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Delivering Autonomous Disinfection with Physical AI in High-Risk Environments

GlobalLogic's Silicon & Embedded division helped Haystack Robotics engineer an autonomous mobile robot that transforms disinfection into a self-operating system.

In safety-critical environments, traditional cleaning is manual, time-intensive, and inconsistent — struggling to meet rising demands for speed, safety, and reliability. Organizations need **a more scalable, intelligent approach** to ensure consistent disinfection in dynamic, real-world settings.

Using **AI-driven navigation and real-time decision-making**, this solution delivers hospital-grade UV disinfection in minutes — safely and consistently — redefining how physical spaces are maintained.

Key Capabilities Enhanced

Intelligent Human-Aware Operation ■ Optimized AI Performance with Accelerated Inference ■ Sensor Fusion for Precision Obstacle Avoidance ■ AI-Powered Person Following ■ **Edge AI for Real-Time Decision Making** ■ High-Efficiency UV Disinfection ■ Modular Robotics Architecture (ROS-Based) ■ **Autonomous, Repeatable Workflows** ■ Autonomous Navigation in Dynamic Environments

Context

In healthcare and high-traffic environments, traditional cleaning processes are **manual, time-intensive, and difficult to scale consistently**. As demand grows for faster turnaround, higher hygiene standards, and reduced human exposure, organizations are looking for more reliable and autonomous approaches.

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Our Role

GlobalLogic's Embedded Software, Hardware & Silicon Solutions division engineered end-to-end system development including Industrial design and advanced AI capabilities including real-time navigation, person follower, and sensor fusion for obstacle avoidance..

The team **integrated edge AI technologies and computer vision** models to enable safe, intelligent operation in real-world environments.

Impact

Enabled rapid, repeatable disinfection cycles with up to **99.99% efficacy** in minutes.

Improved operational efficiency and consistency while reducing reliance on manual processes.

Delivered a **scalable, safety-aware autonomous solution** suitable for deployment across healthcare and commercial environments.