



Increase Operation Efficiency with a Real-time ROS 2 Solution

At a Glance

Company: A well-known automation solutions provider

Location: Malaysia

Application: Material handling



Products used:

ROScube-I

ROS 2-enabled robotic controller based on Intel® Core™ processors

Neuron SDK

ROS 2 open source package compatible with add-on value

Business Challenges - Rapid AMR Development and Real-time Communication for Robotic Material Handling

A leading company in Malaysia that develops advanced automation solutions for sorting machine material handling in the semiconductor industry faced gradually increasing requests from their customers to combine the internal transportation of IC components between the packaging lines and warehouse with automated loading and unloading. In the Industry 4.0 era, numerous industrial manufacturers actively participate in the vast automation production revolution. This particular company searched for a solution that enables human-robot collaboration with real-time communication between machines performing various operations to make the transportation of IC components an automated process from the packaging line to warehouse, thus improving overall efficiency.

This advanced automation solutions developer decided to implement autonomous mobile robots (AMRs) and mobile manipulators for picking and transporting IC components from packaging lines to warehouse to take over time-consuming and repetitive material handling tasks. They decided to implement AMRs instead of automated guided vehicles (AGVs) because AMRs are able to dynamically navigate and avoid obstacles in complex industrial work environments and do not require the restriction of humans from operating in areas of the factory floor or warehouse where robots are in use. Another challenge they faced was making sure that assembly machine equipment and AMRs communicated with each other seamlessly and without any time lag to avoid an overload of IC components at the packaging line. They found that not only was ADLINK's ROS 2-based integrated solution able to shorten AMR development time and effort, but that it offered real-time peer to peer communication between machines with Data Distribution Service (DDS) connectivity based on ROS 2. Thus, they decided to implement ADLINK's ROS 2-based controller into their current offering in order to meet their customers' automation requirements.

Solution – ADLINK’s Neuron SDK with 3 Times Faster Communication Capabilities

ADLINK’s ROS 2-based ROScube-I controller is with equipped with an Intel® Core™ i7-8850H processor providing superior computing power for autonomous mobile robots. It comes with ADLINK’s Neuron SDK supporting ROS 2 packages and libraries providing the add-on value of shortening AMR programming time and effort. The Neuron SDK is based on a commercial version DDS for connectivity and offers three times faster communication capabilities compared to an open source ROS 2 development environment. In addition, the Neuron SDK is continuously updated with optimization improvements, which allows customers to stay up-to-date with the latest features of the ROS 2 development environment.

Benefits



High Performance Computing

Based on Intel® Core™ i7-8850H processor providing high computing power to support complex robotic algorithms.



Neuron SDK for Ease and Efficiency

Compatible with ROS 2 open source packages, ADLINK’s Neuron SDK provides add-on value and superior machine-to-machine communication capabilities.



ROS 2 Integrated Hardware

Shortens customers’ ROS configuration time and effort.

Result – Real-time Communication and Increased Operating Efficiency

ADLINK’s ROScube-I ROS 2 ready-to-use solution enabled this developer of advanced automation solutions to implement an automated material handling process into their solutions. The ROScube-I controller is integrated into their AMRs and mobile manipulators which connect to sorting machines with real-time communication, and ensures that mobile manipulators accurately pick packaged IC components at the packaging line in a timely manner, and then load them onto the AMRs for transport to the warehouse, all in a seamless and fully automated process. Automation of the material handling process frees up employee time to focus on higher value-add processes to increase operating efficiency and achieve a rapid return on the cost of implementation.

