

# Wireless Connectivity-BLUETOOTH

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**Abstract-** Bluetooth is a wireless technology useful for exchanging data in a short range since it uses short-wavelength UHF(Ultra High Frequency) radio waves. It was invented by Telecom Vendor Ericsson in 1994. This journal is about Bluetooth that on what principal does it work, what different versions came with what advancements, its applications, advantages and disadvantages. Even the expected future scope is also discussed.

## I. INTRODUCTION

Bluetooth was designed to allow bandwidth wireless connection to become simple so that it became common in daily lives. When it is about sharing media files or any kind of file, Bluetooth is the first medium which comes in mind. It operates in the range of 2400-2484 MHz. Bluetooth is one of the most successful example of radio technology.

Bluetooth technology is a wireless communications technology that is modest, protected, and everywhere. You can find it in billions of devices ranging from mobile phones and computers to medical devices and home entertainment products. It is proposed to replace the cables connecting devices, while continuing high levels of security.

The key features of Bluetooth technology are iniquitousness, low power, and low cost. The Bluetooth Specification defines a even configuration for a wide range of devices to bond and interconnect with each other.



## II. WORKING

The function of Bluetooth is to transmit data from one device to another. In this, the data to be transmitted is divided into packets and each packet is transmitted on one of the 79 designated Bluetooth channels where every channel has a bandwidth of 1MHz. But in case of Bluetooth 4.0, 2MHz spacing is used which allow 40 channels, the first channel starts at 2402 MHz and continues upto 2480 MHz

## III. USES OF UHF

Ultra High Frequency is a radio frequency which ranges between 300 MHz to 3Ghz. This type of frequency is used for point to point transmission. UHF spectrum is used in variety of purposes like mobile phones, television broadcasting, GPS satellites etc.

## IV. VERSIONS OF BLUETOOTH

<u>VERSION</u>	<u>DATA RATE</u>
1.2	1Mbit/sec
2.0+EDR	3Mbit/sec
3.0+HS	24Mbit/sec
4.0	24Mbit/sec

### A. BLUETOOTH v1.2

This version was backward and the data transmission speed in this version was upto 1 Mbit/sec.

### B. BLUETOOTH v2.0

In comparison Bluetooth v2.0 was enhanced and supported transmission speed upto 3 Mbit/sec.

### C. BLUETOOTH v2.1

This version uses secure simple pairing to improve better pairing experience for Bluetooth devices. In order to reduce power consumption, sniff sub rating was used.

### D. BLUETOOTH v3.0

The more enhanced version of Bluetooth was this version. It provided theoretical data transfer speed of 24Mbit/sec.

### E. BLUETOOTH v4.0

It comes with greatly reduced power consuming, as if it does not require any power at all to function.

## V. APPLICATIONS

1. The earliest application of Bluetooth which became popular was wireless communication between mobile phones and handfree handsets.



2. Wireless communication between computer input and output devices(mouse, keyboard, etc.).



3. It allowed phone to ring and answer calls on behalf of a nearby mobile phone.
4. Replacement of wired RS-232 serial communication in test equipment, bar code, etc.

## VI. FUTURE SCOPE OF BLUETOOTH

Bluetooth was found in 1994 and till date it is the most successful invention of wireless technology. As the years passed by many new versions of Bluetooth came, each with great improvement. Many engineers are working for more improved version of Bluetooth and it is expected that shortly Bluetooth will be introduced in watches, lights, central heating thermostats, heart rate monitor so that they all could be controlled by a single remote or can be controlled by the mobile phones too which will bring a great ease in ones day to day life as we could turn on/of lights and fans by our mobile phones or we could change the room temperature.

Even it is expected that the advanced versions of Bluetooth will have a great media share speed upto 4Mbps which is now maximum 1Mbps.

## VII. ADVANTAGES

1. Bluetooth technology is commonly used in cars in order to control our music system with mobile phones
2. Bluetooth headphones replaced wired headphones.
3. Anyone can easily figure out how to set up a connection and sync. two devices.
4. Bluetooth uses less power.

## VIII. DISADVANTAGES

1. Though the transferring speed offered by Bluetooth is 1Mbps, it is difficult to share large files.
2. Connection cannot be made in long distances.

## CONCLUSION

Bluetooth is loaded with many uses in the world of wireless technology by replacing wires but still it is unable to connect and share media with devices in more than range of 100metres. It is expected that in future Bluetooth will show more features which will support many basic electronic used in daily lives. Even the expectation speed is that the advanced version of Bluetooth will support media speed up to 4Mbps.

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## REFERANCE

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