

# Samsung ARTIK Overview

## Easy, interoperable, secure IoT



# Samsung ARTIK™ IoT Platform

## Enterprise-grade technology for your IoT business



### End-to-end security

Integrated security features span ARTIK cloud, modules, and software



### Reduces development time, costs, and risks

Integrated, fully-tested, production-ready, secure components speed time-to-market, minimize the need for in-house IoT expertise



### Open and interoperable

No lock-in; ARTIK works with existing products and infrastructure to share information, orchestrate complex interactions, and support business growth



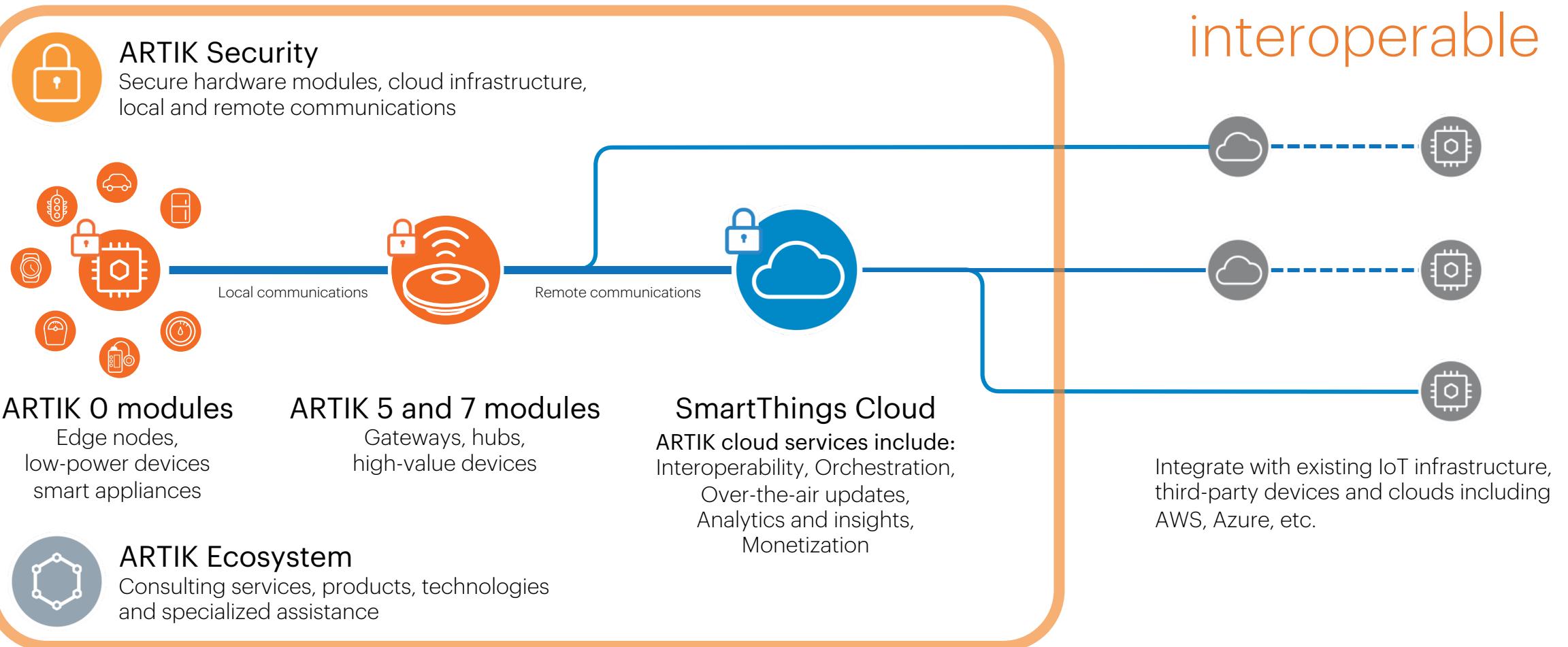
### Serviceability

Provision, manage, and update devices and services over-the-air and on-the-fly throughout the product lifespan

# Samsung ARTIK™ IoT Platform

End-to-end integration...

