HOTCODE

IoT - Internet of Things

Internet of Things

SMART RURAL PROJECT

Developed in the framework of the Smart Rural 21 project in support of Alsunga

European Commission

Internet of Things

https://eu.mouser.com/applications/stm32l4-kit-iot-node-integrating-google-cloud/

- The Internet of Things (IoT) is a set of devices connected to the Internet that can store and exchange data about a user or environment without human intervention.
- A device or “Thing” can be any electronic device with software and sensors. For example, smart refrigerators, smart air conditioners, home lighting, security systems or even a person with a heart monitor or car.

Why the Internet of Things

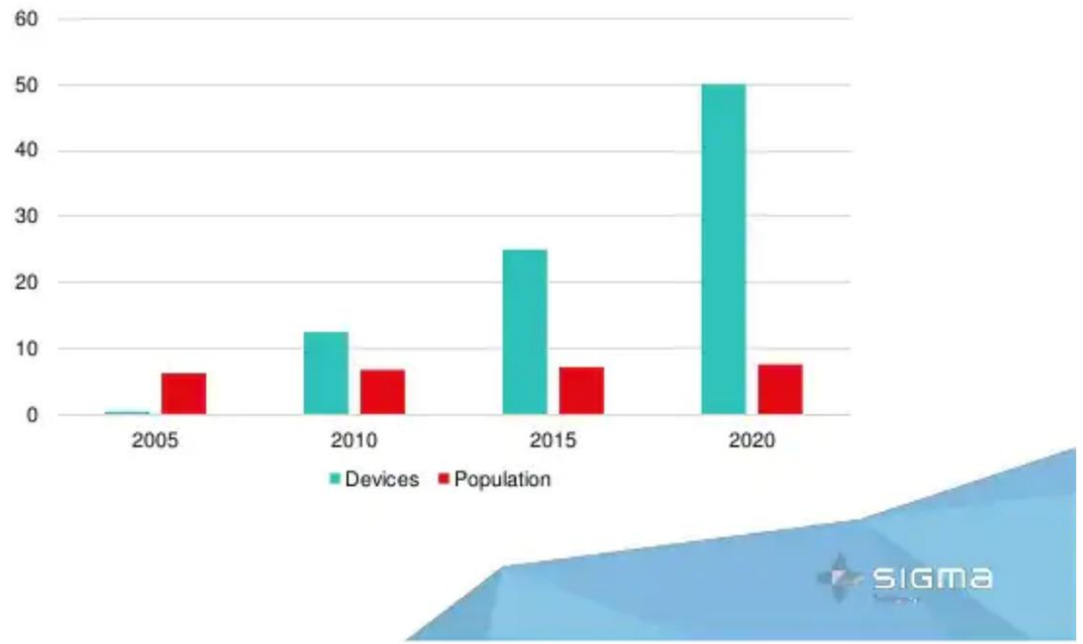
- Because we are lazy
- We want to automate everything
- We want to control everything remotely
- We want to see data in real time

ABOUT THE EQUIPMENT

- Sensors are installed in all devices that collect data in real time

- Each device has a unique identifier that also allows the devices to communicate with each other

WORLD POPULATION AND NUMBER OF CONNECTED DEVICES



IP v4 available addresses - 4,294,967,296

IP v6 addresses available - 340,282,366,920,938,463,463,374,607,431,768,211,456

• Very large amount of data being collected from devices • Where to store this amount of data? • Response in the cloud, or data centers

Okay, the data is there, but what to do with it?

The amount of data that is collected / stored from the equipment is huge. And it is difficult to process them by conventional methods.
Such data is called "Big Data".

Lots of data

Analytics

Responsible for retrieving meaningful data that is applicable

Solutions and ideas

Companies use analytical data to improve their business. For example, predict which products are better to sell in a given year, what discounts to use when used, and so on.

A little history

• The concept of the Internet of Things itself was coined by Kevelin Ashton in 1999

• The first examples, in 1982, the Wood Cola plant at Carnegie Mellon University was connected
on the Internet and reported how many colonial containers remained and the temperature.

Where to use?

http://conquest.net/features/c-2/i-55.html

For building and house automation

Environmental monitoring

Where to use?

https://medipense.com/iot-security-and-medical-devices/

In medicine and the health sector

For example, for smart patient transport

Where to use?

