FACULTY OF ENGINEERING & TECHNOLOGY

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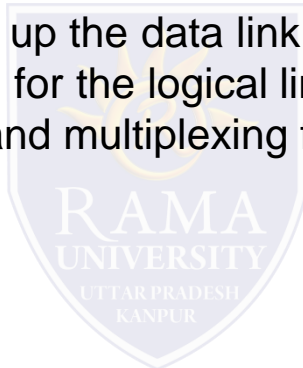
media access control
IEEE 802.11
Bluetooth

In IEEE 802 LAN/MAN standards, the **medium access control** (**MAC**, also called **media access control**) sublayer is the layer that controls the hardware responsible for interaction with the wired, optical or wireless transmission medium. The MAC sublayer and the logical link control (LLC) sublayer together make up the data link layer. Within the data link layer, the LLC provides flow control and multiplexing for the logical link (i.e. EtherType, 802.1Q VLAN tag etc), while the MAC provides flow control and multiplexing for the transmission medium.

MAC
Media Access Control Address

| 00	1A	3F	F1	4C	C6

Organizationally Unique Identifier   Network Interface Controller Specific

IEEE 802.11

IEEE 802.11 is the set of technical guidelines for implementing Wi-Fi. Selling products under this trademark is overseen by an industry trade association by the name of the Wi-Fi Alliance.

IEEE 802.11 has its roots from a 1985 decision by the U.S. Federal Commission for Communication that opened up the ISM band for unlicensed use. The standard was formally released in 1997. That original standard was called IEEE 802.11-1997 and is now obsolete.

It's common to hear people refer to "802.11 standards" or the "802.11 family of standards." However, to be more precise, there is only one standard (IEEE 802.11-2007) but many amendments. Commonly known amendments include 802.11a, 802.11b, 802.11g, and 802.11n.
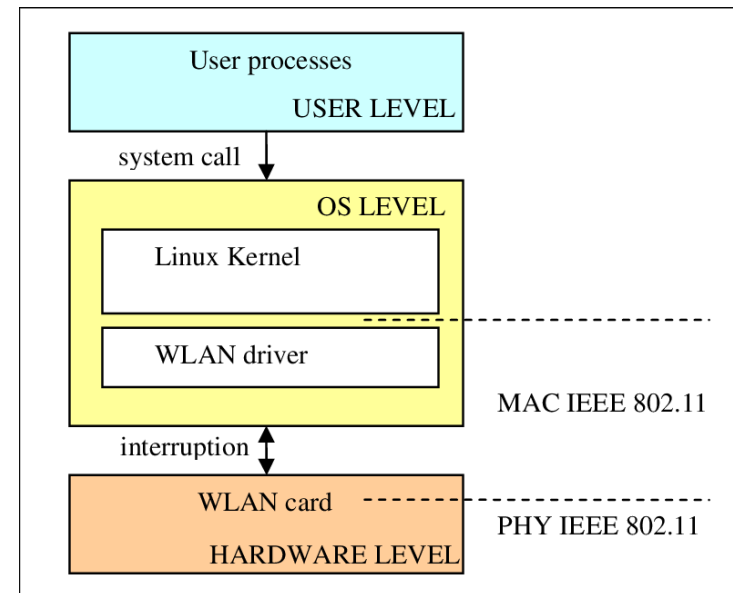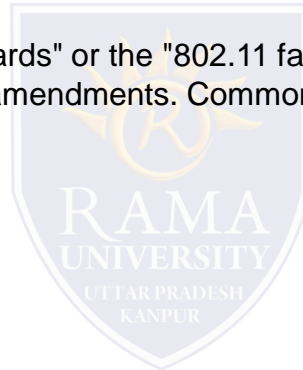
Bluetooth

The wireless technology connects mice and keyboards to our computers. Bluetooth also connects our phones to our cars to catch up on the latest podcasts during our morning commutes.

