EtherMind Automotive SDK

MindTree's Bluetooth® SDK for Automotive segment

Q2FY2011

Contents

MindTree Bluetooth Offerings

- Comprehensive suite to enable a complete Bluetooth solution
  - Software IP - Bluetooth stack, profiles and application framework
  - Silicon IP - Bluetooth Baseband controller, digital phy (Modem) & RF
- Solution across different versions of the specifications

	2.1+EDR	3.0	3.0+HS (High Speed BT)	4.0 (Bluetooth Low Energy)	
				Dual Mode	Single Mode
Stack and Profiles	A	A	R	A	A
Baseband Controller	A	A		R	A
Digital Phy	A				A
RF	UD			R	R
SoC Platform	No Play				R

Available | Under Development | Roadmap

MindTree Bluetooth Credentials

Recognized as a high quality Bluetooth solutions Provider

- Products are shipping in volumes
- 30+ Customers

Annually BQB Qualified Bluetooth Components

Regular Participation in UPFs

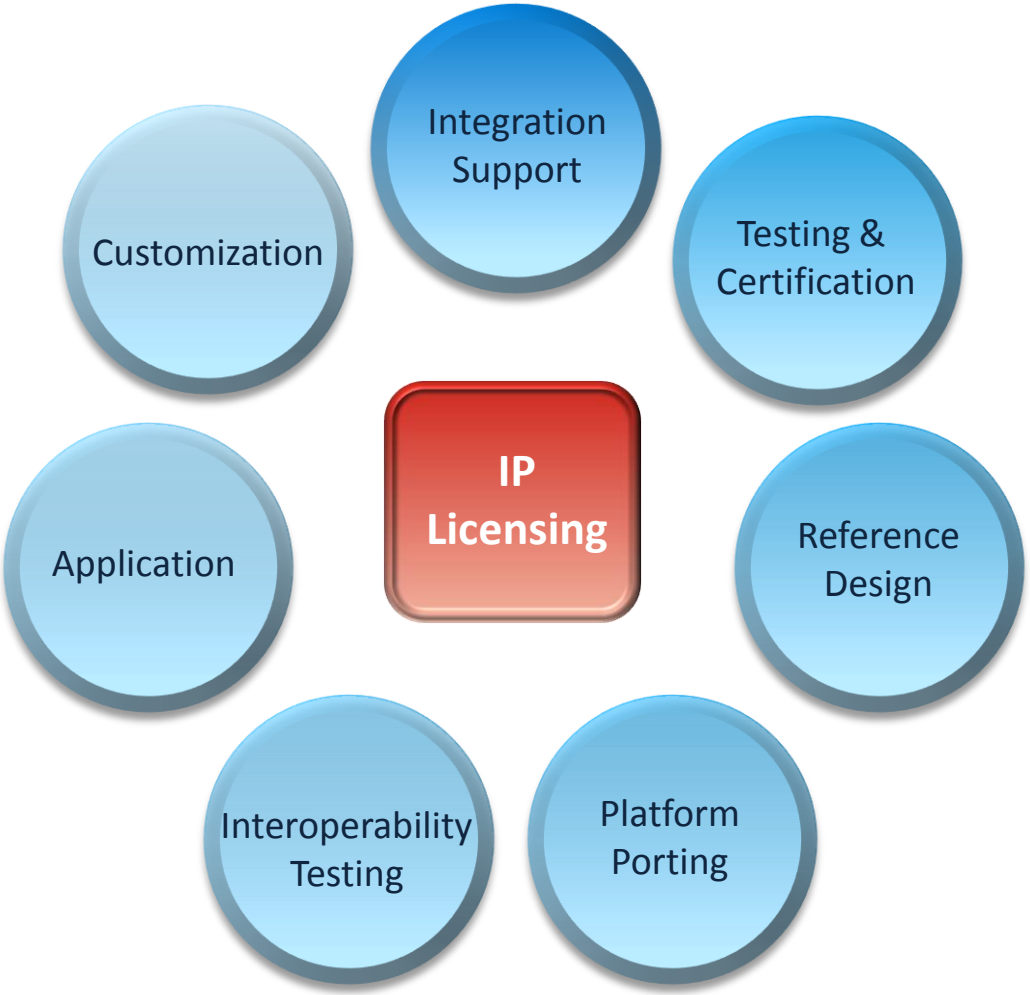
The Bluetooth SIG Associate Member since year 2000

Active participation in Bluetooth SIG Specifications

- Currently driving many Bluetooth Low Energy Host Specifications
- Reviewers for L2CAP, BNEP, AV, SDP Specifications
- Member of the several working groups
  - Core (CSWG), Medical, ULP, Remote Display, Telephony & GNSS

