ZigBee- Sketch

- Mostly used as a smart home protocol
- Not like wifi, but ZigBee is designed for low-power wireless applications. Like consumer electronics, medical equipment, industrial automation and home automation.
- 2.4GHz radio frequency space,
- Wireless mesh network. It has two main devices.
    1. ZigBee Co-ordinator (Hub) - starting and maintaining the network connectivity. It receives the signal from ZigBee end devices, processes it and converts it to a format that computers and mobile phones can use. It is the bridge between the end device and the user's mobile phone/ computer.
    2. ZigBee end device - devices and sensors which are usually powered by a battery. It communicates back to the coordinator.
    3. ZigBee Router- Improve its mesh capabilities. Main powered devices. It can route data packets from the end devices to the coordinator. This will wider the range of the ZigBee network. Improve the strength and reliability of the network.
- Security- AES 120 bits Encryption

Pros of ZigBee

- ZigBee's main upside (WiFi's main downside) is battery life, ZigBee is specifically designed for low-power applications. Zigbee allows the end devices to turn off the transmitting radio when the device is not transmitting. Not possible in WIFI. some Zigbee devices can last well over a year on a single battery.
- Wide Range of available devices: Zigbee is an open standed. Therefore anybody can use it. Low cost compared with some other standers. Because of that, there are thousands of Zigbee devices out there.
  Eg: Door/window sensors, motion sensors, water leak sensors, smart plugs, smoke alarms etc…

- Mesch capabilities- if you add more devices, the mesh will be bigger and improve the ZigBee network. For WiFi, it is also possible. But more costly and time-consuming.

Cons of ZigBee

- Co-Ordinater failure- To the ZigBee network can be added many routers, and many end devices =. But, all of them are controlled by one co-ordinator device. If it fails, the whole network fails. You have to replace the coordinator and manually reconnect all the devices back into the network.
- Ecosystems of the manufacturers - Some manufacturers took ZigBee's open standards and make it worked only in their eco-systems. They most probably do not work with other brand devices.

- Not suitable for CCTV or a doorbell with camera applications

Reference: https://m.youtube.com/watch?v=UmpDXc3cXbU

Other references for future use: Zigbee | Complete IOT Solution - CSA-IOT
https://en.wikipedia.org/wiki/Zigbee

Books: ZigBee Wireless Networks and Transceivers - Shahin Farahani - Google Books