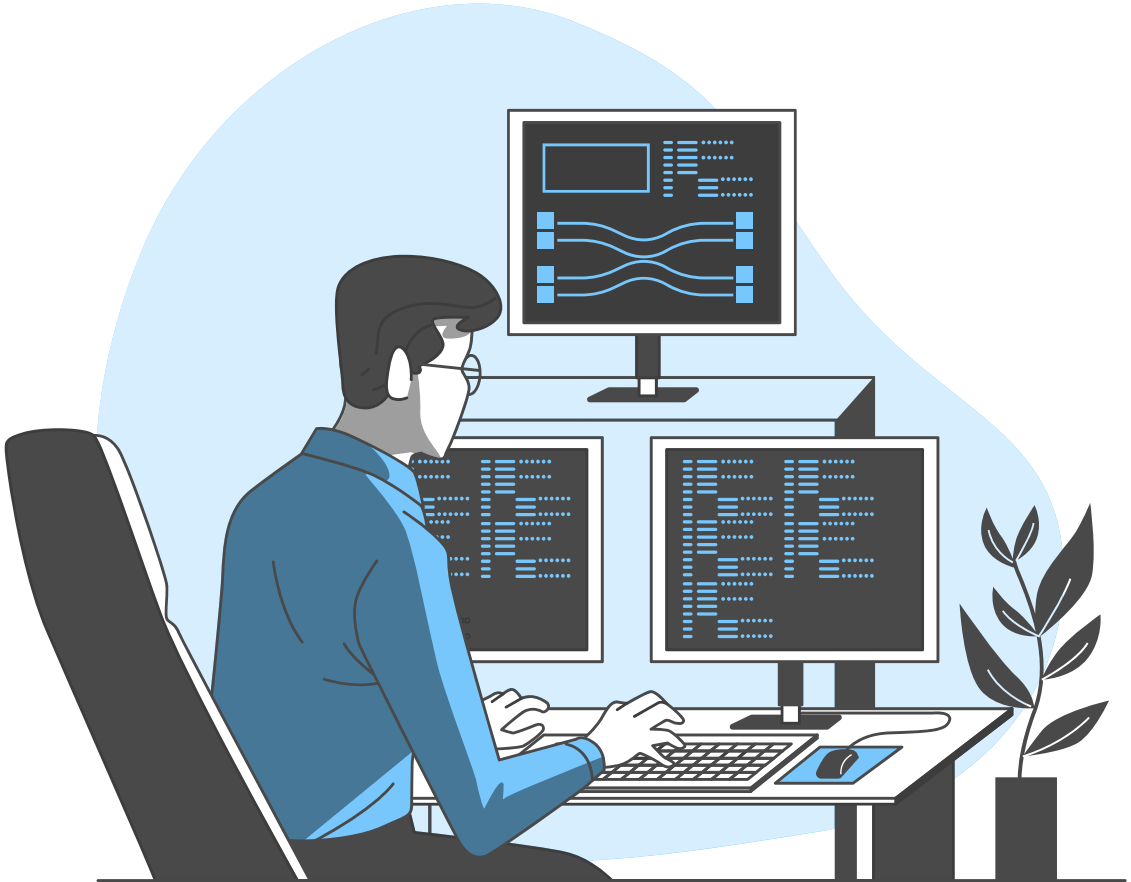

Wi-Fi

Presented by:
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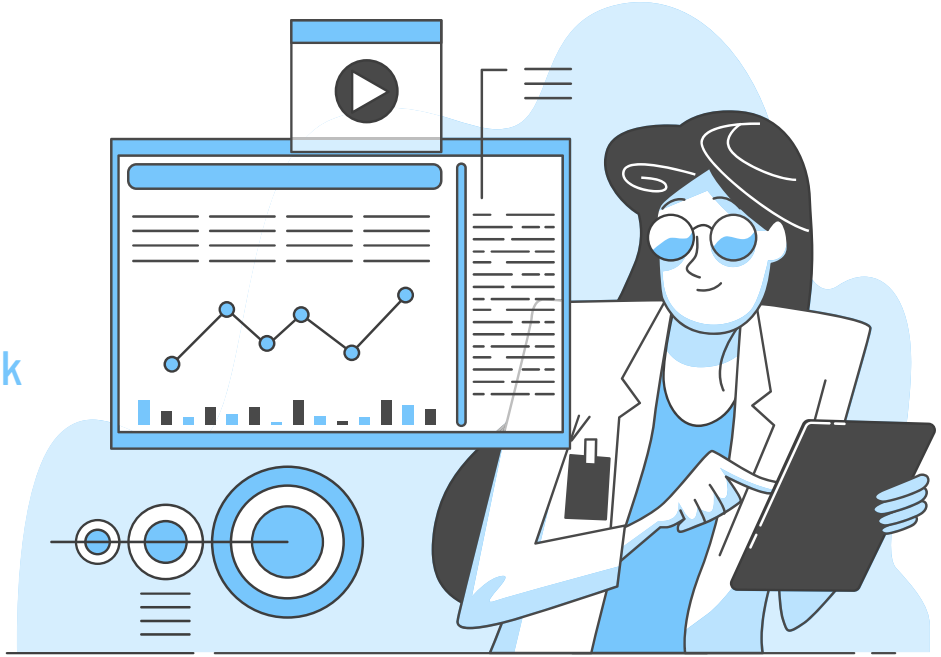
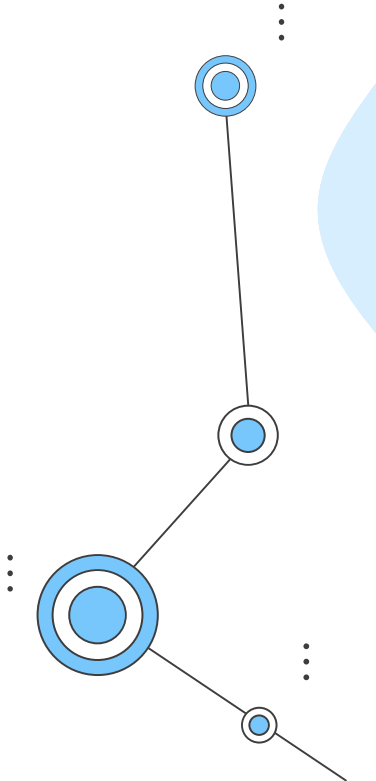


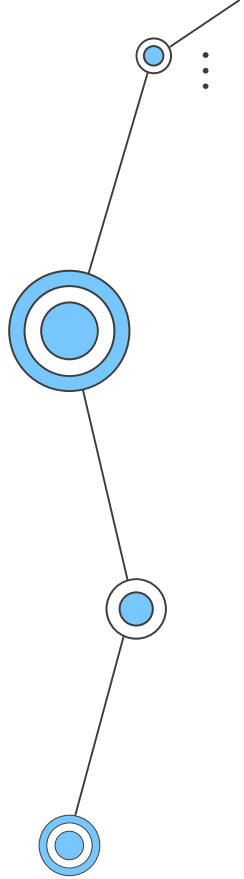
WiFi

- Wi-Fi is the type of wireless technology used in computer networking..
- The wireless part of network is often called wlan.
- Wi-Fi is the radio signal.
- it is used for mobility.⋯

Wi-Fi stands for:

It is often thought to be short for **Wireless Fidelity.** The term was created by a marketing firm.





IEEE 802.11 And The Standards Body

IEEE (Institute of Electrical and Electronics Engineers). These are the people who sit around and decide things like how many bits are in a byte and the standards for encryption. They're not going to come to a company's house and take their lunch money if they don't comply, but companies participate and go along with that the IEEE standards decides so their things work well together.

