

Project Information



Context-Based Digital Personality

CBDP will create a context-based Digital Personality (DP) as a proxy between digital surroundings and the final user. DPs will benefit from mobile technologies for context-creation, maintenance and usage; and from semantic technologies for formal decisions and verifications. Usage of DPs will simplify everyday interaction between users and digital environments and will provide a framework for implementing value-added services for mobile operators, the construction industry and Digital Terrestrial Television (DTT) business based companies.

Main focus

The solution proposed focuses on the creation of the Digital Personality based on a single person or group of people. When there is a group of people, reasoning mechanisms defined will take into account the individual digital personalities and will provide the adequate environment that benefits the majority.

The current stage in digital surroundings is characterized by the need of people having an active and leading role

Once the project is over, the digital surroundings will be fully user-oriented, since most of the interaction with the user will be

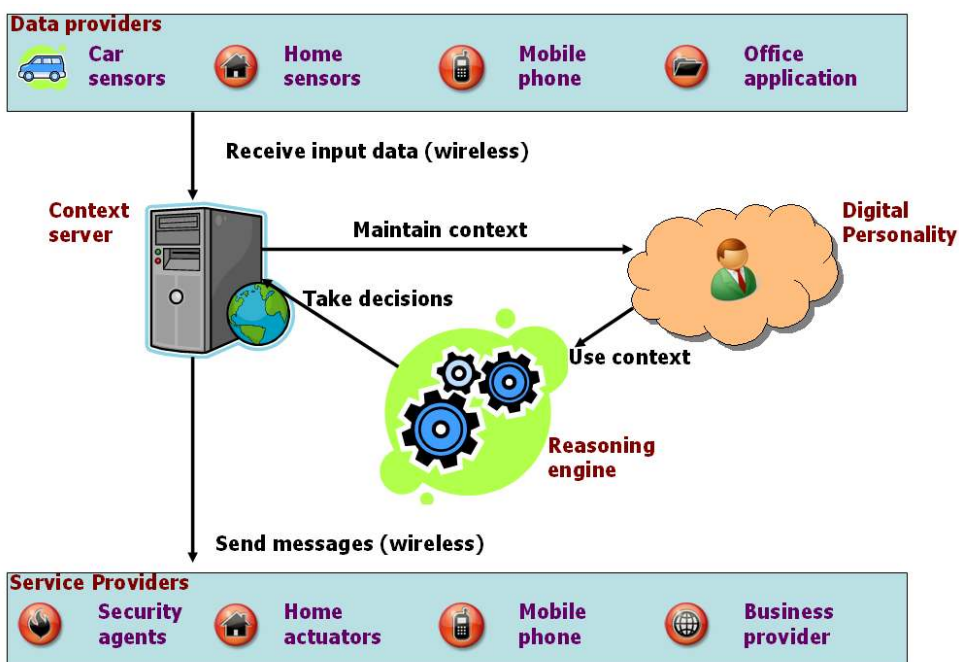
via a Digital Personality. The users will have to update their Digital Personality and this will be capable of automatically interfacing with the different devices in any digital surroundings in any place.

The most important considerations to make in the execution of the project are:

- ◆ How to create and maintain context? How to detect the position of the user (triangulation), his mood (sensors), habits, needs?
- ◆ How to use context considerations in decision making? How to use reasoning, verification, and validation provided by ontologies in this context?
- ◆ How to continuously improve and use the Digital Personality for decision making?

Approach

There is a big demand for mobile-driven context and digital personality in the software world, and many applications and services will benefit from that. However, there is no yet a widely adopted framework to utilize this idea. If CELTIC does not create such standard, a reference implementation of some technology giant will soon become a de-facto standard,



CBDP

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Partners:

Acciona Infraestructuras, Spain

Aonix, France

Caretta Software and Consultancy, Turkey

CodeSyntax S.L., Spain

Fundación European Software Institute, Spain

Grundig Elektronik A.S. Turkey

Indra Sistemas, Spain

Mobilera, Turkey

STM Savunma Teknolojileri Mühendislik ve Ticaret, Turkey

Tagzania Services 2007, Spain

Televés S.A., Spain

TRIALOG, France

Turkcell, Turkey

Universidad de la Iglesia de Deusto, Spain

Co-ordinator:

Josu Cobelo

Fundación European Software Institute, Spain

E-mail: josu.cobelo@esi.es

Project Website

www.celtic-initiative.org/projects/cbdp

which is not a good situation for the industry.

