

## INTRA-LOGISTICS: FELIX



### ANALYSIS TOOL FOR LOGISTICS AUTOMATION

The MTC has developed an analysis tool to support businesses to optimise their internal movements of products [intralogistics] with a view to reduction and ultimately automation. A demonstrator built at the MTC shows how an automated solution can be implemented to transport goods between different buildings, handle indoor and outdoor environments and support fluctuating demand in a complex and unstructured environment.



To create an autonomous internal delivery system at MTC was a real challenge since the environment regularly changes and there was high footfall in the areas chosen. The software tool developed as part of this project is key to supporting UK manufacturing to first understand and then optimise facilities before automating.

**Gurpreet Ghataore, Senior Research Engineer, MTC**



### THE CHALLENGE

- ▶ Whether it's delivering ingredients, parts, consumables or removing waste to or from the line, most production facilities rely on manual operators to undertake this essential task.
- ▶ While many have heard of AGV (Autonomous Guided Vehicles) or AiV (Autonomous Intelligent Vehicles) few have implementations have crossed over from the Warehousing to the Manufacturing sector.
- ▶ The impact of Brexit, Covid & the Migrant labour cap means factories must ensure all those employed are used to their best potential and that where possible automation is used.
- ▶ It is often complex to understand all internal movements of product and even more complex to build the business case to justify automation.

### MTC'S SOLUTION

- ▶ To develop an analysis tool that can be used by any business to highlight what internal transport routes would benefit from optimisation, which could be automated and which would benefit from changes to methods of transportation or re-routing.
- ▶ To deploy an off-the-shelf AiV solution in the MTC building to demonstrate the impact to the facility such a system would bring.

## THE OUTCOME

- ▶ A completed analysis tool that can be used by businesses to understand how to improve their existing intralogistics routes and support a business case for investment in automating these.
- ▶ The deployment and upgrade to the vision system of a MiR robot to enable it to transition from 'indoors' to 'outdoors'.
- ▶ Greater understanding in the challenges faced when deploying an AiV onsite from WiFi signal strength through to Health and Safety considerations and employee training.

## BENEFITS TO THE CLIENT

- ▶ Simple identification of intralogistics routes/movements that can benefit from changes along with the business case to back-up the decision.
- ▶ Reduced reliance on manual operators and ability to re-deploy operators to value-added tasks where automated solutions can be implemented.
- ▶ Just-in-time logistics can lead to less storage requirements in production cells. This may save valuable floor space, reducing the overall footprint of the production cells.
- ▶ Increased flexibility to support demand fluctuations.

“ This project combines the use of advanced perception and navigation techniques with an intuitive interface designed to help businesses calculate the cost, benefit, and performance of a given arrangement and configuration of machines. Whilst the technology developed is complex, enabling the machines to operate in dynamic, unstructured environments, the user-facing interface has been carefully tailored to be intuitive to the needs of industry. This is an example of the MTC putting the needs of industry at the heart of what we do, providing the right world-class technology the right way.

**Phil Jackson, Technical Specialist, MTC**

