

PAN (Personal Area Network) :

1. wired PAN.
 2. wireless PAN.
- eg : IrDA, Wireless USB, Bluetooth, Zigbee.

The reach of WPAN varies from a few centimeters to a few meters.

IEEE 802.15 has produced standards for several types of PANs.

IEEE (institute of Electrical and Electronics Engineers)

Zigbee:

1. zigbee is an IEEE 802.15.4 based specification.
2. Designed for small scale projects which need wireless connection.
3. Hence, Zigbee is a :

GTS(Guaranteed), CSMA/CA(Carrier sense multiple access/ collision detection), TDMA(Time division Multiplexing Access) modes.

****Types of Devices in Zigbee architecture :**

1. Zigbee coordinator (ZC) :

- compulsory
- assign unique address to each device in network.
- select the channel (less noise) for communication.
- communication with external network.

2. Zigbee Router (ZR) :

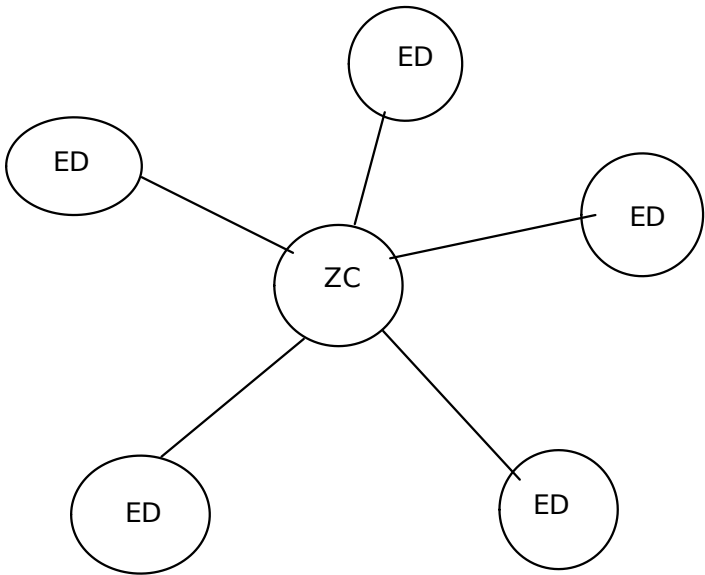
- to increase number of devices routers are added into network.
- routers are connected to ZC.
- routers route/redirect the signal toward destination

3. Zigbee End Device(ZED) :

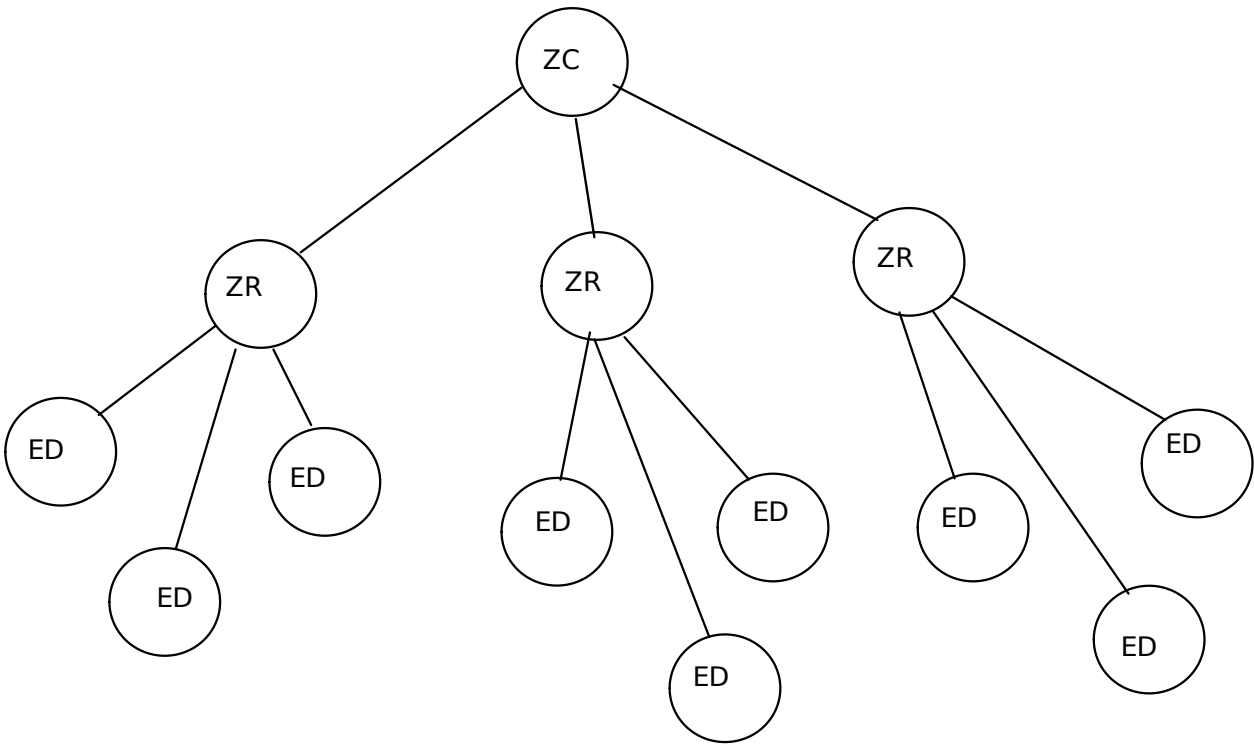
- low power device which has only ability to communicate with only its parent.
- to reduce power consumption ZED can sleep.
- $2^{16} = 65536$ devices can be connected.
- In bluetooth network we can only connect 7 devices, to connect more devices we use Zigbee.

Zigbee Network Topologies:

1. Star topology :



2. Tree topology :



3. Mesh topology :