MindTree Differentiation

- Range of Services Around the IP – Enables seamless product realization



Few of MindTree's IP Customers

Tier I Medical Equipment Company	Garmin	Tier I Japanese IDM	Tier I Taiwan Fabless Semi
ANALOG DEVICES	GN Netcom	TEXAS INSTRUMENTS	QUALCOMM
NEC	EPSON	MITSUBISHI ELECTRIC	NiCT
RF MICRO·DEVICES	ACATC Computer Access Technology Corporation	Logitech	SONY

Products with MindTree IP

Presence in diverse market segments

Logitech PureFi mobile

Garmin Nuvi 37xx

NEC N-01A

ASSP for gaming remote

Bluetooth + GPS SoC

Jabra BT4010

Product Line Introduction

Bluetooth Offerings

EtherMind

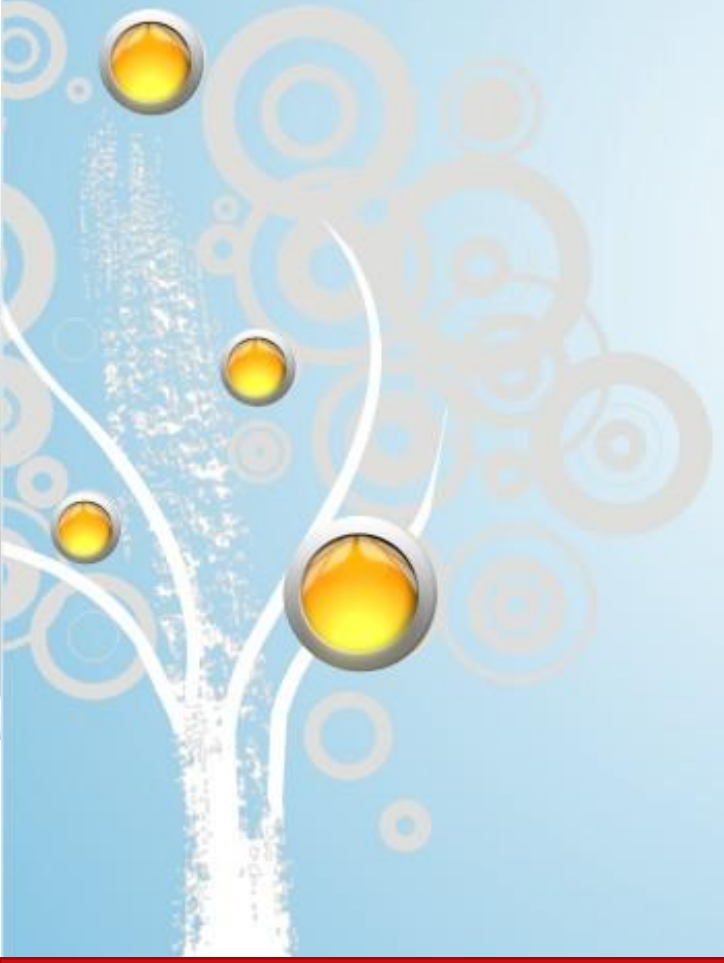
- 2.1+EDR Stack & Profiles
- 4.0 Dual Mode Stack
- Health Device SDK
- Automotive SDK

