



Bluetooth@NeST

BLUETOOTH EXPERTISE

Bluetooth™ is emerging as the de-facto wireless standard for connecting personnel devices to fixed networks like home/office etc. Apart from Bluetooth add-on cards for the Laptop and Desktop markets, a number of PDAs, cell phones and other handheld devices with built-in Bluetooth function have been launched by a number of manufacturers.

NeST made an early entry into Bluetooth with an objective to develop competency in this new technology. As a result, NeST now has a team of dedicated professionals who have mastered all aspects of Bluetooth, right from chipsets and protocols to product and application development.

NeST is an associate member of the Bluetooth SIG.

NeST has over 20 man-years of experience in developing Bluetooth applications and is in a position to offer services, ranging from consultancy to product development in this area.

TECHNOLOGY SKILL SET

Area	Technology / Platforms / Standards
Bluetooth Core Protocols	HCI, L2CAP, RFCOMM, SDP
Transport Layers	USB and RS232
Chip Sets	Ericsson ROK 101, ROK 104, Infineon Bluemoon PMB 8760, Cambridge Silicon CSR BC01b
Profiles	Generic Access Profile, Serial Port Profile, Dial Up Networking Profile, Headset Profile, Hands Free Profile, Object Push Profile
Devices	IBM PCMCIA card, 3COM USB card, Compaq iPAQ Pocket PC, Cellphones including Nokia 6310I and Sony Ericsson T68i
Qualified 3 rd Party Stacks	Extended Systems BlueSDK
Tools and Development Platforms	Ericsson EBSK and EBDK, Infineon Bluemoon SDK, Merlin CATC Bluetooth protocol analyzer
Applications	Hands Free Mobile applications, Automotive diagnostic applications, Bluetooth Gateways



TECHNOLOGY SKILL SET

Bluetooth enabled Bar Code scanner

Developed a barcode scanner with Bluetooth connectivity to the host computer. The development included hardware, firmware and packaging.

The device makes use of the Serial Port Profile to communicate with the host, which could be a PDA, Desktop Computer or Cell Phone. If the host is a cell phone the scanner can send barcodes scanned through SMS.

The development was on ATMEL AVR platform using the Cambridge Silicon Radio (CSR) BC01b Bluetooth module. The proprietary Bluetooth stack developed by NeST was used.

Bluetooth stack Implementations for Automotive Applications

Developed a Bluetooth protocol stack including L2Cap and SDP and integrated it with a CAN network using a Bluetooth-CAN gateway for automotive applications. The implementation was tuned for embedded platforms.

The CAN - Bluetooth Gateway module allows Bluetooth devices to communicate with automobile in-vehicle modules like Engine Control Unit, Body Control Unit. The Gateway Firmware interfaces to the HCI layer through an USB transport layer. Developed the firmware for the Gateway module and a Remote Base Station Diagnostic Application running on a portable computer. This base station connects to the Gateway through Bluetooth. The application can

be used to view the status of various devices connected to CAN bus and also vehicle parameters like engine speed, oil temperature etc.

An additional Bluetooth – MOST (Media Oriented System Transport) Gateway module provides an interface between the Entertainment and Navigation system in the vehicle with the outside world through wireless.

The gateway uses an Ericsson Bluetooth Base band module and is based on Hitachi H8S2623 Controller. The Gateway Firmware interfaces to the HCI layer through an USB transport layer.

Hands free Mobile Phone Application

Developed an application for demonstrating hands free operation of a mobile phone in an automobile environment. The application uses Voice Recognition techniques to dial out voice calls to the mobile phone using the AT command set. The Bluetooth enabled control module uses RFCOMM protocol for sending the AT commands and a SCO link for transferring voice. The gateway also controls the conventional audio system in the car to multiplex voice signals from the phone and synthesized Voice prompts for the hands free application. Implemented Hands Free Profile (Version 0.96) on a Hitachi Microcontroller based Hands – Free Unit.

For more information on NeST's service offerings, please contact:

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