The ITEA project ProSe aims to design, develop, and deploy proximity services to revolutionise our interactions with Internet of Things (IoT) in public a variety of places, such as banks, hotels, hospitals, airports, smart buildings, shopping malls, and even homes. Using a smartphone platform that automatically installs relevant applications in a specific area, users will be able to benefit immensely from the functionality of future smart spaces.

**ADDRESSING THE CHALLENGE**

IoT is changing our everyday lives rapidly. 50 billion IoT devices will exist by 2020, with the current system based around a wide variety of different apps. This represents an enormous barrier to the creation of smart spaces, as users cannot be expected to download an app to interact with IoT in every place they visit. Due to the transient nature of visitors, public environments such as hospitals, government offices or cultural centres will only benefit from IoT if a homogenous system for IoT environments is developed.

**PROPOSED SOLUTIONS**

ProSe (Proximity Services Framework) proposes the creation of proximity services: user-facing applications that are developed and configured for a specific location. These are automatically installed on user devices when they enter the area. The project’s goal is the realisation of a software system that will include a client-side platform, installed on a user’s smartphone for proximity detection and the execution of services, and a server-side platform that uses algorithms to provide the right service at the right time. In terms of privacy protection, only trusted services may be executed and there will be no centralised tracking of end users. Proximity services will be based on standard Hybrid-App technology (HTML 5, Javascript) and combine existing proximity detection technologies (BLE beacons, NFC, Ultra-sound). Based on pre-set KPIs, a global consortium will develop and evaluate demonstrators to ensure reliability, security and adaptability to various markets, for example to help hospital staff improve cleaning procedures and reduce infections, banks to offer more accessible customer support and tourist spots to offer suggestions to visitors. Finally, ProSe will contain open-source and reusable software applications as the building blocks for further third-party development.

**PROJECTED RESULTS AND IMPACT**

Bluetooth Low Energy (BLE) beacons, the fastest-growing technology since mobile card readers, have been shown to increase user-engagement and in-store sales. Proximity services are therefore expected to create new markets worldwide for business solutions and advertising. Smart device producers can increase user adoption by enabling proximity services, while service providers can reach a larger base and reduce the marketing costs of establishing a user culture. Thanks to their practical uses, proximity services will also tangibly boost quality of life for end users.
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