



## NFC-BLUETOOTH GATEWAY AND TAG SERVICE FRAMEWORK

- touch-based services to Bluetooth devices

### TECHNOLOGY OVERVIEW

The NFC-Bluetooth Gateway enables the use of Near Field Communication (NFC) technology in commercial Bluetooth handsets and other Bluetooth devices. NFC is a new convenient technology for many everyday situations. For example, it enables users to pay for purchases and services by holding their mobile device to a payment terminal, or share data between devices. NFC is the first standardised technology to be universally introduced in mobile phones and other commercial handsets that is compatible with radio frequency identification (RFID) technology. Thanks to the NFC-Bluetooth Gateway, NFC functionality can now be added to Bluetooth-enabled devices, such as mobile phones, PDAs or laptops.

### APPLICATION

NFC Bluetooth Gateway adds NFC capability to Bluetooth enabled devices. In contrast to an integrated solution, NFC functionality exists in separate battery powered accessory that can be, for example, a wrist unit. By using the NFC-Bluetooth Gateway, NFC applications can be built on smart phones or other devices that currently lack NFC support.

NFC-Bluetooth Gateway is based on the Smart NFC Interface platform which is a matchbox-size prototype module developed by VTT. Smart NFC Interface provides NFC communication capability to various smart devices, such as sensors, domestic appliances, and professional instruments. By embedding or connecting a Smart NFC Interface module to existing or new devices under development, these devices can be made NFC-enabled and thus also capable of touch-based interaction with mobile phones and other mobile terminals.

On the handset side the NFC-Bluetooth Gateway is supported by VTT's tag service framework middleware solution.

VTT produces research services that enhance international competitiveness of companies, society and other customers at all stages of their innovation process, and thereby creates the prerequisites for growth, employment and wellbeing.

VTT promotes the realisation of innovative solutions and new businesses by foreseeing the future needs of its customers already in strategic research.

With its 2,700 employees, VTT is the largest research organization in Northern Europe. VTT's Ventures operation creates profitable and growing technology and wellbeing as well as more effective use of VTT produced Intellectual Property Rights.

## MARKET TRENDS AND OPPORTUNITIES

Near Field Communication (NFC) is a new, short-range wireless connectivity technology which provides a user-friendly, safe and intuitive communication between electronic devices. NFC is based on widely used RFID standards making NFC devices compatible with existing RFID systems, such as access control and public transportation ticketing. Other applications include short-range data exchange between handheld terminals and various smart objects, such as sensors.

At the same time the sales of smartphones has grown rapidly in recent years. Smartphones are characterised especially by the convergence of several electronic devices and third party software products into one device. As a result of the convergence, the amount and diversity of the operations performed with a single device has grown significantly. To enable the full utilization of the emerging application potential, like tag based solutions, and rapid deployment, mobile terminals and infrastructure must contain enabling software, middleware.

## PRODUCT/ TECHNOLOGY FEATURES

- Based on the Smart NFC Interface platform of VTT.
- NFC functionality can be added to Bluetooth-enabled devices, such as mobile phones, PDAs and laptops.
- NFC device can emulate both active RFID readers and passive RFID tags depending on the counterpart device
- NFC functionality exists in separate battery powered accessory, for example, a wrist unit
- A terminal- side middle software component for rapid tag based application development

## CUSTOMER BENEFITS

- Simplifies the way consumer devices interact with each other
- Helps people to speed connections, receive and share information
- Enables local payment and ticketing, and easy access to services
- Multiple use smart card in a NFC handset can be any limited-value charge card – a city card, library card, cinema ticket, ticket to sports events, etc.
- Enables service a service provider to deliver service card to customer cost-efficiently via the mobile network
- The middleware component enables rapid deployment of tag based applications on the terminal side



### Contact

Mika Valkeapää  
Business Development Manager  
P.O.Box 1000  
FI-02044 VTT, FINLAND  
Tel. +358 20 722 6174  
GSM: +358 40 187 9062  
Fax: +358 20 722 7090  
mika.valkeapaa@vtt.fi