/SMARTEDGE AGILE

Product Brief

End to end solution to deliver AI and Security at the edge

The /SMARTEDGE AGILE meta-sensor, together with the Octonion IoT platform, form part of an end to end IoT solution that delivers AI and Security at the Edge. This hardware and software combination introduces a new Meta sensing category in the IoT market. The key advantage of this eco-system is to use the same solution for all stages of the IoT project – from proof of concept up to Industrialization.

Octonion **accelerates delivery of industrialized IoT solutions**, with higher performance, security and scalability, while significantly reducing costs.

The /SMARTEDGE AGILE meta-sensor is **CE/FCC certified**, and both hardware and software can be used directly for industrialized IoT projects. The hardware is designed to allow a wide range of **sensor and connectivity boards**.

The platform is **optimized for Microsoft Azure Cloud** but can run on any public or private Cloud services. Best in class network security has been built in, based on **TLS security with ECC certificate** protecting you, your network, and your reputation from attack. Octonion is proven, robust and modular for faster and easier development and deployment.

With this hardware and software combo, you can **launch IoT projects three times faster** than with other platforms.

- 3 times faster delivery
- AI at the Edge
- Proven and mature AI
- Gateway agnostic
- Cloud agnostic
- Edge to Cloud security

Use the same solution for all stages of your IoT project
Build your own device based on the Brain

POC	POV	PILOT	PROD
Demonstrate to others that the concept work using Smartedge Agile.	Scale the concept to prove the business model with a ref design if needed.	Run your pilot to refine any operational issues using the Brain of Smartedge Agile.	Roll out your project with the necessary hardware (Brain STM32 based) and what you built so far.

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Octonion

ECOSYSTEM AND ENABLEMENT

- Octonion is your web-based development and visualization environment which is used from Edge to Cloud, and throughout your entire IoT project
- Build all kinds of projects from scratch, and easily create attractive user dashboards with widgets based project
- Easily export your data for BI
- Be confident that your data is yours

SOFTWARE AND TOOLS

- Octonion software license included
- Six months of Microsoft Azure consumption included to get you started
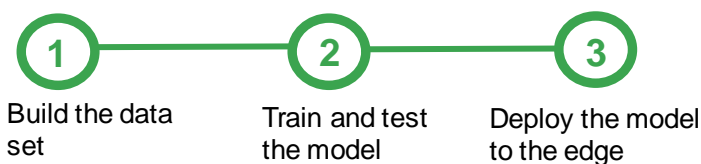
FLEXIBLE AND SCALABLE

- Built in sensors: 3-axis accelerometer, pressure, temperature, microphone, proximity, light, humidity,
- magnetometer and gyroscope
- Expandable through USB port
- Scale your project from one sensor, to very many sensors

AI STUDIO

- Zero coding approach to train and deploy AI models
- Motion and Vibration AI included
- Edge computing: AI rule and set of data rules at edge level

AI AT THE EDGE

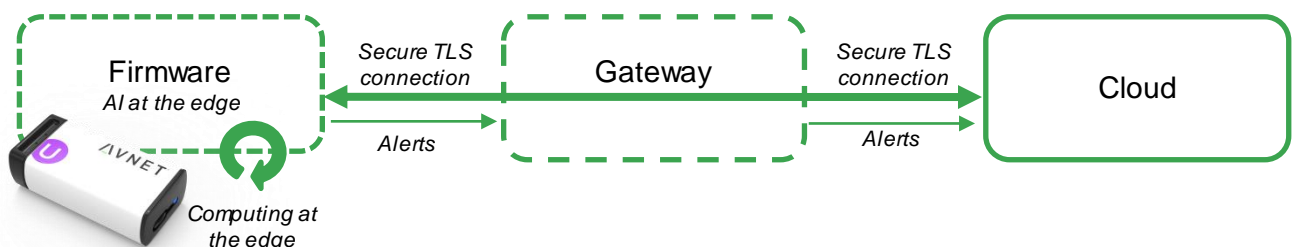AI is running at the edge, saving energy, bandwidth and time to react

1 Build the data set — **2** Train and test the model — **3** Deploy the model to the edge

EXAMPLE APPLICATIONS

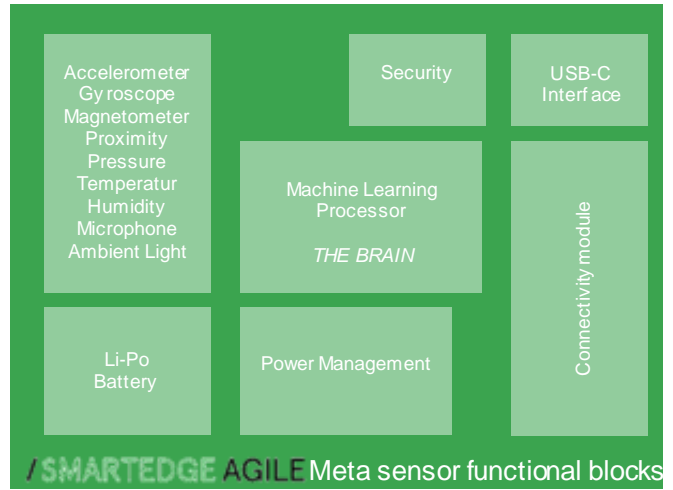| MARKET	Use case
Utilities, Plant, Machinery	Predictive maintenance of pumps, generators and other remote mechanical systems.
Elevators, Escalators, Travelators	Predictive maintenance, usage patterns and demand planning
Livestock Management	Monitoring of complex motion, as well as temperature, humidity and other parameters can provide livestock wellbeing insights