IEEE 802.11 And The Standards Body

From this group, we get the various flavors of Wi-Fi. They're all called the **IEEE 802.11** standard with the letter after the 802.11 numbers. The usual rule is the higher the letter, the faster the speed of the network. Almost all of these function over a range of about 30 meters (150 feet).

Speed: This is calculated in Mbps (1 million bits per second)

Frequency: These are either 5 Ghz or 2.4 Ghz.

Here's a Wi-Fi standards chart of each 802.11 standards type based on its designation

Wi-Fi Standards

WiFi Standard	Networks
WiFi 1	802.11b
WiFi 2	802.11a
WiFi 3	802.11g
WiFi 4	802.11n
WiFi 5	802.11ac

Standards of Wi-Fi

Name	Speed	Frequency	Notes
802.11a	54 Mbps is the maximum, but usually 6 to 24 Mbps	5 GHz	Not compatible with b or g networks. This is one of the oldest standards, but still in use by many devices today.
802.11b	11 Mbps	2.4 GHz	Compatible with g networks. Really, g was made to be backwards compatible with b to support more devices.
802.11d	N/A	N/A	D isn't really a network type of its own. It includes additional information like access point information and other information specified by different country's regulations. Usually, this is combined with other networks like 802.11ad.

Standards of Wi-Fi

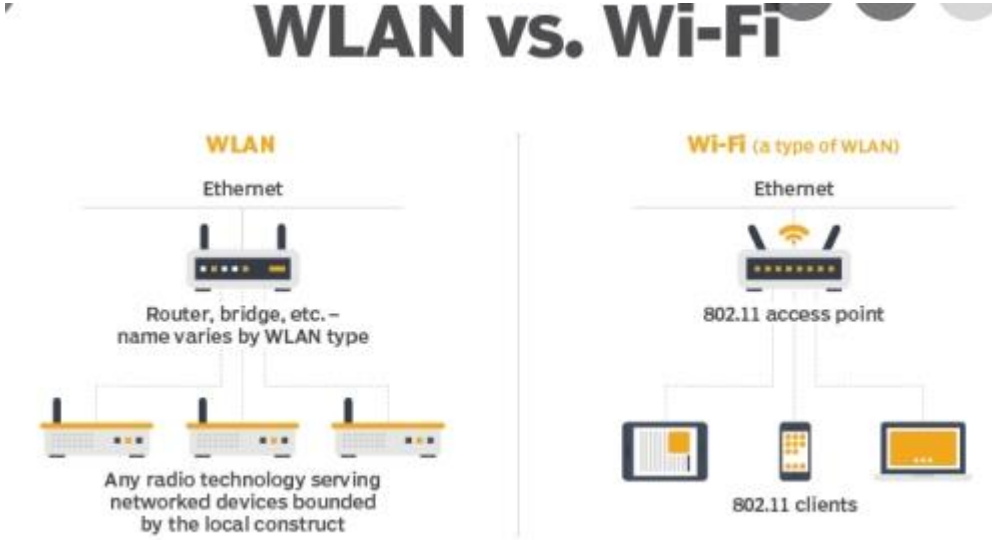
802.11g	54 Mbps	2.4 GHz	The most popular network type. Its combination of speed and backwards compatibility makes it a good match for today's networks.
802.11n	100 Mbps	2.4 and 5 GHz	The fastest type of network. 100 Mbps is common, though speeds of up to 600 Mbps is possible under perfect conditions. It does this by using multiple frequencies at once and joining that speed together.

Internet vs Wi-Fi

The Internet is a process that allows one device to send and receive data or information from another device over the Internet Protocol. On the other hand, Wi-Fi is more like an object that can provide wireless Internet access for laptops, smartphones, PCs, or other devices within a certain range.
In simple words we can say that Wi-Fi is nothing but it is a medium of transferring the data from one device to another.

Wlan vs Wi-Fi

Wireless local area networking, also known as WLAN or wireless LAN, is a term for using wireless digital signals to connect computers and other devices. One of the most common wireless LAN technologies now in use is Wi-Fi, which refers to a set of standards for how devices can talk to each other on wireless networks



Elements of a WI-FI Network

Access Point (AP)

...