BlueWiz

- 2.1+EDR BBC and PHY
- 4.0 Dual Mode BBC and PHY
- 2.1 + EDR RF

BlueLitE

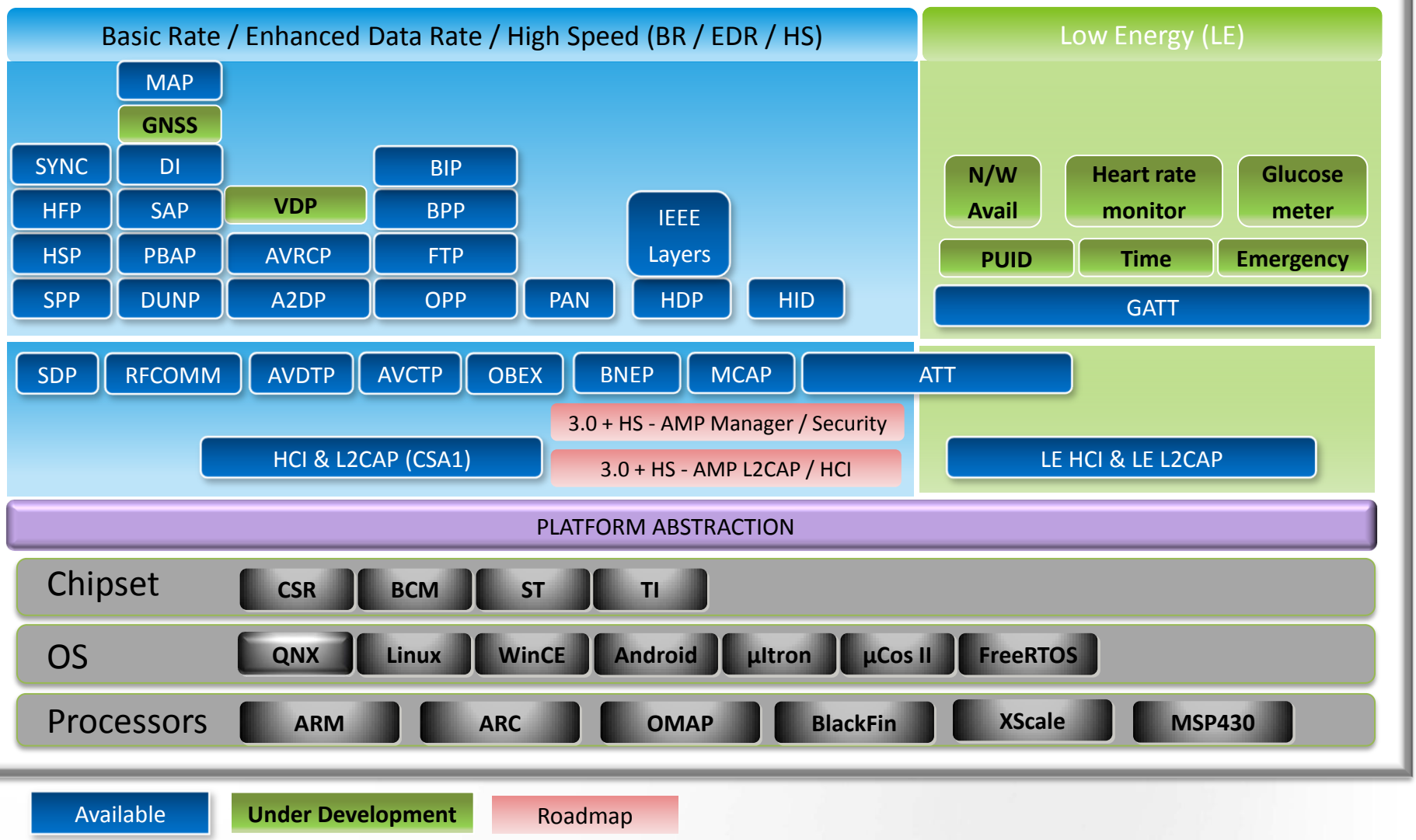
- LE Single Mode Stack and Profiles
- LE Single Mode Link Layer and PHY
- LE Single Mode RF
- LE Single Mode Pre-integrated Solutions



