TECH OFFER

Smarter AGV and AMR Capabilities for Industrial Automation

ROBOT

AGV/AMR

CUSTOMIZE ROBOT

| AGV real-time tracking | Workload analysis | Robot Fleet management | Ready-to-use interface |
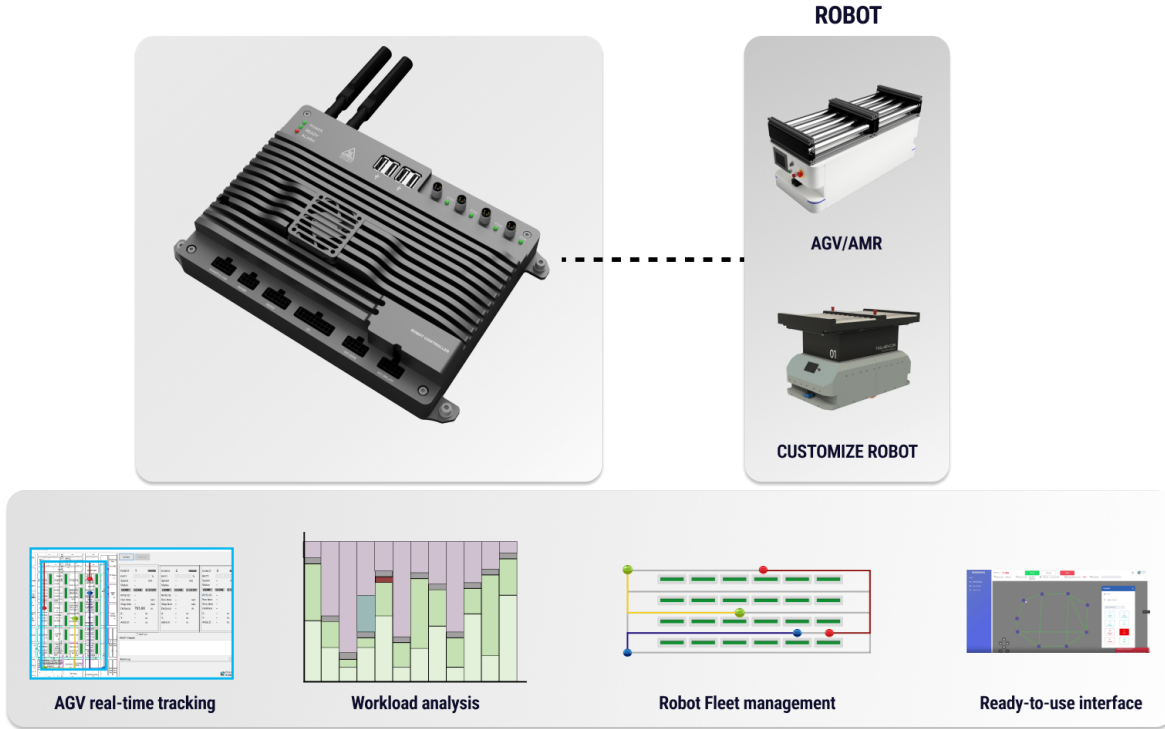
KEY INFORMATION

TECHNOLOGY CATEGORY:
Infocomm - Robotics & Automation
Manufacturing - Assembly, Automation & Robotics

TECHNOLOGY READINESS LEVEL (TRL): TRL8
COUNTRY: THAILAND
ID NUMBER: TO175217

OVERVIEW

The demand for industrial automation and robotics has been steady increasing across various industries to automate manual work. By embracing autonomous robots, like Automatic Guided Vehicle (AGV) and Autonomous Mobile Robot (AMR), companies can reduce labour cost and enhance safety while increasing operational efficiency. However, this system can be costly, complex to integrate and scale into existing operations and require technical know-how for their operation.

The technology owner has a technology solution focusing on AGV and AMR for industrial automation that aims to address existing adoption challenges. The technology solution provides a plug-and-play approach which comprises of a customisable AI-powered robot controller which can be used to build new industrial robots or to retrofit into existing deployed ones (e.g. AGV). This approach is cost-effective and simplifies integration into current operations. Using a Simultaneous Localisation and Mapping (SLAM) navigation system with ready-to-use software assessable via a mobile device, the technology solution is user-friendly and allows less experienced personnel to operate it easily. Their AI capabilities also enable autonomous decision-making while utilising data analytics for operational efficiency.

The technology owner is looking for collaboration partners, such as industrial system integrators, who are keen to explore customisation of AGV and AMR solutions aimed to improve operation efficiency and reduce cost.

TECHNOLOGY FEATURES & SPECIFICATIONS

The technology solution, a customisable AI-powered robot controller, enables the creation of AMR or enhancement of existing AGV via retrofitting. This robot controller includes capabilities such as:

- Being energy efficient and programmable main processor for customisation
- Ability to support machine learning and AI-capabilities, due to the integration of an accelerator, for autonomous decision-making
- Supports a variety of communication interfaces, including CAN bus, USB 3.0, RS-232, RS-485, while accepting digital inputs and digital outputs
- Having built-in Wi-Fi module and 4 ethernet interfaces
- User-friendly and accessible via a mobile device
- Pre-programmed with ready-to-use software for easy deployment, such as creating 2D maps, design robot pathways and managing robot states

POTENTIAL APPLICATIONS

The technology solution is a versatile and customisable tool designed for various industrial applications including:

- Material handling application (e.g. warehouse, logistics centre, manufacturing facilities) for inventory management and safe transportation of fragile or heavy loads
- Healthcare industry for autonomous delivery of medication and patent transportation
- Agricultural robots for improved precision for farming task
- Mobility for smart city initiatives and urban services
- Facilities management of inspection and maintenance

UNIQUE VALUE PROPOSITION

The technology solution is a modular robot controller which incorporates AI-functions into AMR. The simple design enables creation of customised AMR or retrofitting into existing AGV for easy integration into existing operation processes. Its low power consumption also enables efficient performance of the robot, while enabling autonomous decision making and data analytics for operational optimisation.