Wi-Fi cards

...

Safeguards

...

How Wi-Fi works?

End User Devices

Radio Waves

Wireless Router

Fiber Cable

Analog Line

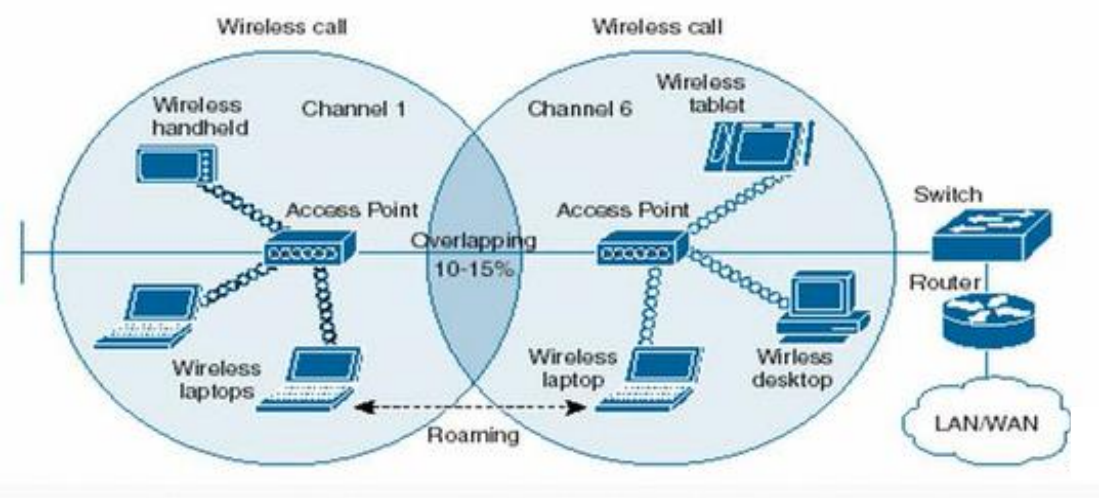
Modem

Internet

Wi-Fi Network Topologies

AP-based topology

- The client communicate through Access Point.

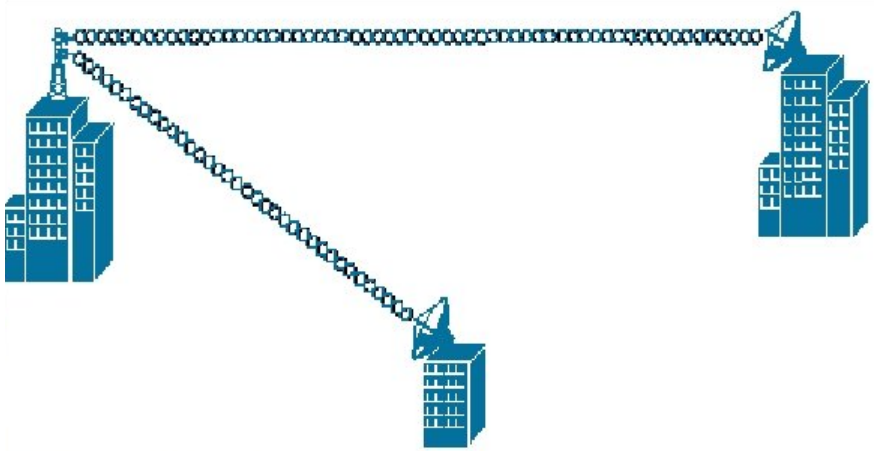


Peer-to-Peer topology

- Client devices communicate directly with each other.

