USE CASE

Modernize Industrial HVAC Anomaly Detection and Intelligence with AWS AI and tinyML at the Edge

Use AI-driven anomaly detection to prevent costly industrial HVAC system failures before they occur

Office buildings, industrial and manufacturing facilities, and commercial living spaces rely on modern, industrial-grade HVAC systems to meet their respective heating and cooling needs. That is what makes these system and their performance critical for the business operation or tenants satisfaction.

While the aim is to provide continuous service and customer comfort in a climate-controlled environment, configuration complexities in modern equipment, as well as compatibility issues with legacy systems, can result in **costly failures and downtime**.

Monitoring the status, health, and working condition of industrial HVAC is key!

Infineon, together with its ecosystem partner Klika Tech, addresses this need. The solution combines our ultra-accurate XENSIV™ sensors, versatile XMC™ microcontrollers, and secure OPTIGA™ Trust security solutions. By working together, they feed data into a TinyML model.

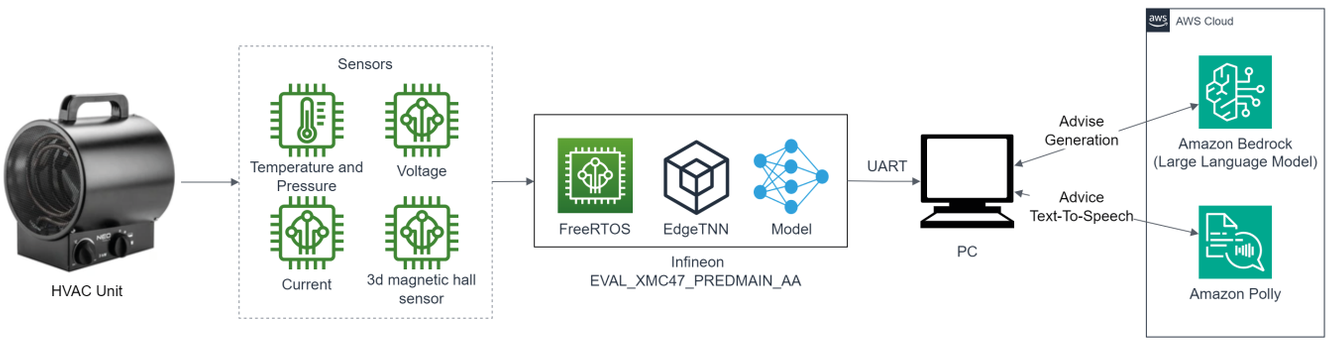
The TinyML model is designed to detect any anomalies in real time, making it an essential part of the solution. This real-time detection ability allows the system to identify and report any problems as they occur, minimizing potential downtime and damage.

Once an anomaly is detected, the system doesn't stop at just identifying the issue. It also gathers and sends relevant sensor data associated with the identified problem. This information is transmitted to a cloud-based Artificial Intelligence solution generator.

This cloud-based AI generator uses the provided data to come up with solutions providing a way forward. This way, the business operations have a comprehensive path of managing and mitigating potential issues in HVAC systems.

USE CASE

The reference architecture can help visualize how the joint solution from Klika Tech, Infineon, and AWS can be applied to industrial equipment.



Easily apply this solution to accelerate and streamline also other use cases:

- Ensure unexpected anomalies are identified before they become costly repairs
- Automated condition monitoring and failure prediction weeks in advance of actual failure
- Analyze anomaly data against baseline performance thresholds
- Increase asset availability and knowledge
- Reduce operations and maintenance costs

Identify and prioritize HVAC system and equipment anomalies in real time

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