Intralogistics 5.0: Developing and implementing state-of-the-art AGV/AMR AIUT solutions

aiut

Company
AIUT

Interview with
Marek Pałka,
AGV Section Manager

▶ **Overview**
To increase the level of automation, operation efficiency, and productivity, AIUT expected to collaborate with an experienced supplier to provide a comprehensive all-in-one system, advanced technologies and a certified product portfolio, so that AIUT is able to deliver more high-end AGV/AMR robotic solutions.

▶ **Requirements**
- Accurate, predictive, actionable, and quantifiable data provision.
- Reliable and easy to install.
- Adaptable, durable and cost-effective.

▶ **Solution**
- Multi-region certified components, CE, UL, etc.
- Comprehensive product portfolio with maintenance and service availability on a global scale.
- High-quality customization flexibility.
- Flexibility and global scalability across multiple market segments.

▶ **Benefits**
- A wide range of products has made the supplies easier.
- An advanced solution along with direct and seamless partnership to result with great cost and time savings.

Background

AGV systems perform automatic pickup, transportation and storage of goods, following pre-defined pathways, however, there are challenges with the availability and deployment of state-of-the-art AGV technologies. Predominantly the challenges include the availability of experienced suppliers with a comprehensive all-in-one system efficient technologies and a certified product portfolio.
A well-rounded solution will inevitably lead to increased automation, ease of implementation, decreased labor costs, higher productivity, and lowered total manufacturing costs. An advanced intralogistics system by AIUT will deliver just that. A system operated by AIUT Formica Autonomous Mobile Robots (AMRs) - uses natural navigation to automate the internal transportation of goods.

Requirements

AIUT is a global provider of technologically advanced solutions in automation and robotization of production processes, IT, and the Industrial Internet of Things (IIoT). To accomplish the Fomica family AMR project, one of AIUT's major requirements was for hardware systems (including fanless computers) with Underwriter Laboratories (UL) certification for their AMR systems. In addition, it was critical to have an experienced supplier with a wide portfolio of reliable products to simplify product sourcing and to minimize the need for multiple vendors. The requirements are as below:
- Multi-region certified components, CE, UL, etc.
- Comprehensive product portfolio with maintenance and service availability on a global scale.
- High-quality customization flexibility.
- Flexibility and global scalability across multiple market segments.

> " As a result of our collaboration with Advantech, our AMR systems can increase productivity, reduce labor costs and enhance automation.
> We are very excited for our upcoming projects with Advantech and looking forward to serve our customers the best way possible. "
>
> - Marek Pałka, AGV Section Manager, AIUT

Solution Description

The AIUT AMR solution entailed Advantech's MIC-770Q, IoT edge computer which comprises the software to control and monitor all vehicles within a manufacturing area. The MIC-770Q is a compact computing solution designed for high-performance computing 8th generation applications. The solution also included Advantech's UNO-238 fanless system, a compact computing solution with 8th generation Intel® Core CPU, for reliable high-performance computing. In addition, the UNO-238 has an optimized mechanical design for easy RAM swapping, increased flexibility, and easy maintenance. In this solution, the UNO-238 computes and collects information about the AMR and sends it to the cloud either through Wi-Fi or LTE. The communication between the central unit and the AMR is continuous. Additionally, the MIC-770Q and UNO-238 exchange information regarding tasks, vehicle positions, and status.

Furthermore, the AIUT AMR solution entailed Advantech's UTC-320, which is used as an interface for the MIC-770Q to visualize the process and designate tasks to AMRs. The UTC-320 is a multi-purpose computing system with a touch-based LCD panel. The solution also incorporated Advantech's IDK-1107W, an industrial display kit with touch screen capable of operating at different temperatures, an AIM-65, industrial tablet also by Advantech, is used to check the status and operating parameters of selected AMR vehicles and connected by scanning the QR code on the vehicle. It is also worth highlighting that these technological components provided by Advantech all have UL certifications.