...Open and  
interoperable



# Samsung ARTIK module product family

## ARTIK 0 Modules

Edge nodes, battery-powered devices, intelligent appliances



020

030

053

055s

053s



15 x 12.9 x 2

15 x 12.9 x 2

15 x 40 x 3.9  
5-12 VDC

15 x 26 x 3.9  
3.3 VDC

- Single, dual Cortex-M, Cortex-R CPUs
- Internal RAM/Flash
- RTOS based OS

## ARTIK 5, and 7 Modules

Hubs and gateways



520

530

710

530s

710s

530s\_1G



30 x 25 x 3.4

36 x 49 x 3.4

36 x 49 x 3.4

- Dual, quad, up to octa-core Cortex-A53 CPUs
- Hardware Secure Element, Edge Node Manager, Mobile Apps
- Linux based platforms

# Samsung ARTIK™ Edge-node Portfolio

	<b>020</b>	<b>030</b>	<b>053</b>	<b>053s</b>	<b>055s</b>
<b>Processor</b>	Cortex M4 @ 40MHz	Cortex M4 @ 40MHz	Cortex R4 @ 320MHz	Cortex R4 @ 320MHz	Cortex R4 @ 320MHz
<b>Memory</b>	RAM	32 KB	32 KB	1.4 MB	1.4 MB
	Flash	256 KB	256 KB	8 MB	8 MB
<b>Connectivity</b>	BLE 4.2	ZigBee / Thread	Wi-Fi 802.11 b/g/n	Wi-Fi 802.11 b/g/n	Wi-Fi 802.11 b/g/n
<b>Security</b>	Per device unique key & certificate		✓	✓	✓
	Key stored in HW secure element		✓	✓	✓
	PKI infrastructure		✓	✓	✓
	KMS, secure boot, secure JTAG			✓	✓
	Secure OS, Security Lib APIs, Secure Storage			✓	✓
<b>Operating Voltage</b>	3.3V	3.3V	5-12V	5-12V	3.3V
<b>Temperature Range</b>	-40° to 85°C Ambient	-40° to 85°C Ambient	-20° to 85°C Tcase	-20° to 85°C Tcase	-20° to 85°C Tcase
<b>Size (mm)</b>	15 x 12.9 x 2	15 x 12.9 x 2	15 x 40 x 3.9	15 x 40 x 3.9	15 x 26 x 3.9

# Samsung ARTIK™ Gateway Portfolio

	<b>520</b>	<b>530</b>	<b>710</b>	<b>530s</b>	<b>710s</b>
<b>Processor</b>	CPU	Dual Cortex-A7 @ 1.0 GHz	Quad Cortex-A9 @ 1.2 GHz	Octa Cortex-A53 @ 1.4 GHz	Quad Cortex-A9 @ 1.2 GHz
	GPU	3D graphics accelerator	3D graphics accelerator	3D graphics accelerator	3D graphics accelerator
<b>Memory</b>	RAM	512 MB	512 MB	1 GB	512 MB/1 GB
	Flash	4 GB	4 GB	4 GB	4 GB
<b>Connectivity</b>	Wi-Fi	802.11 b/g/n/ac	802.11 b/g/n	802.11 a/b/g/n	802.11 b/g/n
	Bluetooth	4.x	4.x	4.x	4.x
	Zigbee, Thread	✓	✓	✓	✓
	Ethernet		1 channel (10/100/1000 x1)	1 channel (10/100/1000 x1)	1 channel (10/100/1000 x1)
	CAN				
<b>Temperature Range (T<sub>J</sub>)</b>	-25° to 85° C	-25° to 85° C	0° to 70° C	-25° to 85° C	0° to 70° C
<b>Size (mm)</b>	30 x 25 x 3.4	36 x 49 x 3.4	36 x 49 x 3.4	36 x 49 x 3.4	36 x 49 x 3.4

