

PRESS RELEASE

Wireless Sensor Edge Intelligence

Technology stack for wireless sensor applications enables AI-based data analysis with artificial neuronal networks directly at the sensor, as well as secure end-to-end connection to the cloud

Hanover, January 2021. Countless IoT sensor applications stream raw data into the cloud to take advantage of the data processing capabilities that are available there. Aside from the security concerns, this centralized approach also has functional disadvantages in the industrial environment due to bandwidth, latency, and availability issues. A cobot voice/gesture interface for collaboration between humans and robots, quality assurance via machine vision, condition monitoring with real-time anomaly detection and automated guided vehicles (AGVs) cannot be realized with a simple sensor-to-cloud connection. Here, on-site data evaluation is required as well.

To facilitate the development of AI-based wireless sensor edge applications, SSV has developed the WSEI/154A, the world's first end-to-end technology stack using an 868 MHz wireless technology that is compliant with IEEE802.15.4. An evaluation board with an ARM Cortex M0+ SoC and integrated sub-GHz radio transceiver as well as RIOT as embedded operating system as the sensing endpoint is included in the scope of delivery.

The numerous gateway software functions are adapted to a Debian Linux. They are complemented by pre-certified wireless hardware as solder-on module. For cloud deployment, there are various Jupyter notebooks as part of the technology stack. They support MQTT communication with the gateway, as well as neural network training with TensorFlow. The machine learning models generated in the process can be used in edge inference mode on resource-limited gateway hardware.

The WSEI/154A allows OEMs to implement high-quality data-based solutions with wireless sensors, various communication protocols, machine learning, PKI-based cybersecurity including authentication, and secure over-the-air (OTA) software updates all the way to the sensor, without having to first build up in-depth specialized knowledge in the individual subject areas.

The WSEI/154A technology stack will be available as of the end of March 2021. To support OEMs with the integration into their own products and solutions, SSV also offers various customizing services as well as on-demand webinars in German and English.

The SSV Software Systems GmbH:

The SSV Software Systems GmbH was founded in Hanover in 1981 as a development service provider for microprocessor applications in logistics and automation. Since the beginning of the 1990s, the company has been developing and producing its own hardware modules and systems for industrial use. The application focus is in the area of industrial M2M and IoT communication. The latest developments include complete solution modules for real-time data analysis via machine learning, complete wireless sensor network applications for predictive maintenance and condition-based monitoring, a soft sensor engineering process and remote maintenance gateways with various functions and communication interfaces.

For further questions please refer to:

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You can find the corresponding images for this press release on our website www.ssv-embedded.de.

Image material:

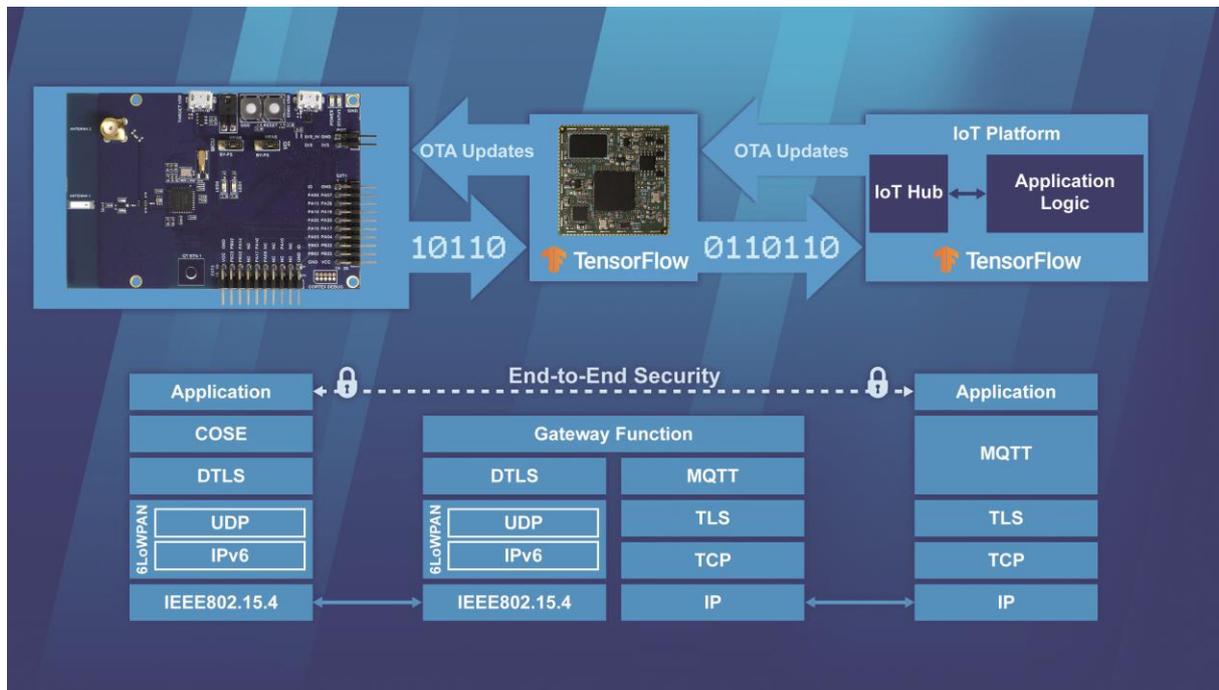


Image Caption:

SSV's WSEI/154A Wireless Sensor Edge Intelligence technology stack enables the realization of high-value data-based solutions with IEEE802.15.4-868 MHz wireless sensors, edge inference via TensorFlow machine learning models, PKI-based cybersecurity including authentication and secure software and model updates over-the-air (OTA), without having to first build up in-depth specialized knowledge in the individual subject areas.