EtherMind

MindTree's Bluetooth® Software IP offering suite

EtherMind - An overview



Available | Under Development | Roadmap

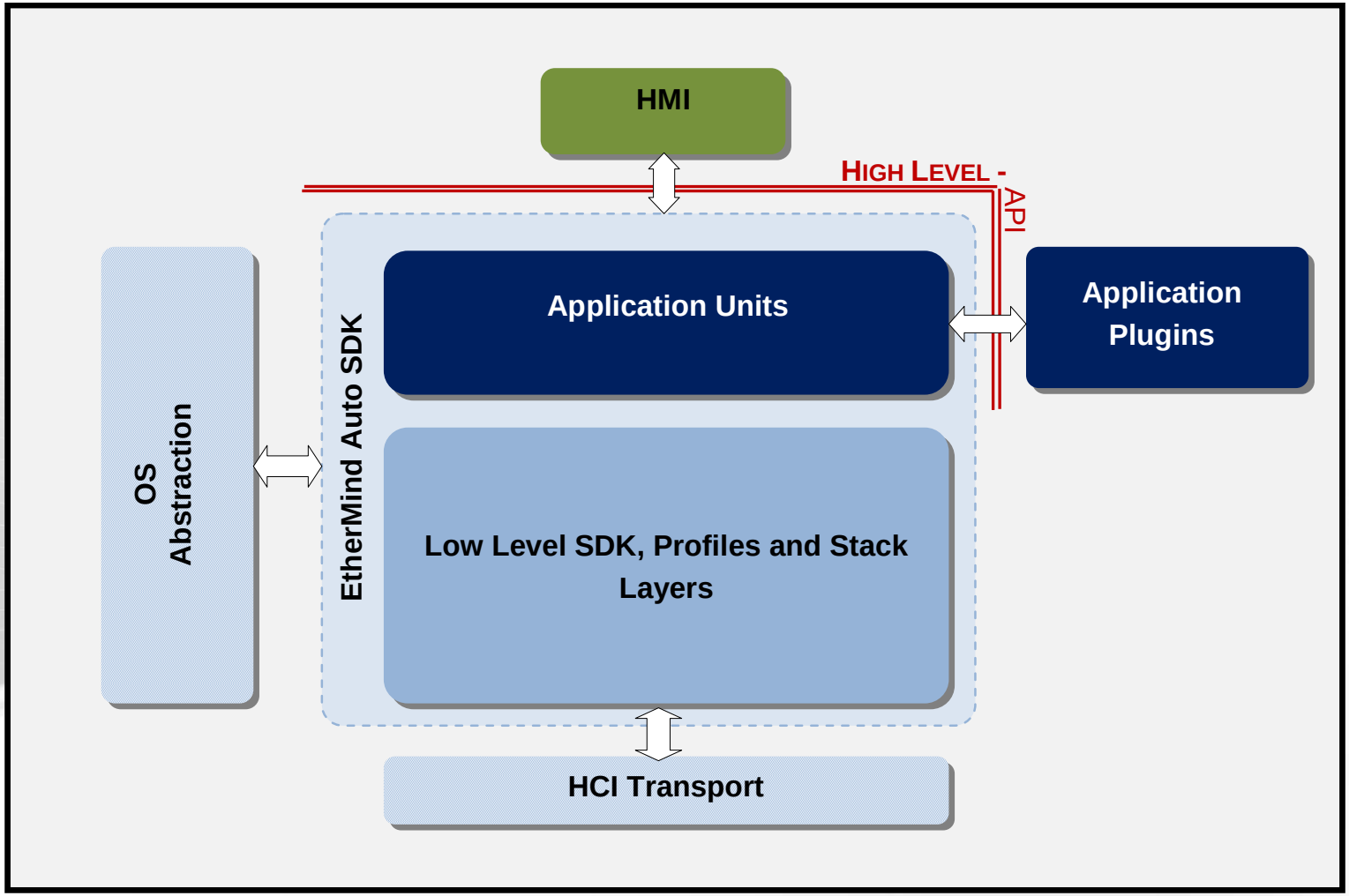
EtherMind Advantages

Reduced development risk	• BQB qualified & filed proven in multiple designs • ANSI C code ensures seamless porting on any platform
Faster Time to market	• Well defined platform abstraction layer for easy porting • Well defined & documented application framework
Reduced costs	• Optimized use of resources for low footprint & MIPS • Highly customizable for product specific optimizations
Higher market adoption	• Committed roadmap takes care of future Bluetooth needs • Industry specific SDK available for Health & Automotive markets
Increased focus on core areas	• BQB qualified & filed proven in multiple designs • ANSI C code ensures seamless porting on any platform
Excellent support	

