

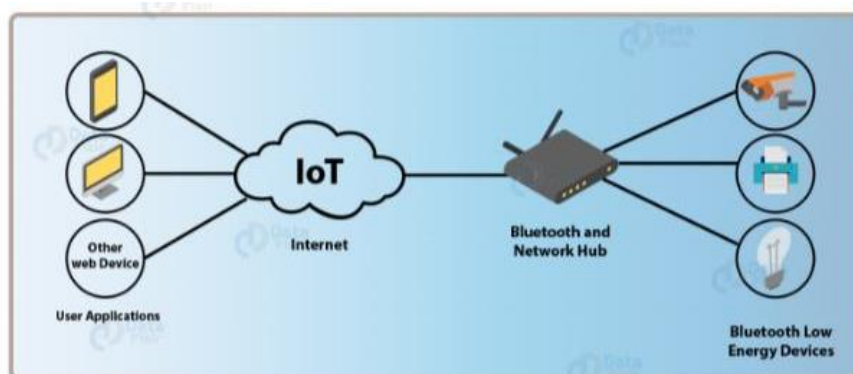
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## IoT Communication Technology & IoT Protocols:

Several Communication Protocols and Technology used in the internet of Things. Some of the major IoT technology and protocol (IoT Communication Protocols) are Bluetooth, Wifi, Radio Protocols, LTE-A, and WiFi-Direct. These IoT communication protocols cater to and meet the specific functional requirement of an IoT system. There are 6 IoT Communication Technology, let us look each one of them.

### a. Bluetooth:

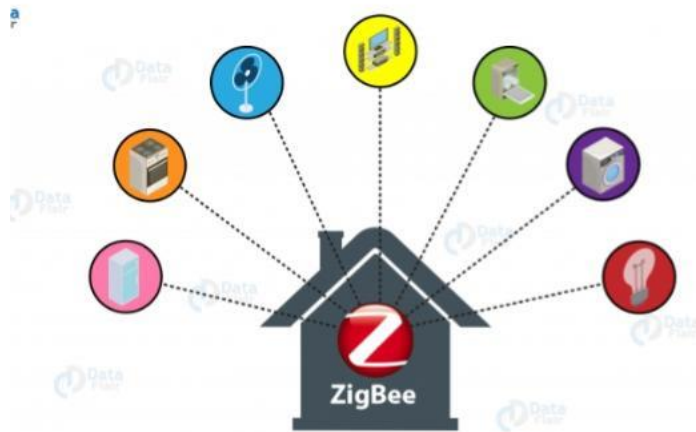
- An important short-range IoT communications Protocols / Technology. Bluetooth, which has become very important in computing and many consumer product markets. It is expected to be key for wearable products in particular, again connecting to the IoT albeit probably via a smartphone in many cases.



### Bluetooth Role In Future IoT

### b. Zigbee

- ZigBee is similar to Bluetooth and is majorly used in industrial settings. It has some significant advantages in complex systems offering low-power operation, high security, robustness and high and is well positioned to take advantage of wireless control and sensor networks in IoT applications.



IoT Technology – ZigBee

### c.Z-Wave

- Z-Wave is a low-power RF communications IoT technology that primarily design for home automation for products such as lamp controllers and sensors among many other devices.
- A Z-Wave uses a simpler protocol than some others, which can enable faster and simpler development, but the only maker of chips is Sigma Designs compared to multiple sources for other wireless technologies such as ZigBee and others.



IoT Technology – Z-Wave

#### d. Wi-Fi

- Wi-Fi connectivity is one of the most popular IoT communication protocols, often an obvious choice for many developers, especially given the availability of Wi-Fi within the home environment within LANs.
- Currently, the most common Wi-Fi standard used in homes and many businesses is 802.11n, which offers a range of hundreds of megabits per second, which is fine for file transfers but may be too power-consuming for many IoT applications.

#### e. Cellular

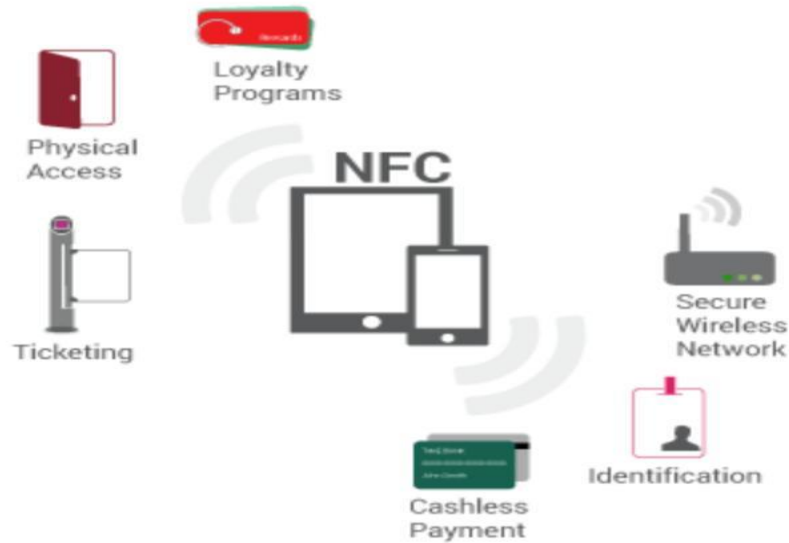
- Any IoT application that requires operation over longer distances can take advantage of GSM/3G/4G cellular communication capabilities. While cellular is clearly capable of sending high quantities of data, especially for 4G, the cost and also power consumption will be too high for many applications.
- But it can be ideal for sensor-based low-bandwidth-data projects that will send very low amounts of data over the Internet.



IoT Communication Protocols – Cellular

#### f. NFC

- NFC (Near Field Communication) is an IoT technology. It enables simple and safe communications between electronic devices, and specifically for smartphones, allowing consumers to perform transactions in which one does not have to be physically present.



IoT Communication Protocols – NFC

## g. LoRaWAN

- LoRaWAN is one of popular IoT Technology, targets wide-area network (WAN) applications. The LoRaWAN design to provide low-power WANs with features specifically needed to support low-cost mobile secure communication in IoT, smart city, and industrial applications



IoT Technology – LoRaWAN