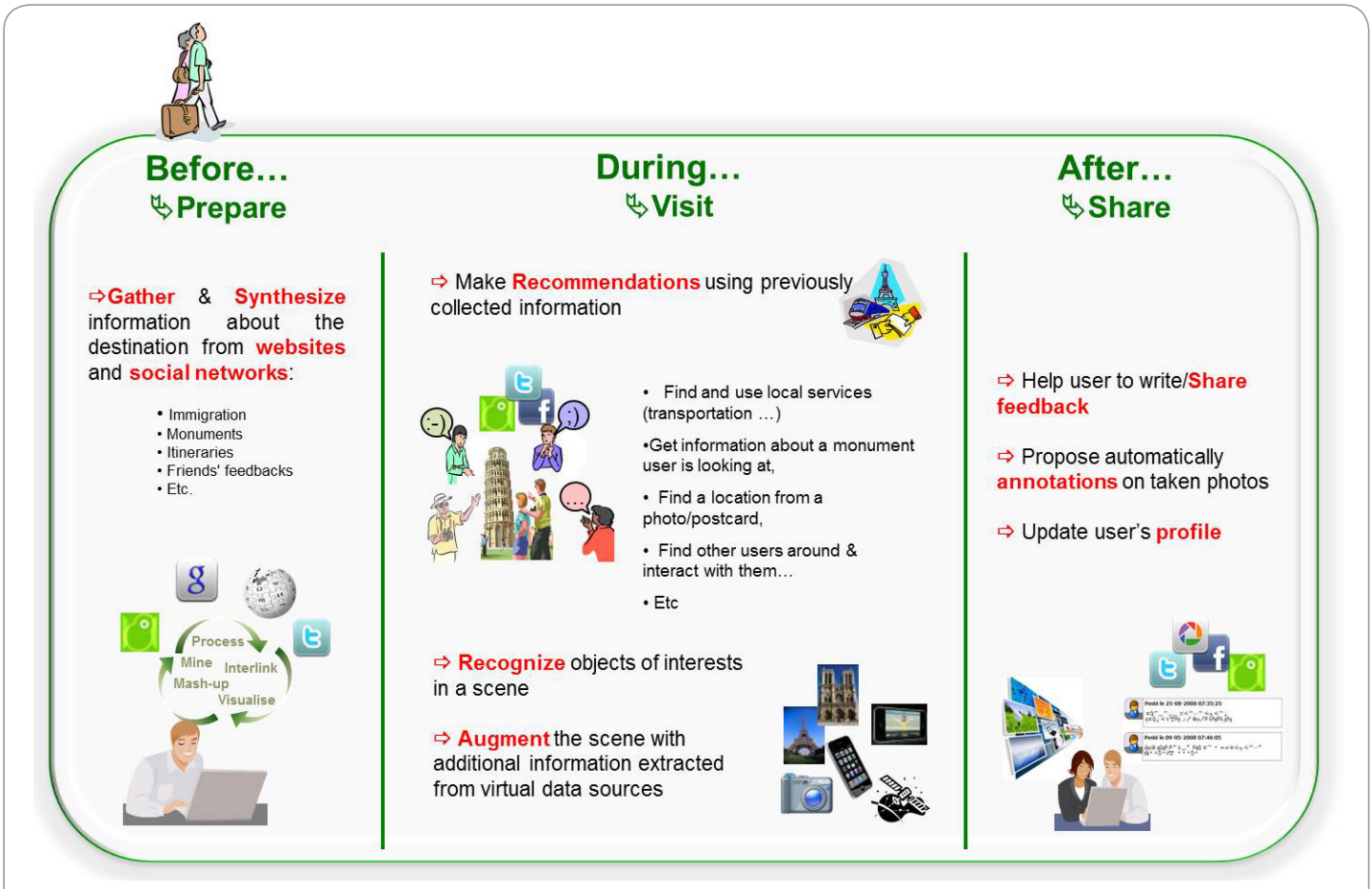
Business value ...

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. A specification of the TWIRL implementations will provide private and public organisations with a clear description on how to extend TWIRL while a fully functional reference implementation will enable hands-on implementation of an extendible and scalable framework.

... and European leadership

In providing a platform and associated tools for creating augmented applications that have a high-fidelity social, environmental and personal flavour, TWIRL can help establish European leadership. And by promoting open standards and open interfaces and specifications, allowing third parties to adopt and extend the TWIRL platform, a significant impact on mobile, multimedia, services and information mining industries, both within and outside Europe, can be expected. TWIRL has laid 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).

More information:
twirl-project.eu



TWIRL use case: Helping user for planning a trip, living it and coming back from it