

“Mooing” Into the 21st Century of Smart Farming and Edge AI Technology



Climate change and chronic labor shortages have propelled the farming industry to incorporate AI/IoT and edge solutions to optimize cattle health, meat production, and even boost livestock safety. The question now is: How do we protect and maintain the edge AI technology that keeps the agricultural industry thriving?

Edge AI Transforming Agricultural Landscapes

Enter the modern-day smart farmer. He has installed AI-driven cameras all around the

farmstead using recognition technology to record, detect, and monitor livestock health and their lifecycle in real-time. These cameras are connected to and powered by edge devices, enabling the farmer to make informed data-driven decisions, be alerted to, and stay ahead of crisis situations, ultimately leading to the improvement of cattle management and economic growth.

The edge devices that enable data-driven smart farming are highly safeguarded in an electrical enclosure, forming the nucleus where “ALL”

data is perpetually collected and processed 24/7, 365 days a year. It is imperative that the systems work seamlessly and uninterrupted for a high-functioning farmstead.

What Happens When Environmental Factors Contribute to Hardware Vulnerabilities?

However, in a farm environment, edge devices are subject to extreme weather changes and even prone to the abundance of insects and bugs that often fly into the electrical enclosures, resulting in blockages, software glitches, and ultimately hardware destruction.

The technical boxes are an excellent solution for external damage but give way to the internal issue of overheating, leading to an immediate operations breakdown. Once this happens, all edge AI technology and its functions come to a halt until a technician can be called in to fix the problem. But, with ever-reducing man force and far away locations of farmlands, by the time on-site technical support has been scheduled, the farmer

has already lost an exorbitant amount of time and money.

Remote Edge AI Solutions Refocused, Revolutionized, and Customized to Industry Needs

This is where [Allxon Out-Of-Band \(OOB\) technology](#) comes in to provide rapid disaster preventive measures. On top of the [Allxon swiftDR OOB Enabler](#), which provides powerful functions like the infamous power cycling button that can instantly power back ON unresponsive systems, Out-Of-Band management can now be customized with [Allxon SaaS-In-Chip](#), by using the [Nuvoton NUC 980 development board](#).

Using Allxon SaaS-In-Chip, developers can custom build additional OOB features, such as hardware temperature detection for smart farming managed service providers (MSPs), to closely supervise temperature levels of edge devices. Using Allxon Portal, MSPs can monitor and remotely turn off edge systems when it detects a temperature spike inside the technical box. Once temperatures have stabilized, a

simple click of a button allows the service provider to set all systems back running at full capacity, saving the farmer valuable time and money involved in requesting an in-person technician who would essentially utilize the same steps. Such customizable OOB features for temperature detection elevates technological preventative measures, which in turn contributes to a longer-lasting hardware lifecycle.

SaaS-In-Chip and OOB Management Takes Farming to the Next Level

As an NVIDIA® Jetson™ preferred partner, Allxon's OOB management technology is compatible with any hardware brand, providing users access to Allxon Portal and powerful [remote device management functions](#). Allxon SaaS-In-Chip allows for the customization of OOB features for smarter, more tailored services to keep operations management more sustainable: taking the agricultural industry to the next level. ●