



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)



UNIT-V- Bluetooth

Bluetooth



Bluetooth is a wireless communication technology standard that enables short-range communication between electronic devices. It was developed to replace wired connections and facilitate data exchange between devices such as smartphones, tablets, laptops, headphones, and various other peripherals.

- Key features of Bluetooth include:
- **Wireless Connectivity:** Bluetooth eliminates the need for physical cables, allowing devices to communicate wirelessly.
- **Short-Range Communication:** Bluetooth is designed for short-range communication, typically within a range of 10 meters (30 feet). This makes it suitable for personal area networking (PAN) applications.
- **Low Power Consumption:** Bluetooth technology is designed to be energy-efficient, making it suitable for battery-powered devices like wireless headphones, fitness trackers, and smartwatches.
- **Frequency Band:** Bluetooth operates in the 2.4 GHz ISM (Industrial, Scientific, and Medical) band, using frequency-hopping spread spectrum to avoid interference from other devices operating in the same band.



Bluetooth



- **Pairing:** Devices need to be paired before they can communicate securely. Pairing involves establishing a trusted connection between two devices by exchanging security keys or PIN codes.
- **Profiles:** Bluetooth profiles define the possible features and functionalities that a Bluetooth device can support. Examples include the Hands-Free Profile (HFP) for hands-free calling in cars and the Advanced Audio Distribution Profile (A2DP) for streaming high-quality audio.
- **Versions:** Bluetooth technology has evolved over time, with each new version introducing improvements in terms of speed, range, and energy efficiency.



Bluetooth



Common use cases for Bluetooth include:

- **Audio Streaming:** Wireless headphones, speakers, and earbuds often use Bluetooth for audio streaming.
- **Data Transfer:** Bluetooth is used for transferring files between devices, such as photos between a smartphone and a computer.
- **Peripheral Devices:** Keyboards, mice, printers, and other peripheral devices can connect to a computer or tablet via Bluetooth.
- **Smart Home Devices:** Many smart home devices, like smart locks, thermostats, and lights, use Bluetooth for local communication.
- **Fitness Trackers and Wearables:** Bluetooth is commonly used in fitness trackers, smartwatches, and other wearable devices to connect with smartphones and share data.



THANK YOU