**What is the history of IOT?**

First long distances communications were using wires like the well-known morse code telegraph.

But IOT implies the use of wireless communications. This type of communication started with first radio communication in 1893.

All the connected devices can be considered as predecessors of IOT. Wireless system for collecting data or remotely do actions existed since the 70’s. But they worked in closed networks and were not connected to the internet.

The first use of the word IOT was in 1999 by Kevin Ashton. He used RFID chips to optimize the supply chain of lipsticks. This technology is now widely used in keys for buildings doors. A evolution of this tech know as NFC allow to easily transfer information to smartphones for example.

4 factors had led to the massive increasement of connected objects.

-First Internet has a big advantage; it provides low-cost and High-speed connectivity to longer distances.

-Secondary the adoption of IP based networking than can give an address to each object and facilitate communications between the object and internet.

-Then the increasement of computing power and the decreasement of the prices of devices allowed to store more powerful devices in a smaller space and with smaller energy consumption.

-Finally, advancements in data science. This allowed us to improve the we way process the data we collect. We use better algorithm and can find links between information more effectively

Today many sectors like automobile, health, manufacturing are using IOT in their products or services and there are billions of connected devices.

**Why IOT is so important?**

IOT will allow more human independent, automatic devices, (like automatic cars, vending machines…). It will allow production optimization like in farms or factories. But it will also be part of our all-day life with connected devices in our home.

But this creates several issues:

- First because of the number: We now have billions of devices connected to the internet. Because of this number the amount of data than can be collected and processed grows exponentially.

That create issues about how we allow this number of devices to connect and exchange data. For example the use of 4G an soon 5G are solution we used to improve the speed of communications between the object and internet.

-Another issue is about the privacy of the data. There are lots of types of IOT objects, like smartwatches, vending machines… The issue is how can we be sure of the privacy of the data that is used by these devices. For example, some smart watches can monitor heart rate. We don’t want anybody to have access to this information.

-This bring us the issue of security. We need to create security protocols that allows us to be sure that we have control on the object or it’s data without permission.

**Why LPWAN is so important?**

The LPWAN is a very useful type of wireless communication for connected objects.

It features 3 essentials advantages for IOT:

Long range: LPWAN technology have a range of up to 10 km. That allow a wide varies from a few kilometers in urban areas to over 10 km in rural settings. It can also enable effective data communication in previously infeasible indoor and underground locations.

Low power: When Optimized for power consumption with technology like deep sleep, LPWAN transceivers can run on small, inexpensive batteries for up to 20 years. That allow very longs working periods without the need of human physical interactions. This can be useful for captors placed in places where it’s difficult or expensive to go.

Low cost: LPWAN need simple hardware than can be implemented easily in small devices. That lower equipped devices costs. Because of the long range it also needs lower infrastructure which means lower costs of building and repair.

Theses avantages makes LPWAN an effective way of communication for IOT based uses

LPWAN may be used to create a private wireless sensor network, but it is already widely spread around many countries and it’s possible to use suppliers networks like orange.