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Local sensor data, local processing with Capillary Network

Intelligent oxygen sensors ◎

Lifespan augmented body structure

Data from smart tools

Data from tire tread sensors

Data colleting carburetor
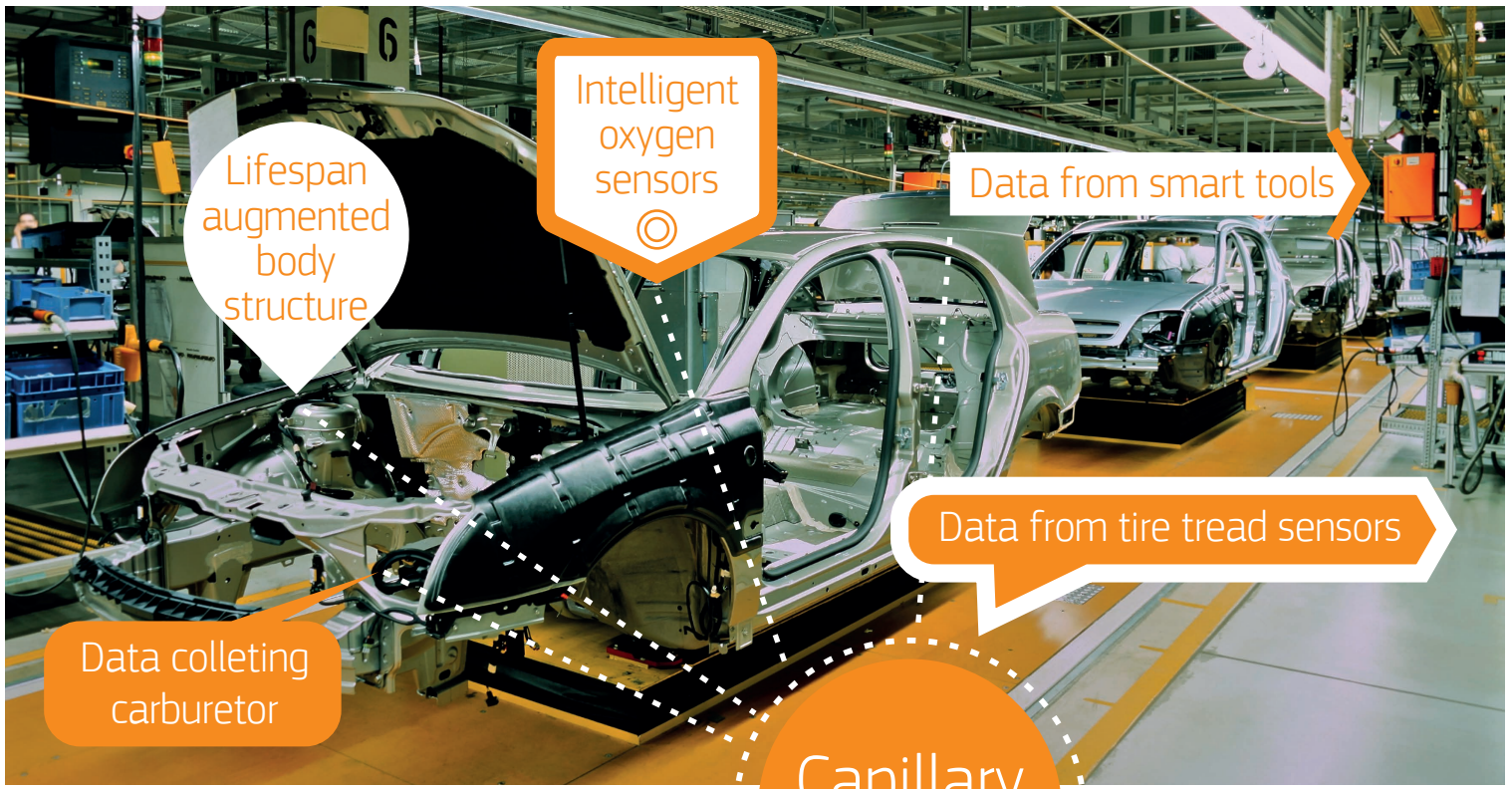
Capillary Network

Capillary Network Platform – introducing connectivity between sensor and cellular networks

Computers in modern cars tell you when the maintenance is due, but nobody knows when the gearbox is about to break. What if you car would inform you when it is going to need service and check from the nearest repair shop that they have the needed parts so you could act before anything breaks? What if you car would tell you what to get fixed before its time for inspection? Well, it won´t be an if much longer.

In traditional industry on the other hand, there is no good way of knowing how the biggest machines are used during their life circle. Machines are not connected anywhere directly which means that no real remote control is possible. If daily usage could be recorded, it would be much easier to know exactly when a certain part is near its lifespan and should be replaced. This would certainly save money, since the machine would not break because of an old or faulty part.

Even if the big machinery in today´s IoT world would be connected directly to e.g. some cloud, the huge amount of data transfer would be immensely expensive. It would be cheaper to load the big data to

memory sticks and transfer it by foot. But not, if a Capillary Network Platform is used.

The Capillary Network Platform is a unique way to combine technologies and data within and across industries. It offers a smart way to process data locally and deliver necessary data to the cloud for offline analytics.

By using the Capillary Network to connect the industrial processes, the lifecycle of the product or service manufactured can be remotely optimised and diagnosed. The Capillary Network Platform can guarantee a small delay between control and adjustment parameters, which is necessary in industrial automation. This way the service quality can be maintained even if some data processing is done.

So far the data transfer has been seen as a "byte tube" where information is only moved from A to B. Now, with Capillary Network Platform processing can be done in the net, near its source. Thus, it is only up to us, how to exploit this ground breaking technology.

The architecture of Capillary Network Platform

- Devices connected via short-range radio technology
- Capillary Gateways providing connectivity between short-range and cellular network
- Capillary Network Function operator´s control function

- Capillary Network Management and management interface
- Virtualized Middleware in containers that can be deployed in either distributed or centralised clouds
- IoT Framework offered either by operator or independent third-party

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DIGILE Ltd., founded in 2008, helps organisations to benefit from the Internet Economy. DIGILE develops competence and tools for creating new businesses, jobs and well-being in the Finnish society. DIGILE coordinates industry-driven research programs to accelerate the development of digital services. It creates business ecosystems and opens the doors to Chinese and other international markets. Non-profit DIGILE is owned by more than 40 companies, universities and public organisations. www.digile.fi

Internet of Things

Internet of Things drives future business

- The potential for IoT is enormous as the data and number of devices connected to Internet is exponentially increasing

- The Wireless World Research Forum has predicted 7 trillion wireless devices for 7 billion people by 2020, which would amount to around a thousand devices for every human

- This will add a new dimension to the world of information and communication. Connectivity enables us to find versatile information, at all times and from everywhere

IoT challenge

The key challenge of IoT is to facilitate new, scalable, compatible and secure business models and solutions for everyday life

Project facts

50
national and international companies, organizations and universities

350
experts

€€
€ 50 m
budget

4
duration 4 years

Finnish Internet of Things program

In Finland the national IoT project aimed to address the challenges e.g. by innovating a unique bridge between cellular networks and wireless networks.

The strategically important national IoT project was focused on
- Establishing a competitive IoT ecosystem
- Creating IoT business enablers
- Improving Finland's global IoT visibility
- Impacting IoT technology evolution and standardization

Read more: www.iot.fi

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