

/SMARTEDGE AGILE

Product Brief

Avnet part number: AVTSEA01a-M01a-S01a-C00

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

The /SMARTEDGE AGILE meta-sensor, together with the Brainium 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.

Brainium **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. Brainium 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

Demonstrate to others that the concept work using Smartedge Agile.

POV

Scale the concept to prove the business model with a ref design if needed.

PILOT

Run your pilot to refine any operational issues using the Brain of Smartedge Agile.

PROD

Roll out your project with the necessary hardware (Brainium STM32 based) and what you built so far.

ECOSYSTEM AND ENABLEMENT

- Brainium 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

- Brainium software license included
- Six months of Microsoft Azure consumption included to get you started

FLEXIBLE AND SCALABLE

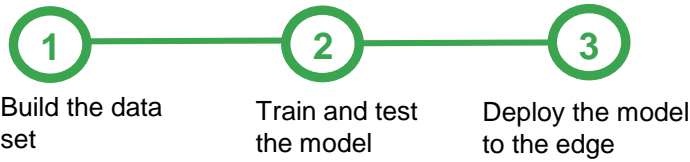
- Built in sensors: 3-axis accelerometer, pressure, temperature, microphone, proximity, light, humidity, magnetometer and gyroscope
- Expandable through USB port
- Scale your project from one sensor, to very many sensors

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



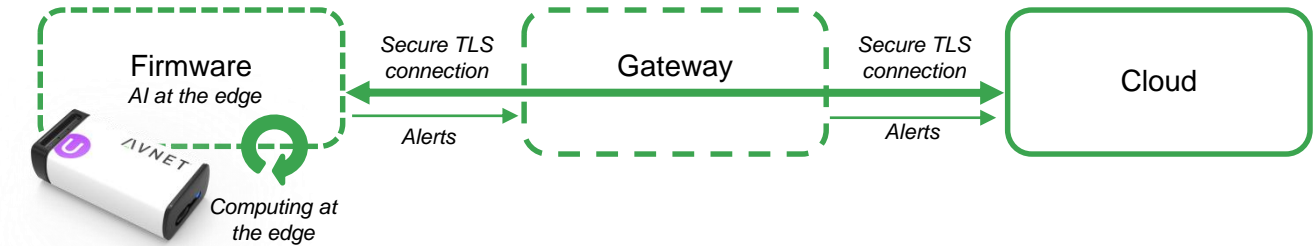
EXAMPLE APPLICATIONS

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

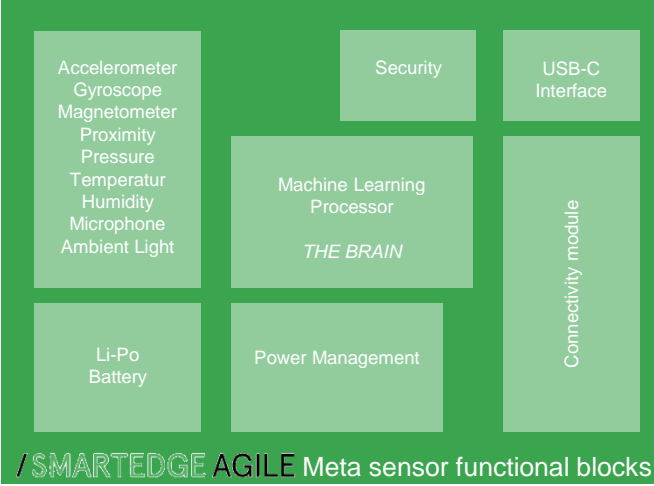
META SENSING AND PORTAL FEATURES

META SENSING FEATURES	BRAINIUM PORTAL FEATURES
Real time visualisation of Agile data: <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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

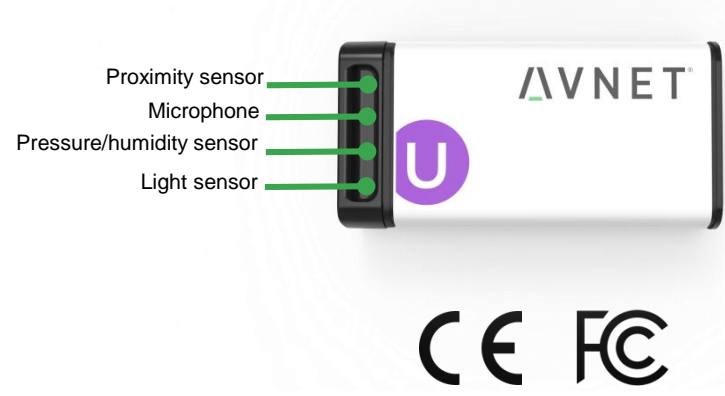


SIZE	32mm x17mm x 64mm (w x h l)
WEIGHT	29g
OPERATING TEMPERATURE RANGE	-20°C to +60° C
POWER SUPPLY	Powered by USB connector, or internal rechargeable Li-Poly battery
BATTERY CAPACITY	260mAh
ACCELERO/GYRO:	
Device	STMicroelectronics LSM6DSLTR
Magnetic dynamic range	±2/±4/±8/±16 g full scale
Sensitivity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



/ 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



ORDERING INFORMATION

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

Avnet part number: AVTSEA01a-M01a-S01a-C00