# Samsung ARTIK™ cloud services on SmartThings cloud

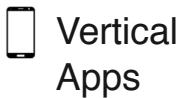
## Connect devices, connect clouds, put them all to work

Serviceability features and unparalleled interoperability for ARTIK modules and third-party devices and clouds

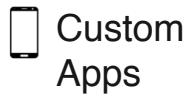
- Device provisioning, account management, and over-the-air updates
- Data management, normalization, analytics, and visualization
- Access Samsung consumer ecosystem; 50+ built-in and verified Samsung cloud connectors, 100's available from ARTIK community
- Sophisticated orchestration engine to define one-to-many or many-to-many actions between connected devices and data sources



# Introducing ARTIK Cloud: Open data exchange platform for IoT



Vertical  
Apps



Customer  
Apps



Predictive Apps



Partner Services

## Developer Tools

Universal Data Access APIs &  
SDKs

Cross-device  
Rules Engine

Visualization

## Core

Identity and Permissions

Message and Action  
Processing

Data Normalization &  
Analytics

Data Store

Device Manifests

## Data Ingestion Layer

Multi Protocol Device  
Connectors

Cloud Connectors

Security



# Device Ingested for Interoperability – Device Manifest

- Device manifest records the capabilities of the device type for other users and devices
- The fields and actions are used to describe the data, a device type produce and accepts
- A Device Type is created

ARTIK Cloud Light: Simple Manifest [Switch to Advanced](#)

The active manifest describes the capabilities of your device type to other users and devices on the SAMI platform. Use fields and actions to describe the data that this device type produces and accepts. [LEARN MORE »](#)

Device Fields	Device Actions	Activate Manifest
Describe fields for each piece of data produced by this device.	Describe actions that this device is capable of receiving.	Publish this device manifest on the SAMI platform.

**FIELD NAME** [BROWSE STANDARD FIELDS»](#)

temp [STANDARD](#) [TEMPERATURE](#)

