

Agile movement of WIP and enhanced efficiencies on the shop floor

The challenge is to create low cost autonomous trolleys to shuttle WIP (work in progress) between workstations. This is currently done manually and is not seen as the best use of our resources, not least because one person can only move one such trolley at one time. Space restrictions and movement of people in this operating area means fork lift truck operation is not suitable.

AGVs (on pre-determined routes) are already in use within the facility to transport raw materials and finished goods, but it is a large site with many production lines and the relative speed of these AGVs mean that WIP movement can be too slow to maintain production or too restricted on destination. Standard AGVs can also be expensive to run and maintain, whilst creating an issue if they breakdown. A more cost effective and flexible solution is required.

The proposed solution from Wheel.me is for autonomous, powered wheels, which can be retrofitted to existing WIP trolleys and have the manoeuvrability associated with manual handling. This reduces the cost of implementation significantly as existing designs of trolleys, and the layout of the factory floor do not have to be changed.

A WIP trolley was modified with four prototype wheels, and the operating area SLAM mapped. The trolley was then loaded with parts and despatched to the next workstation approximately 30 meters distant along non-straight path. The trolley successfully found its way to the next station. The same journey was successfully repeated several times with the addition of both static and dynamic obstacles.

The next step is to create a more robust solution, including considering an efficient charging method for the battery cells in the wheel structure.

Automated visual inspection to increase quality output

Quality assurance is of high importance to Motherson and its customers. Our parts are inspected at each step of the production line. This is a time consuming process and also exposes us to the risk of impaired judgment due to human error.

The quality of each part contributes to the overall safety and performance of the vehicle. It is important for us to keep on improving our checks and measures to provide our customers with products of the highest quality.

Moon Vision is a start-up that uses camera feed and customized software to detect visual defects. We worked on a pilot project with them to identify the defects in the painting job in our plant. We tried 8 different types of defects and created three demo models.

We are currently working on the next phase for creation of automated process security applications via conveyer belt.

About your company

Motherson is one of the world's largest tier 1 manufacturers of components and modules for mobility. The industries we supply are constantly evolving and we embrace and support the vision of our customers. We evolve through learning and collaborating, so STARTUP AUTOBAHN provides us with the perfect platform to meet innovative start-ups and help to bring bold ideas to life. Together we aim to be a sustainably relevant solution provider and are proud to be part of the world's most admired OEMs.