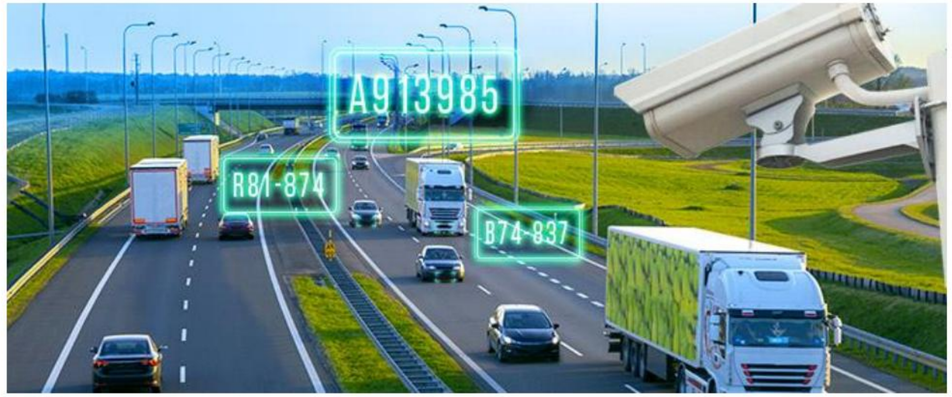
For smart production

https://www.sensrtrx.com/how-is-iot-useful-in-manufacturing/

For smart energy management

https://cleantechrising.com/

What skin?



The camera can monitor the situation on the road, congestion, accidents, weather conditions, speed and check whether the vehicle is safe in traffic. As well as in case of theft, keep track of how the stolen car has moved. If such cameras are networked and communicate with each other and send data to a central computer, such a service can create the best routes in the city, avoiding congestion, accidents, and so on.

Challenging

- Understand complex environments and deliver meaningful data to the cloud
- Connection, wireless internet (4G) or WiFi is not available everywhere
- Energy, equipment is designed to run continuously, so the challenge of creating equipment that consumes after less energy possible
- Security, please note that the device must be able to detect unauthorized activities related to our privacy
- The complexity of IoT equipment should be able to be developed by ordinary programmers, not just experts
- Clouds with functionality designed specifically for IoT equipment and data

Conclusions

- While the concept of IoT is complex, it brings with it both risks and challenges. The technology is relatively new and its humanity is still trying to understand.

- IoT can help innovate, which in turn can generate new business ideas that help transform business, our lives and the world. in which we live

What is happening to us in Latvia?

• Even here, in Engure, such a miracle is created!

What is it?

What is happening to us in Latvia?

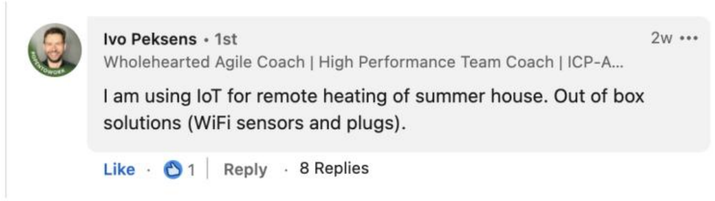
- Even here, in Engure, such a miracle is created!

The device measures
sea temperature above water
temperature at a depth of 1m
water ph level wave height and
strength

Inside

Small computer (IoT)
Where the energy is on the battery and from the sun

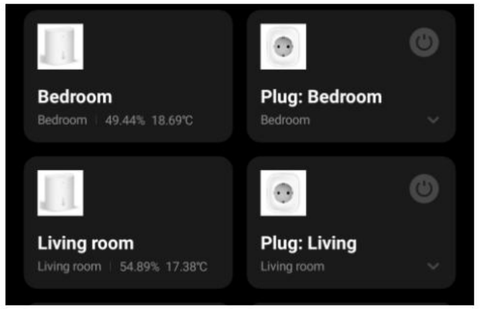
What is happening to us in Latvia?



- The acquaintance is heating his summer house

Sensors

IoT gateway



Programming panel

WiFi plugin

Closing

IoT devices are between us, we may not see them, we may not even realize that they are already in our lives and in our household - look around you - or see - your phone knows everything about you.

References

• https://www.slideshare.net/RohitMahali1/iot-presentation-73099870
• Image - https://www.pexels.com/creative-commons-images/ • Linkedin friends :) - https://www.linkedin.com/feed/update/urn:li:activity:6854670573629431808/

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