Is Collection *(if the field contains an array)*

**DATA TYPE**

Double

**UNIT OF MEASUREMENT** [BROWSE »](#)

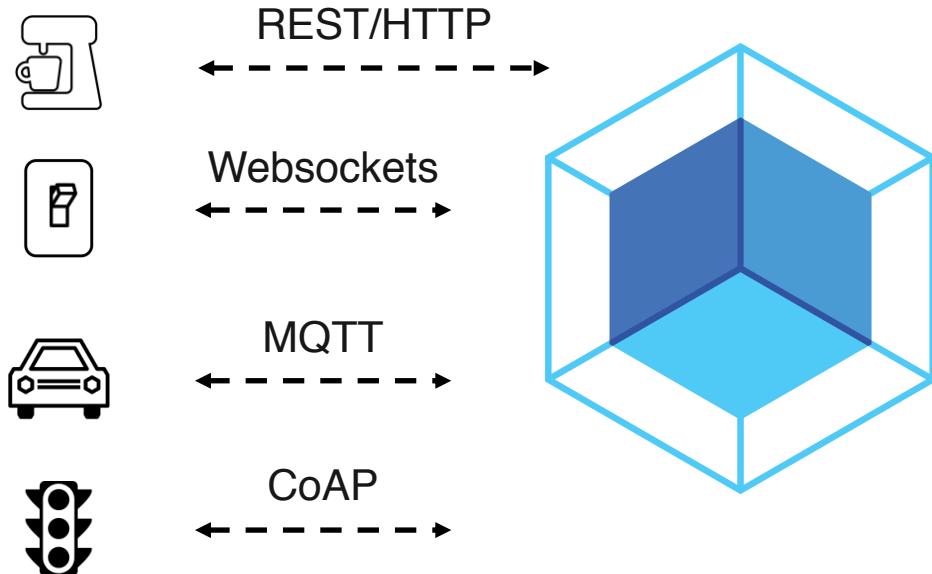
CELSIUS

**DESCRIPTION**

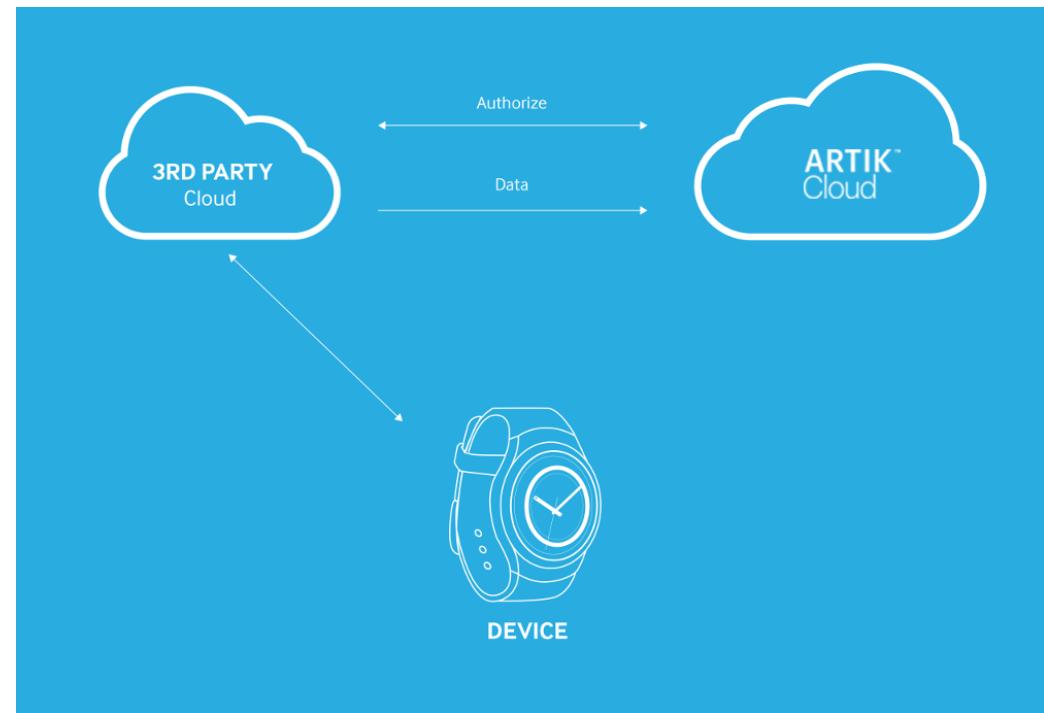
Current Temperature of the environment

# Connect with Devices

## Communicate with physical devices



## Communicate with device clouds



# Samsung ARTIK™ cloud connectors

## Expanded IoT solutions

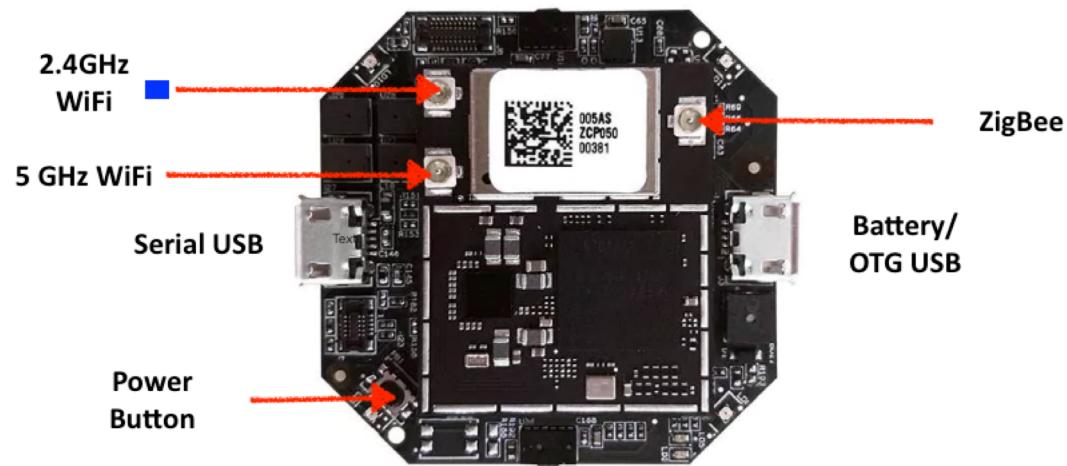
- Connect to Samsung and third-party devices, clouds, and apps
- 50+ built-in and verified by Samsung
- Open technology: 100's available from ARTIK community



