AGILEHAND

AGILE, FLEXIBLE AND RAPID RECONFIGURABLE PACKAGE

DIGITAL TECHNOLOGY INTEGRATION IN MANUFACTURING PROCESSES

SOLUTION DESCRIPTION

Enhance efficiency and Resilience with the Self-Agile, Flexible, and Rapid Reconfigurable Suite

The AgileHand Agile, Flexible, and Rapid Reconfigurable Suite is a solution designed for the manufacturing industry. This advanced suite **streamlines production flow, increasing efficiency and productivity while enhancing company resilience** through the digitalization of manufacturing processes.

This suite provides a **seamless integration of digital technologies into the manufacturing processes**, ensuring that your operations remain agile and adaptable to changing demands. The suite offers a cohesive and highly responsive production environment and is resilient to disruptions.

EXPECTED IMPROVEMENTS

-20%
Reduction of waiting times in product queues

+30%
Increase degree of product traceability in a processing line

-15%
Reduction of material shortage

-25%
Reduction of orders backlog

-15%
Reduction of production programme makespan

-15%
Reduction of energy consumption defining the best setup/line-configuration

MAIN BENEFITS

With the Self-Agile, Flexible and Rapid Reconfigurable Suite, it's now possible to:

- **Increased Efficiency:** Streamlines production flow, reducing bottlenecks and enhancing overall efficiency.
- **Enhanced productivity:** Optimizes operations, resulting in higher output and better use of resources.
- **Flexibility and Adaptability:** Provides a highly flexible and adaptable solution to meet evolving production needs.
- **Improved Resilience:** Digitalization of processes ensures your company can quickly adapt to changes and challenges.
- **Seamless integration:** Easily integrates with existing systems, creating a cohesive and efficient production environment.

SOLUTIONS INCLUDED

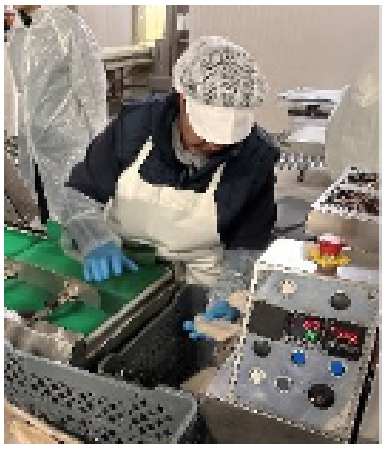
- **AgileHand Product-Oriented Traceability:** Product-oriented traceability solution to collect and store production and logistics operations data linked to product orders.
- **AgileHand Data-Driven Digital Twin:** Multi-layer toolkit Data-Driven Digital Twin for the real-time/near-real-time monitor and synchronization of production and logistics systems.
- **AgileHand Production Reconfiguration:** Optimization library implementing algorithms to optimize production layout and machine setup.
- **AgileHand Production Execution Optimization Toolkit**: Optimization library implementing algorithms to optimize production execution: planning, scheduling, startup optimization, and process control considering collaborative (human-in-the-middle) approaches.

USE CASES

FROZEN FISH

The goal of testing these solutions at PRODUMAR is to **develop a comprehensive traceability system for tracking products** like fish throughout the value chain. Beyond basic product tracking functions, additional features will be implemented to deliver valuable insights at each stage of the production process, e**nhancing both productivity and workplace safety for employees**.

Another key objective is to **minimize the amount of manual documentation required from staff**, streamline operations and reduce administrative burden.



PRODUMAR specialises in trading and processing of frozen and deep-frozen fish.

CHICKEN FILLETS

The goal of this initiative is to create a digital twin of the poultry processing plant, integrated with the real system to test and **optimize procedures in an offline environment.** This will help ensure the timely fulfilment of production orders, adherence to delivery deadlines, and compliance with order constraints during the planning phase.

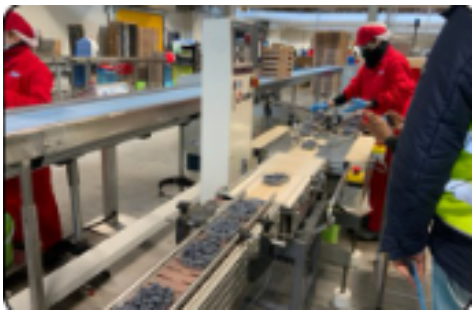
The expected outcome is **precise planning of operations**, accounting for potential issues identified during processing, and **providing decision support for effectively managing them.** This approach will **optimize resource use, reduce waste, and improve overall operational efficiency.**

MARELEC designs high-tech portioning, weighing, grading and control systems for the fishing and food industry.

FRUIT

The Self-Agile Reconfigurable Suite is currently being tested and implemented at Sant'Orsola, a leading small fruit producer in Italy. This initiative aims to create a digital twin of the raspberry processing plant. This digital twin will be integrated with the real system to simulate and evaluate optimized procedures offline, **ensuring timely production order fulfilment, adherence to delivery schedules, and compliance with order constraints during the planning phase.**

During processing, the system will support the production manager in managing discrepancies and addressing critical issues as they arise.

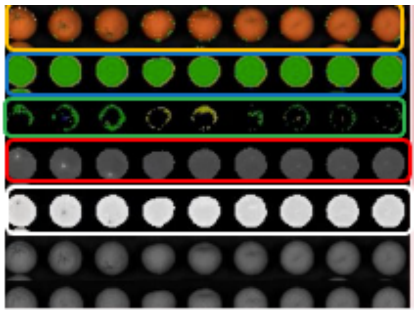


SANT'ORSOLA is a producer of small fruits, strawberries and cherries.

VEGETABLES

The Self-Agile, Flexible, and Rapid Reconfigurable Suite is also being tested at Multiscan, a Spanish manufacturer. The solution is designed to enhance production line scheduling through algorithms that optimize machine setup adjustments and frequencies.

The expected outcome is **improved batch handling by determining the optimal sequence of batches**, thereby **minimizing machine setup time** and **maximizing efficiency.**



MULTISCAN specializes in machine vision and inspection solutions for the product inspection of agri-food products.

TECHNOLOGY DEVELOPERS

Fraunhofer

UNIVERSITAT POLITÈCNICA DE VALÈNCIA

UNIVERSITÀ POLITECNICA DELLE MARCHE