Currently, almost every service or application has separate context and personal IDs for each user. But benefits of using them are limited by service or company boundaries. All these solutions integrate context vertically. We, on the contrary, propose an innovative solution for shifting between those environments horizontally, enabling new possibilities and a higher level of existing services. For telcos, it will be a good opportunity to track users for increasing service personalization and getting higher revenues.

This proposal will contribute with several innovations:

- ◆ Definition of an ontology to model the data that define a Digital Personality
- ◆ A real-time mechanism for propagation of attributes which update the data model maintained by a Digital Personality agent.
- ◆ Adaptation of mobile devices as digital representatives of users which propagate their context changes to the Digital Personality agents and receive action suggestions which are, in turn, propagated to the mobile devices' environment. This might be realized both by means of sensors incorporated within a mobile phone, or via a tiny mobile application that runs on the phone. When it comes to use of a sensor case, there would be some other options such as utilizing existing wireless capabilities of mobile phones, such as

Wi-Fi, Bluetooth or NFC (Near Field Communication).

- ◆ A lightweight semantic reasoning framework which infers new services for the user from the Digital Personality's semantic-based data model.
- ◆ A framework that enables the cooperation and interoperability of the heterogeneous devices which will adapt their behaviour intelligently based on users' gathered context and semantic reasoning applied over such data.
- ◆ Real case scenario where the benefits of adopting a Digital Personality-paradigm for augmenting and enhancing the experience of users equipped by mobile devices with their surrounding context-aware environment.

Main results

The objectives of the project are the following:

- ◆ Context detection (using mobile phones, for example)
 - ◆ Maintain context independent from the user location (home, office, car, holidays) by using mobile technologies.
 - ◆ Decision making support based on context
 - ◆ Develop a Digital Personality framework.
- Application areas:
- ◆ Home (including DTT interaction)
 - ◆ Security (analyzing unusual situations)

◆ Additional services offered by operators. For example, if the context is stored in a public (operator maintained) server, the operator could offer:

- ◆ A service which informs two friends, if they are in the same context, e.g. in two bars close together.
- ◆ Inform patients in hospitals where they need to go, based on their health status and required treatment.
- ◆ In the building sector, let the architect know, where the responsible is at that moment.

These are just a few examples which can give an idea of the magnitude of the application of the project results.

Impact

The in-depth understanding and development of the context notion lies behind every possible Ambient Intelligence related initiative.

In the European Market, this is highly relevant. At the moment, several initiatives, mainly in the United States are trying to develop these concepts and their applications to Ambient Intelligence.

In addition, the knowledge of the context will further increase the possibilities for interconnecting different systems (devices, platforms, services), which can make use of formal knowledge in order to synchronize, ease and standardize access to different services. In this sense, the knowledge and developments resulting from the project will be valuable not only for the developer of complete solutions aiming at the needs of single users, but also to entities willing to offer services based on third-party infrastructures (CPE/N, access networks, etc).

The scenarios and pilots envisioned will emphasize the commercial viability and the applicability to real-life situations. In this sense, specific pilot projects for the home domain, digital terrestrial television, building domain and mobile applications will be developed. The use of mobile phones is increasing dramatically and mobile subscriber penetration is already above 100 percent in many countries throughout Europe. A person's mobile phone has now become something that he/she would not like to miss when he/she leaves home or office. Considering the CBDP project targets, involvement of mobile capabilities is crucial.

About Celtic

Celtic is a European research and development programme, designed to strengthen Europe's competitiveness in telecommunications through short and medium term collaborative R&D projects. Celtic is currently the only European R&D programme fully dedicated to end-to-end telecommunication solutions.

Timeframe: 8 years, from 2004 to 2011

Clusterbudget: in the range of 1 billion euro, shared between governments and private participants

Participants: small, medium and large companies from telecommunications industry, universities, research institutes, and local authorities from all 35 Eureka countries.

Celtic Office

c/o Eurescom, Wieblingen Weg 19/4,

69123 Heidelberg, Germany

Phone: +49 6221 989 405, e-mail: office@celtic-initiative.org

www.celtic-initiative.org

