



ZIGGY™

ZIGGY™ LEAN - AGILE Controller

The AGILE Controller is the heart of the ZIGGY Architecture.

The operational concept is to process an article by sending it through a series of manufacturing steps. Each step is performed by a Modular Process Units (MPU) under the direction of the AGILE Controller.

The AGILE Controller is an agent-based software program that runs on an embedded computer running a real-time operating system. It communicates over Ethernet with each of the MPUs. It directs them as to when it is time for them to perform their operations. This timing is determined by understanding the status of each of the MPUs. When they have all reported that they have properly completed their previous operations, then the AGILE Controller will instruct the MC to move the articles. When the MC reports that the articles have been moved, then the AGILE Controller directs the MPUs that it is ok to perform their operation again.

In order to handle error messages indicating that an MPU did not successfully complete its operation, the AGILE Controller tracks each item through all of the manufacturing steps and tags any items to be rejected.

This tracking and tagging capability can be integrated with techniques for handling high volumes of production that normally would require an accumulator. Think of it as a dynamic accumulator that can accommodate individual article tracking.

During start-up, software negotiations will be conducted between the MC, the MPUs, the AGILE Controller, and the Mass Customization Controller addressing the capability of the MC, the MPU and its status. This negotiation provides the AGILE Controller and the Mass Customization Controller with the information they need to manage the overall production line. These negotiations are implemented using Agent-Based Software. The AGILE Controller learns everything it needs to learn from a properly implemented MPU. This means that the AGILE Controller is a standardized software package that can be applied across a wide range of manufacturing applications.

The result is:

- Lower initial cost
- Faster implementation
- Shorter time to market
- Lower ongoing expenses
- The use of open standards means that factory-floor support is readily available
- Simpler integration with balance of plant information systems.

The objective of Agile Manufacturing is to be able to make incremental changes to the product or the process quickly and easily. The Architecture of ZIGGY and the software provided by the AGILE Controller makes this possible.

Whenever a new MPU is introduced into the assembly line, the AGILE Controller negotiates with the embedded HOLOCON Controller to learn what the MPU is, what it is capable of, how to exploit that capability, and how to integrate the MPU with the rest of the assembly line. The AGILE Controller then reorganizes itself to incorporate that which was learned. In this manner, incremental changes to the product and the process can be introduced with a minimum of downtime, a minimum of engineering and operations involvement, and with a minimum of expense.

Western Reserve Controls is an established manufacturer of industrial controls. WRC provides the ZIGGY architecture and components to Machine Builders and Systems Integrators that know your production and process requirements.

ZIGGY is protected by the following

US patents:

- 6,615,091
- 6,325,198
- 6,478,134
- 6,681,915

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