When any two devices need to communicate with each other, they have to agree on a number of points before the conversation can begin. The first point of agreement is physical: Will they talk over wires, or wireless signals? If they use wires, how many are required — one, two, eight or 25? Once the physical attributes are decided, several more questions arise:

How much data will be sent at a time? For instance, serial ports send data 1 bit at a time, while parallel ports send several bits at once.

How will they speak to each other? All of the parties in an electronic discussion need to know what the bits mean and whether the message they receive is the same message that was sent. This means developing a set of commands and responses known as a **protocol**.

When two devices are equipped with Bluetooth, usually one of them will to be set to be discoverable, meaning it'll show up in a list of Bluetooth devices in the area on your phone or other controlling device.
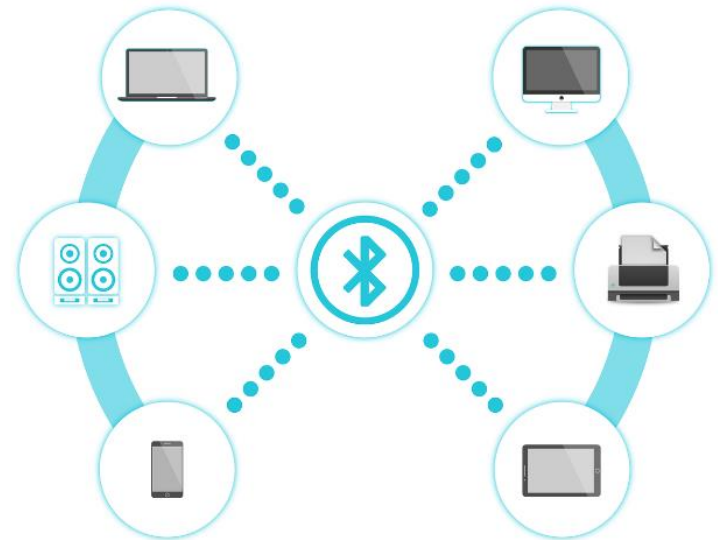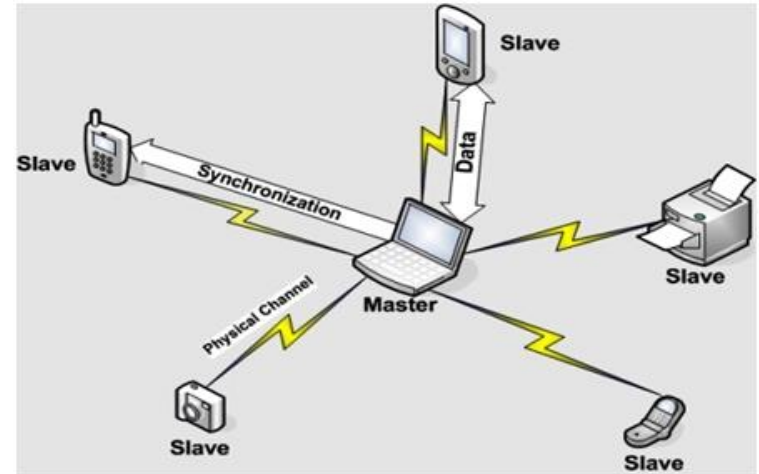
802.11g Protocol − This protocol combines the features of 802.11a and 802.11b protocols. It supports both the frequency ranges 5GHz (as in 802.11a standard) and 2.4GHz (as in 802.11b standard). Owing to its dual features, 802.11g is backward compatible with 802.11b devices. 802.11g provides high speeds, varying signal range, and resilience to obstruction. However, it is more expensive for implementation.

802.11n Protocol − Popularly known as Wireless N, this is an upgraded version of 802.11g. It provides very high bandwidth up to 600Mbps and provides signal coverage. It uses Multiple Input/Multiple Output (MIMO), having multiple antennas at both the transmitter end and receiver ends. In case of signal obstructions, alternative routes are used. However, the implementation is highly expensive.