UBIRCH

INDUSTRY 4.0
GOOD DATA SECURITY MAKES IT POSSIBLE

Protect Industrial IoT data from misuse and exploit unused potential with a unique combination of hard cryptography and blockchain technology.

IoT Data. Secured. Forever.

SECURE IOT DATA
THE KEY TO THE FUTURE OF INDUSTRY 4.0

What started in the early 1990s with the internal networking of individual machine systems has grown into highly complex IoT systems.

Today, entire production processes can be digitized. Every day, companies including those involved in the value chain, such as OEMs and suppliers, exchange millions of data packets. Industry 4.0 solutions result in productivity increases of over 20%. No wonder then that consultants Bain & Company expect to see the industrial IoT market achieve annual global revenues of 85 billion US dollars by 2020.

But many companies still shy away from investing in IoT solutions. Mainly because they lack trust in common security solutions such as TLS encryption. These only offer limited scalability and are not designed for IT architecture in which countless sensors and actuators are networked efficiently and securely across businesses. Fear of cyber-attacks and tampering with sensitive data is therefore great and has hindered development. Start-up company UBIRCH has developed a revolutionary solution that seals IoT data and provides lasting protection against misuse.

UBIRCH HAS CREATED A PARADIGM SHIFT – AND A NEW LEVEL OF SECURITY

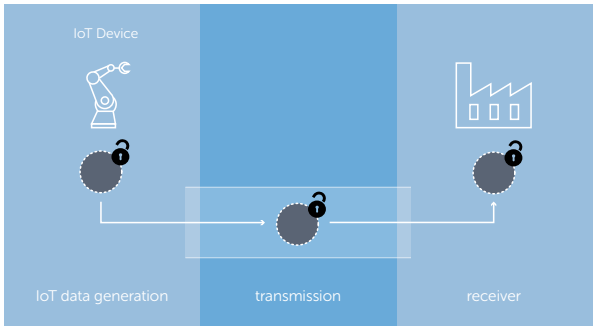
Unlike conventional TLS encryption along the transmission path, UBIRCH's solution additionally seals each data packet. This represents a paradigm shift made possible by a ground-breaking combination of hard cryptography and blockchain technology.

Here's how it works: Every data packet that leaves an industrial IoT device is cryptographically signed within milliseconds and chained to its predecessor. This is done using a private key that was generated on the device and never leaves it. This signature ensures that the data cannot be changed. On receipt of the data and at each additional processing step, the corresponding public key is used to check whether the data packet is unchanged and from which device it originates. Finally, the UBIRCH backend anchors the data packets in a combination of a private and a public blockchain to ensure trustworthy timestamps and sequentiality. Implementation works like this: Ubirch provides you with a small firmware protocol that is integrated into your machine's control system and ensures that data is sealed there immediately before dispatch. The UBIRCH Cloud then verifies the data and forwards it to other systems. A small verification component can confirm the authenticity of incoming data from your customers - no matter how far away they are.

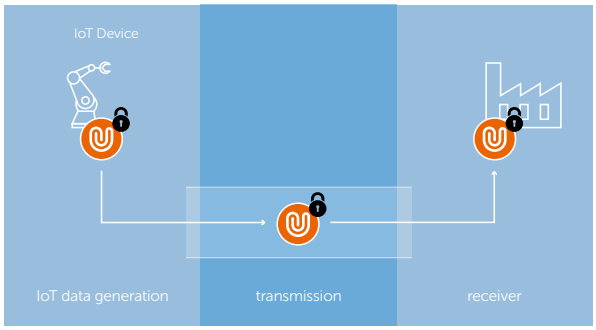
UBIRCH end-to-end security ensures company IoT data ...

- cannot be manipulated without detection
- cannot be deleted without detection
- comes from the right sender
- is sent at the right time
- is in the right order

Unrivalled security: UBIRCH already backs up data on the IoT device



Conventional TLS encryption only protects IoT devices and transmission paths. The data itself can be hacked and tampered with.



UBIRCH's revolutionary end-to-end encryption ensures every single data packet is protected with hard cryptography and blockchain technology. Tampering is impossible. Even retrospectively.

END-TO-END SECURED IOT DATA MORE EFFICIENT – AND ENABLES

When it comes to digital transformation, numerous application scenarios
But only UBIRCH offers legal protection against cyber-attacks.

EXAMPLE: »ELIMINATION OF CHECKS«

Where several companies are involved in a production process, measurement processes often need to be completed multiple times, for example when goods are received or shipped. But once data has been collected and stored securely in the blockchain, these checks are no longer necessary, and processes can be streamlined. In addition, the sealed data can be used to provide legally secure information about the identity and origin of a component or to store production-critical information in a tamperproof manner. The benefit is greatly enhanced added value for your production equipment.

EXAMPLE: »MACHINE AS A SERVICE«

»Machine as a Service« is the smart alternative to selling high-value machines. Instead of making a purchase, customers simply pay to use the machine. But for this new digital business model to work, machine data such as mileage or materials used must be tamperproof and documented in a legally secure manner. UBIRCH makes this possible.

EXAMPLE: »PREDICTIVE MAINTENANCE«

In the »old world«, production facilities were maintained at predefined intervals. Mostly earlier than necessary or, if done later, then generally after a breakdown. Predictive maintenance, on the other hand, records machine data such as temperature, mileage or vibration at different points in order to determine the ideal time for maintenance. Machine condition rather than fixed maintenance intervals determines when maintenance is necessary. UBIRCH cryptographically secures this machine data making it available to authorised service providers, for example, before costly downtimes can occur.

MAKES INDUSTRIAL PROCESSES NEW BUSINESS MODELS

for manufacturing companies already exist.

EXAMPLE: »SMART ASSEMBLY«

Constituent components sourced from different plants or suppliers often have manufacturing tolerances. In order to achieve a more precise assembled fit, companies sometimes invest in additional high-precision solutions to manufacture individual parts. But now there's a smart alternative: Thanks to UBIRCH, recorded and sealed product data can be used in intralogistics to match components with positive and negative tolerances. In automotive production, for example, a component carrier from plant A with a negative deviation can be perfectly compensated for by a fender with a positive deviation from plant B. The same applies to a component carrier from plant A with a negative deviation.

EXAMPLE: »DIGITAL TWIN«

The Digital Twin concept represents a high point in the digitalization of production and offers huge unexhausted potential for improvement. After all, every step along the value chain can be virtually mapped from the outset and seamlessly linked. The advantages for companies include continuously increasing efficiency throughout every production stage, lower error rates and shorter development cycles. Absolute trust in the integrity and security of the networked data is essential. And this is exactly what UBIRCH provides.

Dr. Holger Schlüter, Associate Director Internet of Things (IoT) at Lufthansa Industry Solutions

»For IIoT, it is crucial that generated data can be transported securely - even in a complex ecosystem. The UBIRCH solution looks very promising indeed.«

UBIRCH

Cumolocity IoT, Microsoft Azure, IoTa, G&D SIM cards or T-Labs blockchain technology - these are just a few of the partners UBIRCH can call to implement a solution for your business. After all, UBIRCH is not just a start-up with a revolutionary security solution, but also a network of well-known players from the IT environment.

DEVELOPED FOR YOU: OUR IOT WORKSHOP

Still not sure how your company can benefit from IoT for manufacturing or how UBIRCH can ensure your data security? Then why not take advantage of our one-day workshop? Compact, playful and specific to your business model, it will provide you with some real insights into the opportunities that the digitalization of manufacturing processes provides.

CURIOUS?

Then please don't hesitate to get in touch. We'd love to hear from you.

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