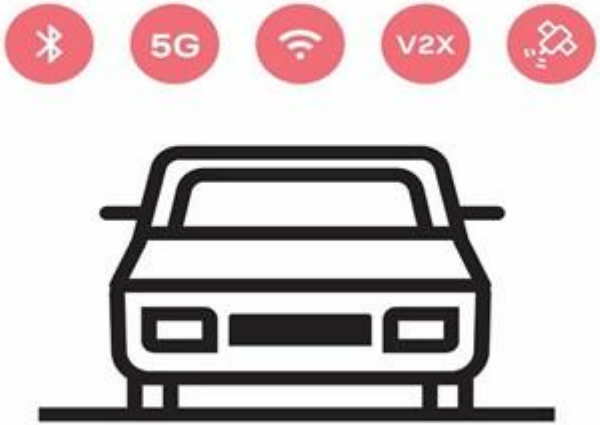
Point-to-Multipoint bridge topology

- Connection of one LAN to other LANs

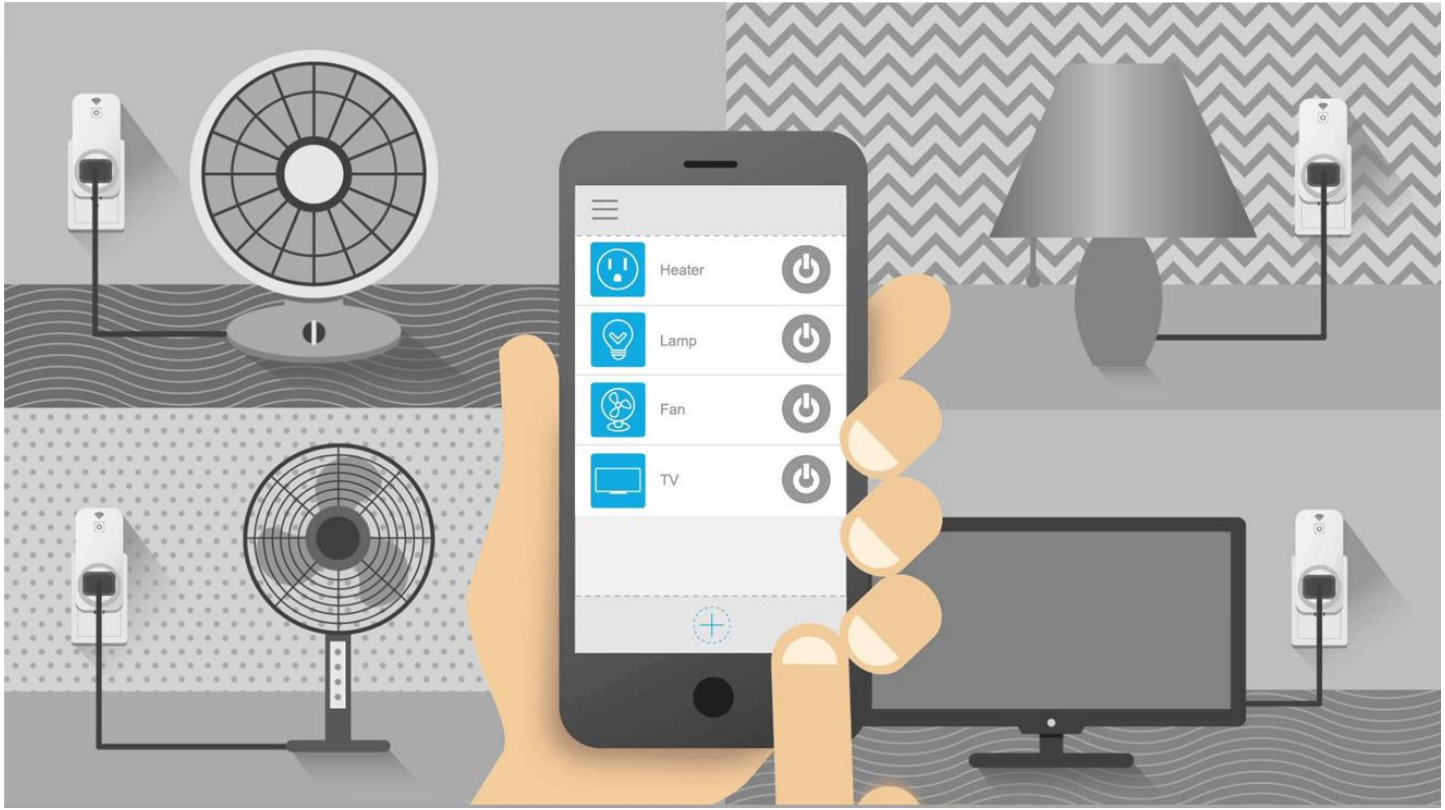


Applications

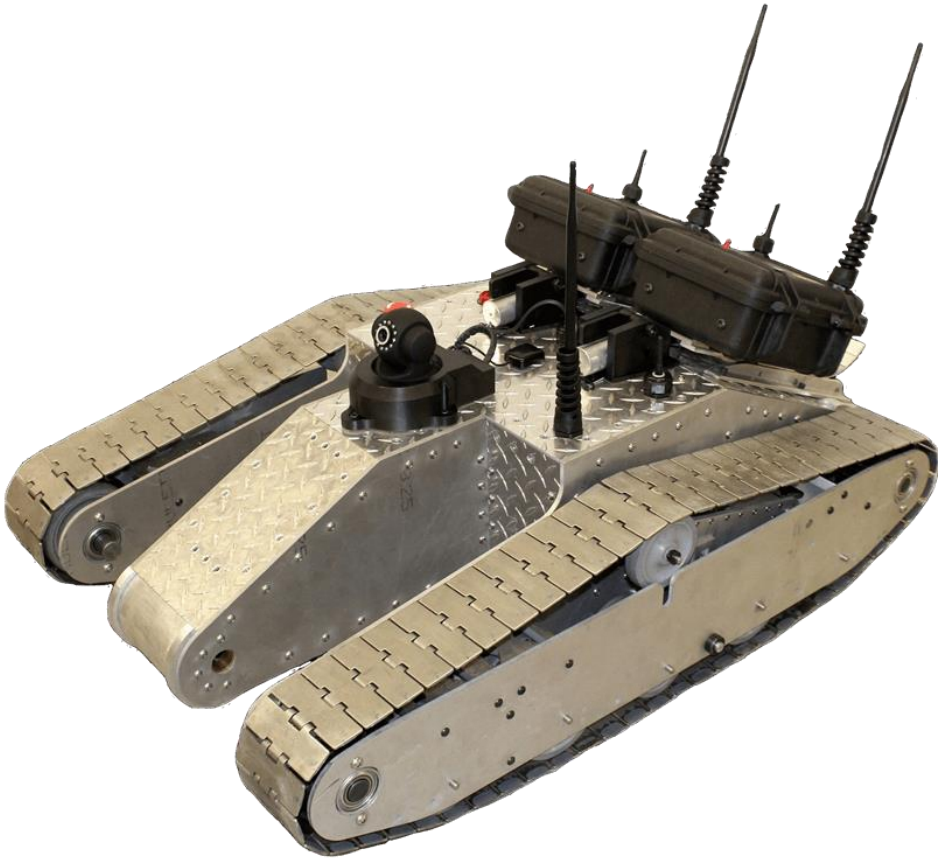
Wi-Fi Automotive



Wi-Fi Home Automation



Wi-Fi Military Applications



Wi-Fi Education Applications

Topic distribution

Presented By	Topic
Laiba Humayun khan	**What** is Wi-Fi? IEEE 802.11 And The Standards Body Wi-Fi Standards Internet vs Wi-Fi WLAN vs Wi-Fi
Maimoona khilji	Elements of Wi-Fi How Wi-Fi works? Wi-Fi topologies • **AP-based topology** • **Peer-to-Peer topology** • Point-to-Multipoint bridge topology
Khurram Ali Dar	Applications of Wi-Fi: • Automotive • Smart Home • Military • Education

Thanks!