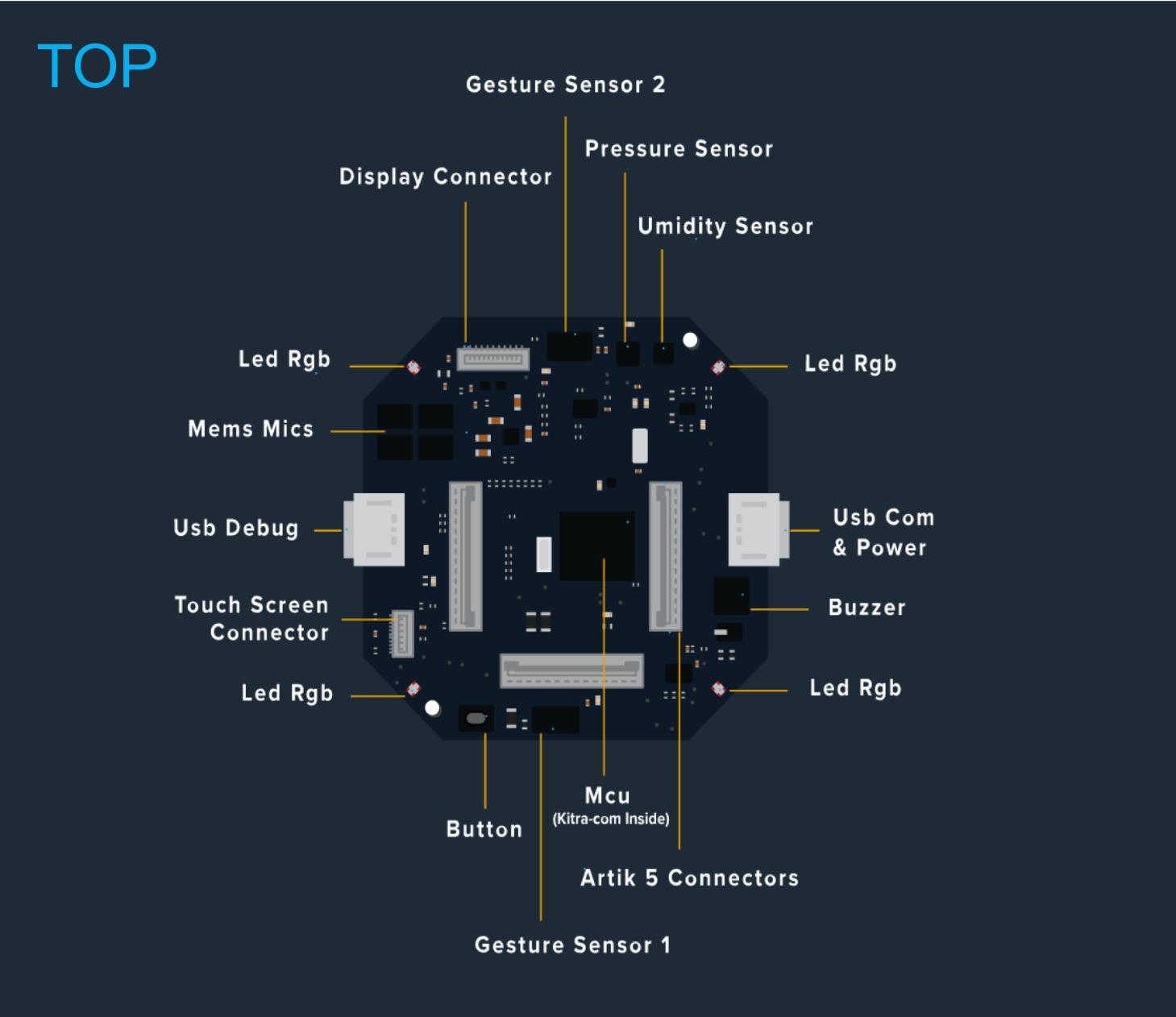
# Kitra520 Hardware



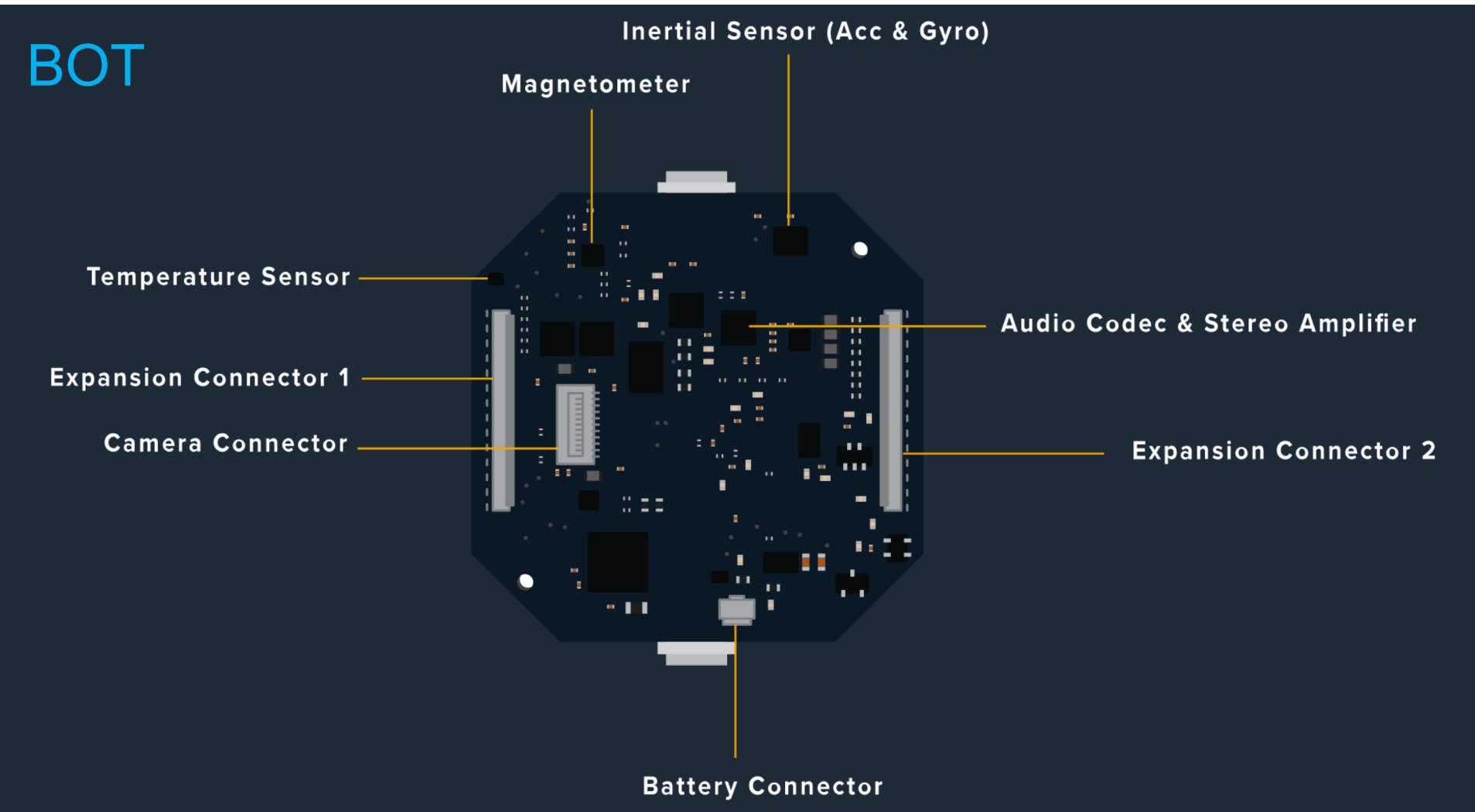
# Kitra520



# TOP

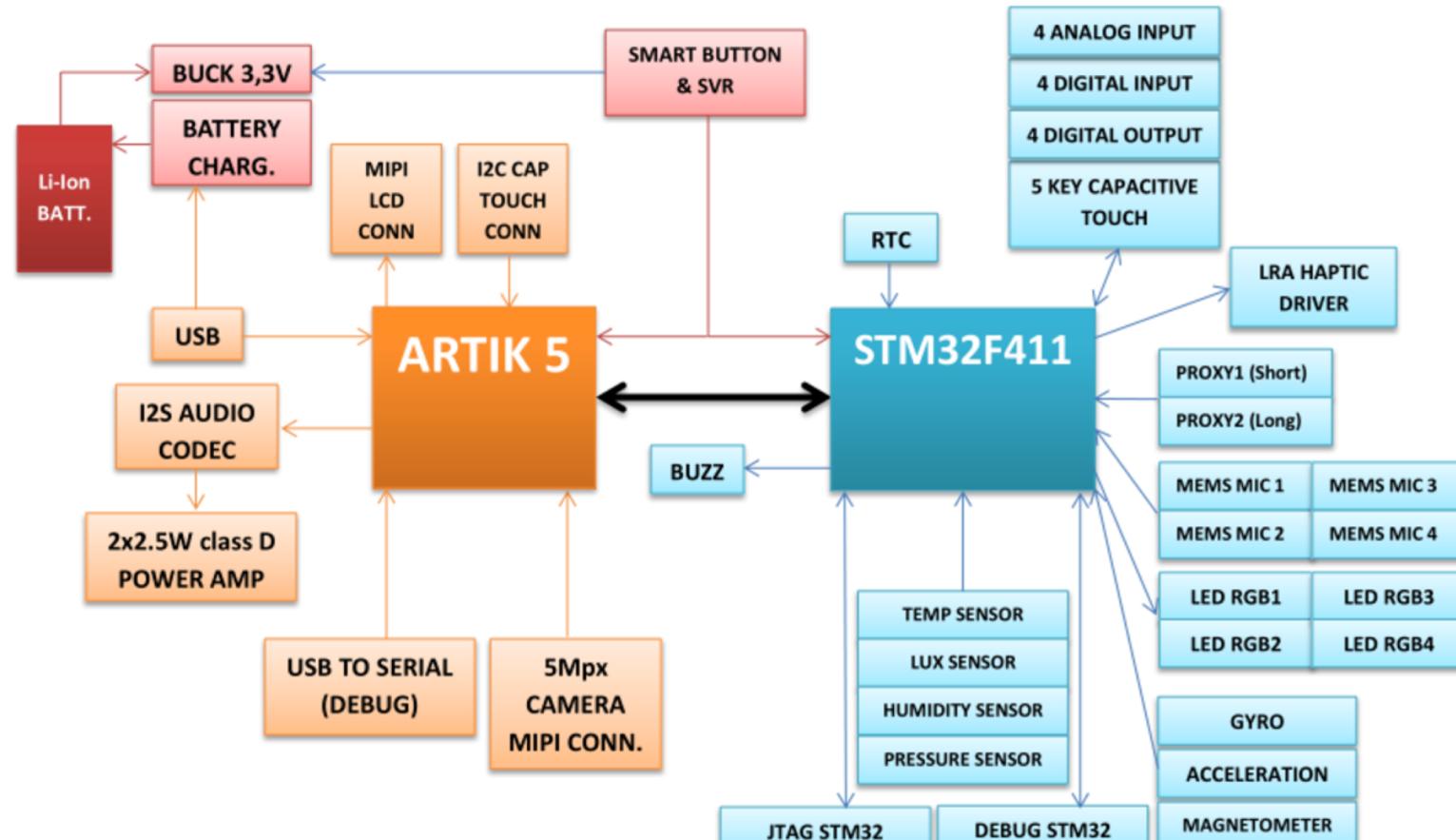


**BOT**



# Block diagram KITRA 520

[www.rushup.tech](http://www.rushup.tech)



