



Mindtree

Welcome to possible

EtherMind Bluetooth® Mesh IP

Revolutionize your products with Bluetooth Mesh Networking technology

Introduction

Mesh networking technology is critical in IoT, home automation and industrial applications. Bluetooth Mesh enables an interoperable mesh networking over low power Bluetooth low energy wireless technology. EtherMind Bluetooth Mesh is Mindtree's Bluetooth low energy Mesh IP, which supports Bluetooth Mesh v1.0 specification.

Mindtree can help you add the Mesh capability to any of your Bluetooth low energy products which support Bluetooth version 4.0 and beyond.

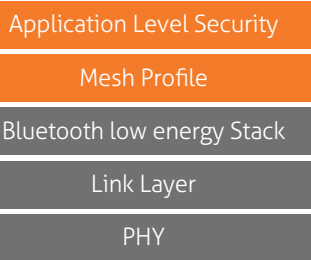
By partnering with us, customers can achieve faster go-to-market for their products. To view the video demo of Mindtree's implementation of Bluetooth Mesh IP, [click here](#).

Bluetooth Mesh IP Suite – Product Features

Mindtree Bluetooth Mesh's IP is aligned to Mesh v1.0 specifications. It supports all mandatory and optional specifications, all states (Servers, Clients) and topology roles (Edge Node and Relay Nodes). Mindtree's Mesh IP is built on top of Mindtree Bluetooth low energy stack. However, it can quite easily be ported onto any third party Bluetooth low energy stack. This requires access to the GATT Layer (for GATT Bearer interface) and HCI Layer (Advertising Bearer interface).

Some of the key features of Bluetooth Mesh include:

- **Flooding Mesh Network**
- **No limitation on number of Mesh Nodes**
- **Bearer Layer**
 - Advertising (ADV) Bearer (Advertising data type to encapsulate the mesh packet)
 - GATT Bearer (Attribute protocol used to encapsulate the mesh packet)
- **Provisioning Bearer (PB)**
Provisioning of nodes on the Bluetooth low energy-Mesh through PB-ADV, PB-Mesh and PB-GATT
- **Mesh Security**
Encryption and authentication are based on 128-bit AES CCM (IETF RFC 3610) and CMAC (IETF RFC 4493)



Mindtree IP Mindtree or Third Party IP

Key Benefits

Reduced technical risk

- Interoperability tested at all Mesh UnPlugFests
- Mesh IP tested as part of UnPlugFest-53 (January, 2016), UnPlugFest-54 (June, 2016), UnPlugFest-55(Oct, 2016), UnPlugFest-56 (Feb, 2017) and UnPlugFest-57 (June, 2017)
- Supports all Mesh models. These include Generic, Lighting, Sensors, Scheduling and Timing

Faster time-to-market

- Complete implementation in ANSI C to enable easy portability across various microcontrollers
- Platform and operating system-agnostic and designed for easy portability
- Proven portability across Mindtree as well as third-party Bluetooth Stack

Cost optimization

- Memory footprint of 48-64 KB Flash
- Data Memory (RAM) of 6-12KB

- Proven on 8-bit, 16-bit and 32-bit microcontrollers
- Highly configurable to suit the product needs of OEMs thereby enabling further optimizations

Key Deliverables

- Bluetooth Mesh IP implemented in ANSI C consisting of:
 - Mesh Profile (Servers, Clients roles)
 - Application-based encryption using 128-bit AES CCM (IETF RFC 3610) and CMAC (IETF RFC 4493)Source code of transport abstraction layer and operating system abstraction layer
- Source code of sample applications to illustrate the use of APIs
- Documentation
 - API Documents for Bearer abstraction
 - API documents for Mesh profile and encryption blocks
 - API documents for the transport abstraction layer
 - API documents for the operating system abstraction layer
 - User manual describing how to build and run the sample application

Bluetooth Leadership Credentials

Mindtree is a pioneer in Bluetooth IP licensing and providing engineering services for semiconductor companies and OEMs.

50+

Proposal wins with IP

35 mn+

Products shipped with IP

500+

Person-years of investment

40 +

Unplug Fests attended

Co-creator of

5.0 & 4.x
specifications

5 Offshore development
centers for top OEMs

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ABOUT MINDTREE

Mindtree [NSE: MINDTREE] delivers digital transformation and technology services from ideation to execution, enabling Global 2000 clients to outperform the competition. "Born digital," Mindtree takes an agile, collaborative approach to creating customized solutions across the digital value chain. At the same time, our deep expertise in infrastructure and applications management helps optimize your IT into a strategic asset. Whether you need to differentiate your company, reinvent business functions or accelerate revenue growth, we can get you there. Visit www.mindtree.com to learn more.