Bluetooth Low Energy Technology is ideal choice for IoT

IoT is a very popular application for electronic products nowadays. At a time where all electronic products are applied through interconnection, technology appealing to low energy consumption of Bluetooth can serve the interconnection of battery-powered devices at low energy consumption. Indeed this technology has emerged as the standard for portable electronic devices. This report will bring to you the trend of development for Bluetooth lower energy application.

Bluetooth Low Energy Technology allows for longer operation time for battery-powered products

Bluetooth ®Low Energy, also known as Bluetooth® LE, or BLE, is a Wireless PAN or WPAN technology designed and sold by Bluetooth SIG, which is a new mode of application suitable for medical and health care, sports and health, Beacon, security, family entertainment and other areas. As compared with the Classic Bluetooth, the BLE yields the same performance in communication within the same range with

efficient use of energy and low cost at significant level. The low energy feature of BLE allows an application to wearables and IoT devices. With the use of a button cell, it allows for operation for months and even years. It is compact in size and low cost, and is compatible with most cell phones, tablet PCs or even PCs. According to the forecast of Bluetooth SIG, there will be more than 90% of the smart phones with Bluetooth feature support BLE in 2018.

BLE technology starts to support the Mesh network. The function of the brand new Mesh provides many-to-many (m:n) device communications and specifically upgrades the communication performance for the installation of wide range network. As compared with the P2P communications of the Bluetooth in the past, which is a communication network connecting 2 single node points, Mesh could make all devices in the network as a single node point so that each node point could connect with one another and the range of transmission broadened. In addition, each device can connect to one another to make it possible for using in the automation of building and sensor network, which requires many or even thousands of devices as a solution for the IoT for transmission in a stable and secure environment.

Furthermore, the BLE also supports the micro positioning technology of Beacon. In other words, Beacon is just like a lighthouse broadcasting signals without a pause. When a cell phone enters the lighting range of the lighthouse, Beacon will transmit series of codes for the cell phone. After detecting the codes by the App, the cell phone will trigger series of actions. It may be information downloaded from the cloud or the activation of other Apps or interlock devices. Beacon features micro positioning function in higher precision than GPS and could be used indoor for identifying any cell phone entering the transmission range explicitly. This could be used in digital marketing, electronic payment, and indoor positioning.

The MBN52832 Bluetooth® low energy module presented by Murata is a product that can provide ultra-low energy interconnection in the course of data transmission. This module put a Nordic BLE chip, R/F front end and crystal into a compact shape with a built-in 64KM RAM and 512KB flash ARM Cortex M4 core, which provides a high performance engine and abundance of ports for various IoT, such as sensor network and device control. With accredited R/F, this module significantly helps to reduce the burden of the system designer and condense the time to market, and is an ideal solution for many smart devices, medical and health care devices, and M2M application.

The MBN52832 Bluetooth® BLE module supports the Bluetooth® v5, ANT, and NFC Tag. The built-in Nordic nRF52832 Bluetooth Smart® chip is sealed with LGA and the dimension is only 7.4 x 7.0 x 0.9 mm, which supports PCB antennae on board, and also connects to external antennae through a connection point. Under the LDO

mode for connection with the connector of antennae, the maximum transmission capacity is +4.0dBm, and the sensitivity for receiving could be as high as -93dBm @ 1Mbps (LDO mode), and the power is 7mA @ 3.5dBm during transmission (DCDC mode), and 6mA at receiving (DCDC mode). The main control connector supports UART and SPI and also 20 GPIO, 5 ADC, UART, SPI, I2C, and PWM and Debug SWD. This is suitable for home automation, proximity service, building automation, medical/health care, and Beacon application.

Murata also launched the MBN52832 development kit and the Nordic nRF52 software development kit could be used for improving the speed of development of the application. The evaluation board could support the same J-Link USB-SWD and USB-UART as provided by the nRF52 development kit to simplify debugging and development process.

The business opportunity for the wide range of application of the IoT is promising. With the integration of the Mesh and Beacon application technologies, the application of the BLE technology will thrive. The MBN52832 Bluetooth® low energy module presented by Murata provides full function and compact size that make it the excellent choice in your development of IoT related products.