# Power On, Power Off Sequence

## Power On

- Hold the power button until you hear 2 beeps
- Connect the serial USB to your host machine, and launch serial console to access the target

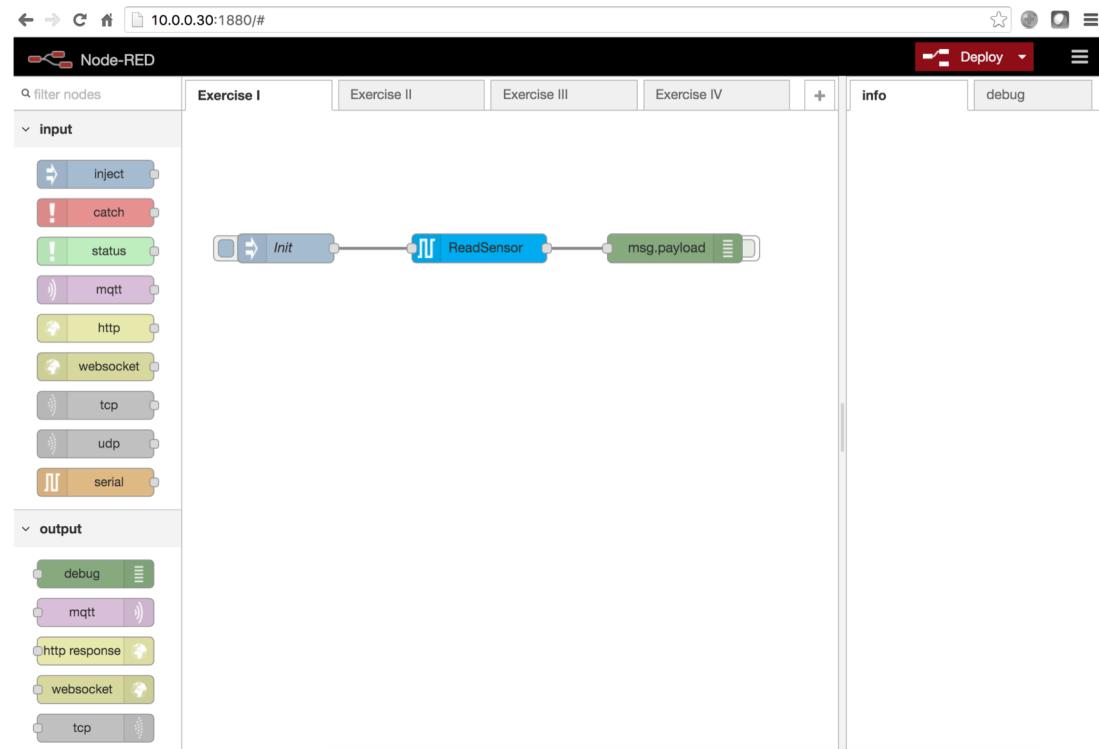
## Power Off

- From your serial console, type ‘shutdown now’
- Hold the power button until you hear a long beep

# Node-RED

# Node-RED

- A visual tool for wiring the internet of things, based on Node.js
- Utilizes flow programming technique
- Construct program flow by drag-and-drop
- You have the option not to write code



# Node-RED Community

- Growing number of Node-RED nodes are being developed
- Cloud based solutions: IBM Bluemix