System Diagram

AIM-65

MIC-770Q   **UTC-320**

AGV

UNO-238   **IDK-1107WP**
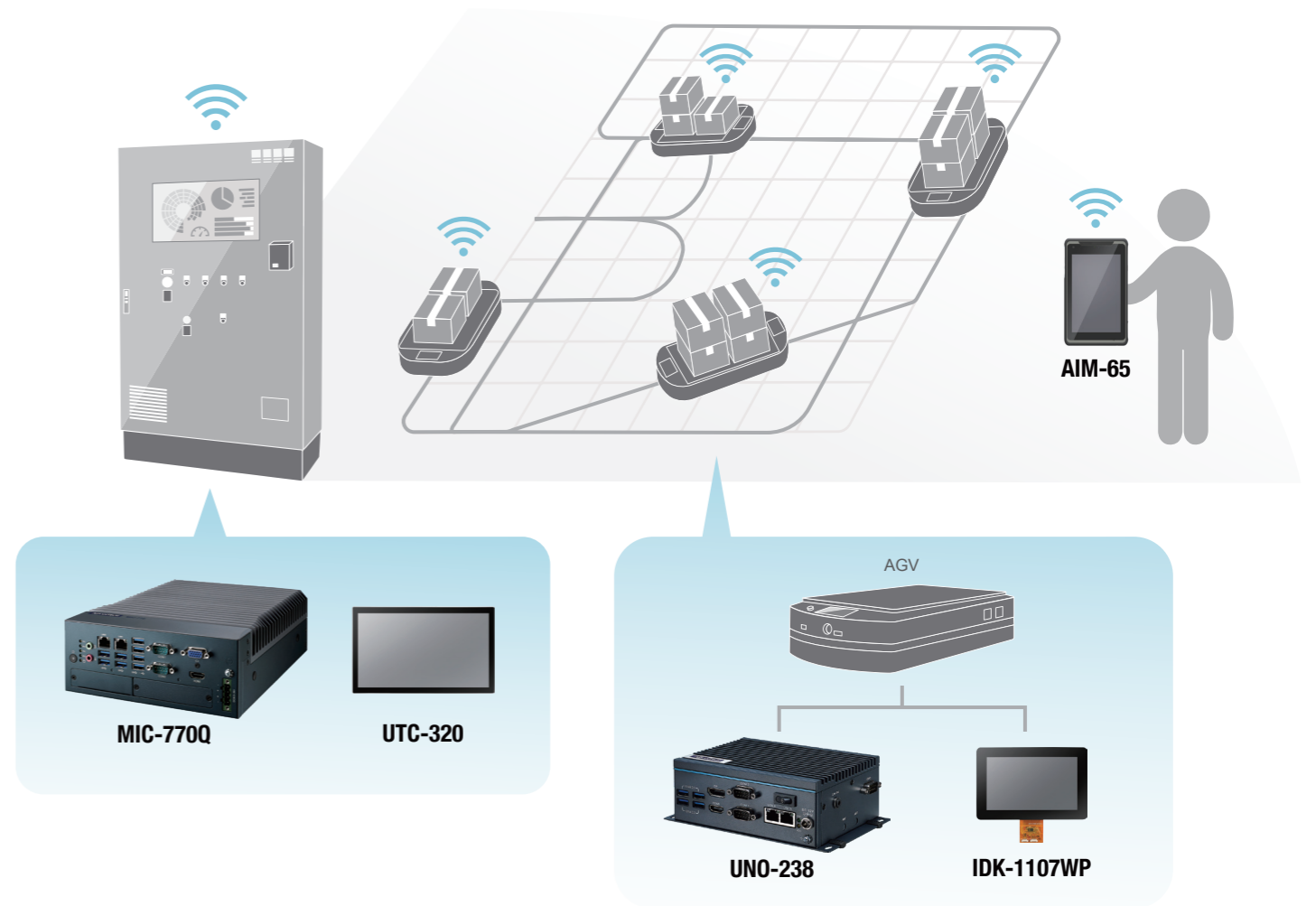
Why Advantech

In response to industry demands, AIUT delivers with state-of-the art AMRs as part of its intralogistics solution. To help this happen, Advantech provided a technological solution meeting the needs of AIUT, which entailed the provision of globally certified high performance hardware platforms. Furthermore, Advantech's comprehensive product portfolio fostered ease of sourcing and the delivery of a framework required to expand product lines and markets worldwide. AIUT's AGV/AMR solutions comprise Advantech's MIC-770Q, UTC-320, UNO-238, IDK-1107W, and AIM-65, advanced and robust technological products used to control, monitor, visualize and manage the AGV/AMR systems.

Overall, the collaboration between AIUT and Advantech on an advanced solution led to cost and time savings resulting from a direct and seamless partnership, In addition, Advantech's comprehensive product portfolio and multi-region certification contributed to AIUT's transition from the regional North American automotive market to the wider global market within a few years.