Ready Made Meal Food Preperation systems

Food Producer, Ireland

Project Summary:

The company, makes prepared frozen meals for the retail and catering trade. They have several Lines in the factory which make a variety of products. All products are cooked, filled, frozen and packed on site.

Logicon re-automated the Sauce Holding area control system for the company. The vessels in this area are used for holding and cooling of cooked ready meal sauce, prior to distribution to the meal assemble area hoppers. There are 10 vessels and a full CIP centre in the area and it is regarded as a fast moving process area, producing many small batches of sauce on a continuous basis throughout the production period.

Project Name:	Sauce Holding Area Automation
Industry:	Food – Ready Made Meal Production
PLC:	1 x Siemens S7-400
SCADA:	Mitsubishi MX2000, based on Intellution iFix
Networks	Ethernet & Profibus
I/O count	1000 I/O

This project was required as the plant had outgrown the old PLC system which did not allow for modular programming required for a large plant with large throughput, and would not allow for any expansion in terms of features or additional plant.

It was decided to retain the existing Scada PC's and electrical I/O systems.
The existing PLC was a ladder type, suitable to machine control but not to large plant control based on recipes and multiple selections. It was decided to replace the PLC with something more suitable.

After careful estimation of memory requirements Logicon proposed a Simatic S7-300 PLC with large CPU and memory. The existing PLC I/O was retained and profibus drivers were obtained to communicate with the I/O blocks. The existing operator panels were retained also and again profibus drivers were obtained to communicate with these.

Project requirements;

Study of existing Plant operation
Study of legacy PLC code
Design of replacement PLC system, utilising existing I/O and operator panels
Design of profibus system
Generation of modular code block PLC code suitable for plant
Re-assignation of addresses for MX 2000 tags and re-scripting of functionality to deal with modular plc programming approach
Generation of FDS
Installation of new PLC and re-commissioning of system
Generation of large FDS for operators

The new system was designed and tested at Logicon over two months. Many Logicon personnel were involved and it was a true fast-track project. The commissioning occurred over Christmas period and the plant came back into production, as planned, in January with minimal disruption to production. The replacement system has always been stable and in continuous production. The client went from a situation of continuous software problems to a position of having no production downtime related to software issues.
Logicon have since expanded the system as the plant expands. Such additional software is added in a clear and modular manner and does not cause software issues as before.

As well as demonstrating the company's ability to implement a modular system and to overcome the various challenges imposed by working with equipment from different automation vendors the project highlighted the ability of Logicon to work to a very tight schedule and deliver a substantive project within that schedule.