META SENSING AND PORTAL FEATURES

META SENSING FEATURES	OCTONION PORTAL FEATURES
Real time visualisation of Agile data: • Acceleration • Air humidity • Angular velocity • Atmospheric pressure • Infrared lightness • Magnetic field • Proximity Distance • Sound Level • Temperature • Visible lightness • World acceleration	Device management (firmware updates) and Device provisioning
Real time visualisation of Agile State • Motion detected (history of motion, last detected motion, count of detected motions,…) • Alerts from rules • Battery State	Dashboard with widget display of data (adding, removing, resizing, moving of widgets)
Data export of recorded data session in csv	Smart app: change Portal theme and logo
	API to read data from Portal

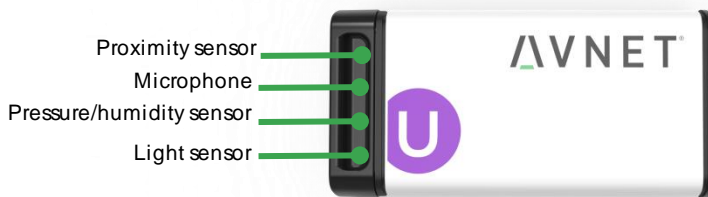## End to end IoT solution to deliver AI and security at the edge

Firmware — *AI at the edge* — *Computing at the edge*
Secure TLS connection / *Alerts*
Gateway
Secure TLS connection / *Alerts*
Cloud

SIZE	32mm x17mm x 64mm (w x h l)
WEIGHT	29g
OPERATING TEMPERATURE RANGE	-20°C to +60° C
POWER SUPPLY	Powered by USB connector, or internal rechargeable Li-Poly battery
BATTERY CAPACITY	260mAh
ACCELERO/GYRO: **Device** **Magnetic dynamic range** **Sensitivity**	STMicroelectronics LSM6DSLTR ±2/±4/±8/±16 g full scale ±125/±250/±500/±1000/±2000 degree per second (dps) full scale
MAGNETOMETER **Device** **Magnetic dynamic range** **Sensitivity**	STMicroelectronics LIS2MDLTR ±50 Gauss 1.5 mGauss/LSB ± 7%
PRESSURE **Device** **Absolute pressure range** **Pressure output data rate** **Pressure accuracy**	STMicroelectronics LPS22HBTR 260 to 1260 hPa 75 readings per second ±0.1 hPa after calibration, or ±1 hPa without calibration
TEMPERATURE/HUMIDITY **Device** **Relative humidity range** **Relative humidity accuracy** **Temperature measurement range** **Temperature accuracy**	STMicroelectronics HTS221TR 0 to 100% rH ± 3.5% rH inside 20 to +80% rH range Within Agile operating temperature range ± 0.5 °C,15 to + 40 °C
MEMS MICROPHONE **Device** **Acoustic overload point** **Signal-to-noise ratio:** **Sensitivity:**	STMicroelectronics MP34DT01TR-M 120 dBSPL 61 dB − 26 dBFS
AMBIENT LIGHT SENSOR **Device** **Channels** **Irradiance responsivity (integration time = 400ms, ALS gain = 16x)**	ams TSL2540 2 channels; visible and IR light - Visible light (2700K): 363 counts (typ) - IR light (950nm): 352 counts (typ)
TIME OF FLIGHT SENSOR **Device** **Distance measuring range** **Maximum measurement rate** **Typical full field-of-view**	STMicroelectronics VL53L1CXV0FY/1 0 to 400 cm Up to 50 measurements/sec 27° field of view

Accelerometer
Gyroscope
Magnetometer
Proximity
Pressure
Temperatur
Humidity
Microphone
Ambient Light

Security

USB-C Interface

Machine Learning Processor

THE BRAIN

Connectivity module

Li-Po Battery

Power Management

/SMARTEDGE AGILE Meta sensor functional blocks

/SMARTEDGE AGILE HIGHLIGHTS

FEATURES	BENEFITS
Agile meta sensor	Low power meta-sensor is designed to be located at the Edge of an IoT network. It has 9 built-in sensors types (see list below), which are used both to learn and build a model, and for ongoing monitoring. Default back-end connectivity is BLE 5, with other connecting options, including LoRaWAN and cellular, planned.
Integrated BLE V5 wireless radio	For flexible, wireless communication via a gateway to the Cloud.
Internal rechargeable Li-Poly battery	For durable, autonomous operation.
Secure element	Best-in-class security, securing edge to cloud, included out-of-the-box

Proximity sensor
Microphone
Pressure/humidity sensor
Light sensor

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ORDERING INFORMATION

For more product information, please visit :
www.element14.com/smartedgeagile

Avnet part number: AVTSEA01a-M01a-S01a-C00

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