EtherMind – Automotive SDK

Brief Overview

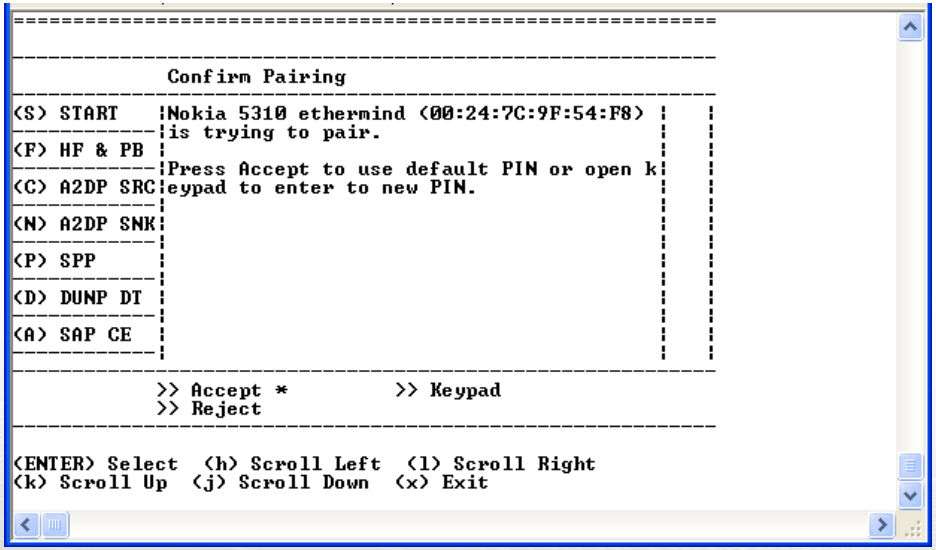
Automotive SDK – An Overview

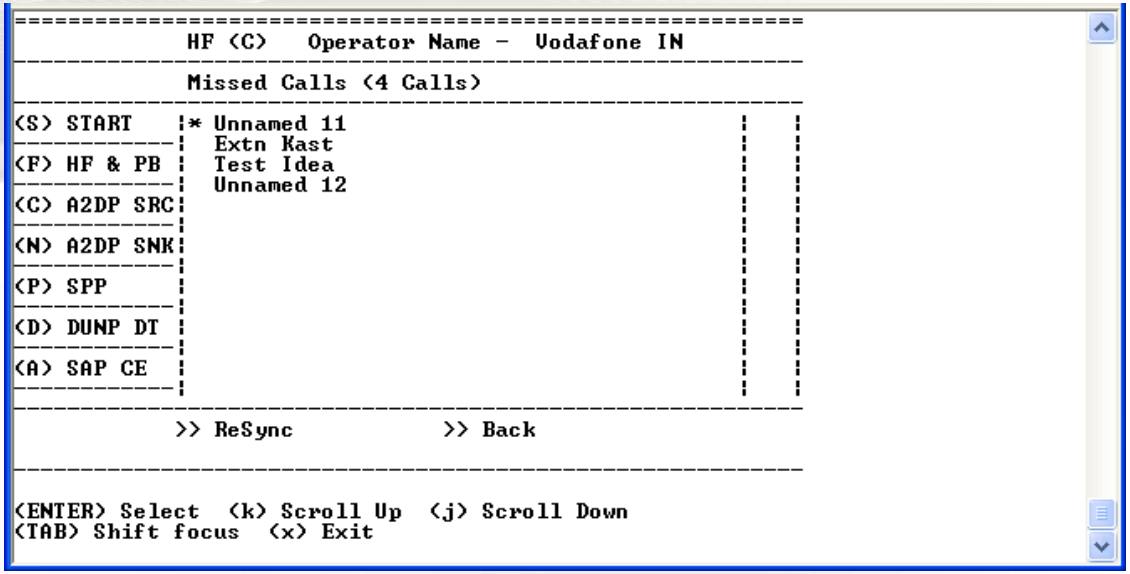


SDK Components

Application Units	• Implements typical use cases in Automotive scenario • Pairing, In-call, Play pause etc • Provides High level API
Application Plugins	• Enables platform portability and platform specific integrations • BTCOM (vcom), Phonebook
Low Level SDK, Stack & Profiles	• Core profile level functionality
HMI	• Uses High level APIs to implement required HMI functionality
Abstraction Layers	• OS Abstraction to enable easy OS portability • HCI transport to communicate to Bluetooth hardware via plat form specific interface like UART or USB

MindTree Cmd Line HMI





Profiles and Roles Supported in Automotive SDK

Profile	Role	Versions
Music and Audio		
A2DP (with SBC Decoder)	Sink	1.2
A2DP (with SBC Encoder)	Source	1.2
AVRCP	Controller and Target	1.0, 1.3, 1.4
Handsfree		
HFP	Unit	1.5
HSP	Unit	1.2
Phonebook and Object Transfer		
PBAP	Client	1.0
OPP	Server	1.1
MAP	Client	1.0
Data Transfer		
SPP	Dev A & Dev B	1.1
FTP	Server	1.1
DUNP	Data Terminal	1.1
PAN *	User	1.0
Other		
SAP	Client	1.1

* Under Development

Auto SDK Advantages

Reduced development risk

- Proven across automotive platforms
  - Processor / SoC – ARM9 based GPS SoC, Dual core automotive application processor
  - OS – WinCE, Linux, QNX, ultron

Reliable & cost effective

- Built on market proven EtherMind Core stack
  - Inherits all advantages – Qualified, field proven, interoperable, easy integration and easily portable
- Support Multiple profiles

Accelerated Product Development

- Abstraction of core BT functionality
- Ready application for popular use cases
- Multi-profile scenario support

Excellent support

Summary

- **MindTree – World leader in Bluetooth**
  - Comprehensive suit of IP to enable a complete solution
- **EtherMind**
  - Qualified, Field proven, Interoperable IPs which are easy to integrate into products
  - Robust roadmap to future proof customers' Bluetooth Requirements
- **Automotive SDK**
  - Enables accelerated product development
  - Offers a robust application units for most use cases
  - Proven on automotive platforms
- **MindTree Differentiation – Service beyond IPs**

Our Mission

Successful Customers

Happy People

Innovative Solutions

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