



FOUNDRIES.IO

Simplify the chaos of developing, securing and updating Linux-based IoT and Edge devices

## CASE STUDY

### Secure Robotics



## IDEALWORKS INTRALOGISTICS STREAMLINED AND STRENGTHENED

Founded in 2020 as a wholly owned subsidiary of BMW Group and based in Munich, Germany, idealworks has grown to form a global team, focused on enabling the logistics of the future by raising the bar in robotics technology through a robotics ecosystem.

idealworks provides a holistic approach to logistics automation, including their intelligent automation platform AnyFleet for seamless mobile robot integration, the CE-certified AMR iw.hub, and robotic intelligence via the robotics operating system iw.os, all within the idealworks ecosystem.

The growing idealworks robotics ecosystem encompasses world leading research universities and selected industry partners. Emerging from its roots as a BMW Group spin-off, idealworks is committed to driving efficiency and operational optimization in a rapidly evolving automation landscape.

### MARKET BACKGROUND

Intralogistics is complex, with businesses required to coordinate and integrate a plethora of robotics solutions within often vast premises as well as out in the field.

Realtime information sharing, safety and flexibility to respond to specific situations are all essential factors in operations such as material flow optimization, warehouse access and traffic management.

WMS and ERP systems must be integrated, extensive fleets of IoT devices and computer systems require effective monitoring 24/7, vehicles need to be communicated with, and industry standards must be met.

The sheer volume of connected devices and the integration amongst a range of different systems makes for a sizeable attack surface, meaning the threat of cyberattack is high. The risk of accidental, opportunistic or specifically targeted security breaches needs to be taken seriously, with worst case scenarios potentially evolving into the breakdown of global supply chain and manufacturing operations.

### CHALLENGES

As idealworks' rollout of robots into the field gained momentum, they needed to adopt a more efficient deployment process. The incumbent system consisted of:

- > COTS Linux distribution (Ubuntu) with no specific tools for customization or to guarantee autonomous and secure device updates
- > No official support for the distribution
- > Lack of tools to track package licenses and CVEs
- > Difficulties maintaining and scaling home-designed tools to manage over-the-air (OTA) updates and the robot fleet
- > A need to more easily integrate third party applications safely and securely
- > Accumulation of an uncoordinated variety of tools, causing friction between internal departments

idealworks

*"Working with Foundries.io has allowed us to quickly and easily streamline and strengthen our technology. We're passing on the benefits of much greater security to our customers' end devices. Both our overall project time has been significantly cut and costs have been reduced, including in the long run as we scale up", said Jimmy Nassif, CTO, idealworks*



## SOLUTION

The chosen approach needed to be capable of scaling up to deliver the growing idealworks' fleets to various sites without compromising on quality or security.

- FoundriesFactory® enables signed and autonomous OTA updates, allowing idealworks and their customers to audit every package delivered to devices without installing additional tools on each robot
- FoundriesFactory allows integration via API with existing AnyFleet management systems, reducing development effort
- The Foundries.io™ team provides a dedicated support and customization service to meet exact idealworks' needs
- Foundries.io provided a speedy migration between idealworks' chosen hardware: from a NVIDIA reference board to an ADLINK device, quickly moving onto application deployment in the robots

## OUTCOMES & ROI

idealworks can now rely on the fully secure and continuously updated FoundriesFactory-based platform to underpin their ongoing projects, enjoying the cumulative benefits of:

- Faster time to market, with overall project time significantly reduced
- Smoother development and deployment of idealworks' next generation robots
- Assurance of full security throughout the full lifetime of devices
- Straightforward device fleet management integration with API
- Cost control with fees remaining flat as fleet and customers scale up

## WHY FOUNDRIESFACTORY AND LINUX MicroPLATFORM

The flexibility of the Linux microPlatform™ (LMP) operating system and the comprehensive feature set of the FoundriesFactory DevSecOps product brought a range of benefits:

- Full customization of the solution to meet idealworks' specific requirements, along with the option to create custom OS images for development purposes
- idealworks robots (iw.hub) can now accept new applications from third-party companies through Docker containers, ensuring seamless integration and compatibility
- idealworks and their customers can track licenses and CVEs by generating a complete SBOM from the operating system to the containers
- Fleets receive updates via secure offline or OTA update mechanisms, ensuring the latest secure software is running at all times
- Seamless migration process for customers to easily move applications to different SoCs, allowing simplified creation and testing of new applications and products

