

White Paper On Bluetooth Low Energy (BLE)



Executive Summary

Energy is a valuable resource in the world. Its conservation is highly important. If we didn't do that it will ultimately affect our existence itself. So here a technology which make things works in a very low energy will be a better option. Bluetooth Low energy is such a technology. It operates with less energy consumption. It facilitate optimal energy utilisation.

This white paper is an effort to make you aware about the importance of Bluetooth Low Energy. For us, it's our commitment towards the society. We believe in promoting environment friendly technologies. In this white paper, we are emphasising the concept of BLE with an illustration of a project on Home Ambience Control. This project is a simple application of BLE where the technology is used to change the ambience of a home. It includes BLE bulbs too. In that the Color, brightness and contrast can be changed using a smartphone. So it expands the scope of a conventional bulb. Here we are just emphasising one example, the applications are numerous. Bluetooth Low Energy (BLE) is a promising technology for future use. We need to utilise it to the maximum.

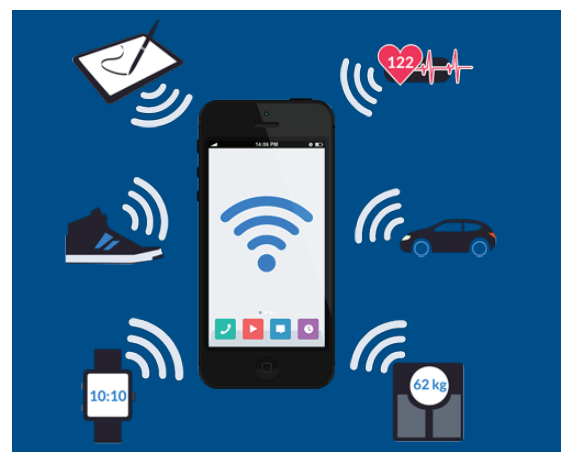
Bluetooth Low Energy (BLE) - A brief description

Bluetooth Low Energy is a wireless personal area network. This Technology is commonly known as Bluetooth Smart and it is designed and marketed by Bluetooth Special interest Group. The major applications of BLE belongs to healthcare, fitness, beacons, security and home entertainment sectors. The speciality of Bluetooth Smart is that it operates using less power consumption and in low cost. This aspect make it popular.

The benefits of Bluetooth Smart is infinite. Some major benefits are mentioning over here. Low power consumption is a great feature of BLE and it costs very less. Multi vender operability is another advantage of BLE. It is compatible over mobile phones, computers and tablets which means it covers almost all users. Good communication range also paves way for the popularity and success of this technology.

Major application areas of BLE

BLE is a widespread technology. You could see its applications almost every where. here we are trying to mention some major sectors where BLE is deep routed. It includes health care, fitness, beacons, security and home entertainment sectors.



Health care sector

BLE can be effectively integrated in health care sector. Using BLE, it is easy to monitor the health status of people. BLP (Blood Pressure profile) used for blood pressure measurement, HTP (Health Thermometer Profile) for medical temperature measurement, GLP (Glucose Profile) for blood glucose monitoring are certain BLE technologies used in health sector.

Fitness Sector

Fitness Sector also utilising BLE to the maximum level. To improve health, BLE can be applied. Knowing our body will help us to understand it better. Thus we could take measures to improve our health status. BCS (Body Composition Service), CPP (Cycling Power Profile), HRP (Heart Rate Profile), WSP (Weight Scale Profile). These are some of the BLE enable mechanisms.

Beacons

Beacons are small objects which transmit location informations to smartphones. The base of this mechanism is BLE. Beacons having wide scope in today's world. Beacons facilitates services such as mobile wallet, mobile couponing and location based services. One of the major area where the Beacons highly applicable is in shopping malls. Using this technology customers could easily track their desired product. The beacons attached to the products will inform the customer by sending message to the smart phones. Before entering the shop the customer gets full information about the product. So he could save his time without doing unnecessary searching. The technology is accepted by the shopping malls worldwide. This features could be done with minimum expense and time. Usage in shopping Mall is just one application of beacons they are more in number. The base of this is bluetooth low energy technology.

Security

BLE applications in security sector is infinite. The less power consumption and cost makes it a better choice. BLE enable devices to connects and transfer informations without any data leakage. The feature of encryption helps to achieve this. Here the data can be encrypted and transferred between devices. Signed data is another feature of BLE. In brief BLE technology ensures complete data authentication.

Home and Entertainment

BLE solutions are the perfect solution for Home and entertainment. The low energy consumption and extensive battery life were the reasons for this. Home and entertainment appliances will be working for long hours. So this feature add benefit to that. Home appliances are almost situated in near proximities. Those can be well connected by Bluetooth Smart. The major advantage of BLE enabled devices are they can be managed by a smartphone. BLE technology is perfect solution for home and entertainment sectors.



Illustration : A Technomobs project on Home Ambience Control

Under the R&D wing of Technomobs a project on Home Ambience Control is going on. This project is intended to set a theme for homes. Based on the situations you could select the theme you want in your home. As part of the home automation this Home Ambience Control comes. Bluetooth Low Energy (BLE) is the base for this project. This project includes many BLE enabled devices. For example the BLE enabled bulbs is used in this. Using a smartphone the user could change the color of the bulb. There is also a facility for changing the contrast and brightness of the bulb. The LED bulb will have micro controller and a bluetooth module. These components help to achieve this.

The project having high importance in the current scenario. Because the scarcity of resources is a major problem in today's world. The BLE enabled devices could operate in low power consumption and cost. This home Ambience control system is fully customizable. It can be used according to the needs of the user. The major advantage is the whole home system can be controlled using a smartphone. So we believe the system will help the users to automate and manage their home in better way.



Conclusion

It is sure that BLE will conquer almost every areas of the world. The biggest advantage of BLE applications is that it operates in low power consumption. Also the applications can be installed in very low cost. BLE applications are very much suitable to home automation systems. As the devices situated in near proximity and it long lasting battery life, BLE becomes the perfect choice. The major application area of BLE technology is health care sector, fitness sector, beacons, security and Home and entertainment. In every area BLE perfectly fits.

It is sure that Bluetooth Low Energy will be a prominent technology of the future. The sectors which are not using BLE will turn into BLE.



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