



JUUL Labs

CASE STUDY

Product development for Industrial IoT

- Industry 4.0
- Innovative solution
- Control of testing operation
- Remote monitoring

www.zerynth.com





SEE HOW JUUL LABS DEVELOPED A CONTROLLING SYSTEM TO TEST PRODUCTS AND DETECT DEFECTS USING ZERYNTH'S FIRMWARE / HARDWARE

<1

Month
Implementation

10

Sensors used at the
same time to acquire
data

12 ms

Sensor data acquisition
on timeProduzione di sigarette
elettroniche

Sigarette elettroniche

The Challenges

Correct process delegation is the foundation of any successful business. Moreover, the expertise level of the team at every stage of the process has a huge impact on the final product quality.

Juul Labs faced a similar situation. Their main challenge was to create a basic **IoT platform to produce a controlling system for testing current** and new products for defects or malfunctions.

One important criterion for this project was access to the deterministic RTOS and the ability to develop time-critical tasks in C code as needed while still having the option to write less critical portions in Python. Another requirement was to easily create new tools without additional long-code programming (e.g. easily add additional sensors and/or drivers for actuators).

Before meeting with Zerynth, Juul Labs already had experience creating custom tools, but the process was spread over several locations and had to be managed manually. For their next generation of custom tools, they required high performance, time-accurate sensor data acquisition and remote management of firmware updates.

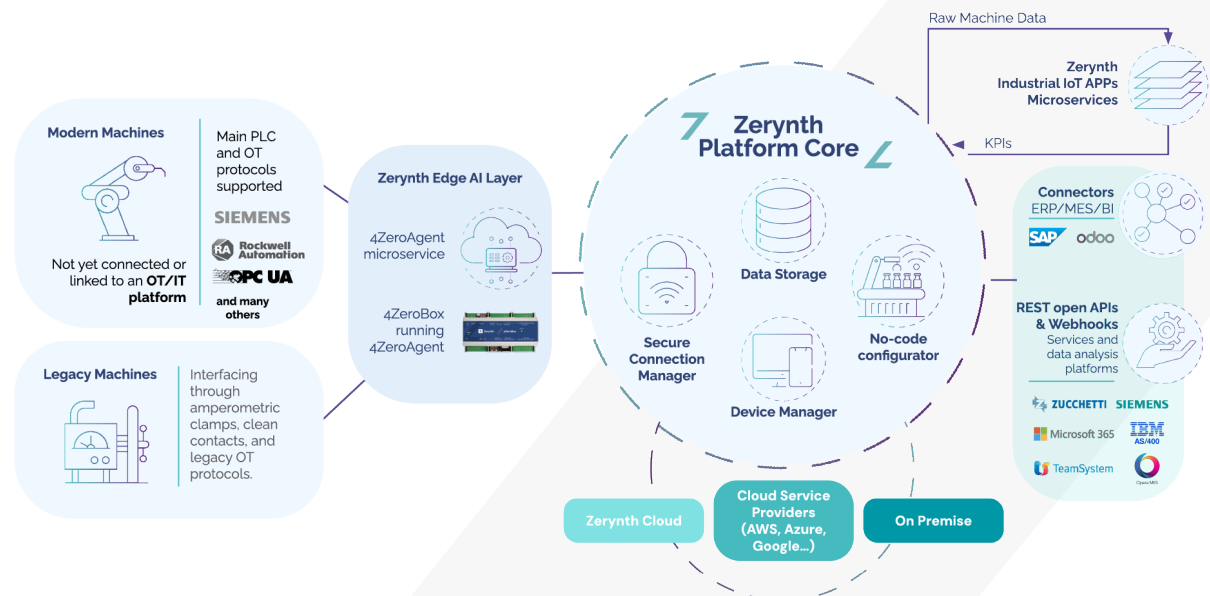


The Solution

Zerynth's team provided Juul Labs with the internal testing IoT tool that can provide deterministic/reliable timing for sensor data aggregation. This platform is based on the Zerynth environment system that was specially customized for Juul Labs.

It allows us to acquire data in a fast and easy way. Even with 10 sensors working together, the data acquisition time takes no more than 12 milliseconds.

Thanks to an ease-of-use programming language and low coding skills needed, Juul Labs can now build several tools using the same **IoT platform for developing new tools faster** and across many locations due to having the ability to perform updates via FOTA.



The Results

Increased Efficiency

100% automated firmware updates

Increased Productivity

50% faster code development cycle

Remote management

9000 km between remote firmware update control

Why did Juul choose Zerynth?

Juul Labs has successfully created a modular tool to test equipment data logs that has been accurate in terms of handling large streams of data.

Timed processes, in their custom tools, have also been very accurate. Juul Labs can now use Zerynth's expertise or contracting services to quickly develop parts of the firmware (such as drivers) so they can get running quickly with the application. Zerynth unlocked the access to the deterministic RTOS and the ability to develop tasks in C and Python.

About us

Zerynth enables companies to streamline production processes and increase the value of connected industrial products. Through a plug-and-play IoT & AI platform, we connect any industrial machine, allowing for a complete 4.0 transformation quickly, flexibly, and securely.

Founded in 2015, Zerynth has grown steadily. Today it has 40+ team members with deep IoT expertise and industry knowledge with over 150 customers across many industries: from manufacturing to agriculture to energy to logistics. Zerynth is based in Pisa, Italy, but also is active in international projects, and foresees an expansion both in EU and non-EU countries during the next three years.

GET START WITH ZERYNTH

Ready to see what Zerynth can do for your business?

LET'S TALK!

