MAVERICK Develops MES Application with Recipe Management

MAVERICK developed a manufacturing execution system (MES) application incorporating recipe management for the modular solar panel production line of a major supplier of photovoltaic (PV) manufacturing equipment.

Objective

MAVERICK was selected by a major supplier of PV manufacturing equipment to develop an MES application with integrated recipe management for their modular solar panel production line. MAVERICK was chosen for the project due to familiarity with the PV supplier's product offerings as well as expertise in developing MES, recipe management and SCADA systems.

Results

MAVERICK developed an MES application which incorporated recipe management, equipment state and cycle time logging capability. The application easily flexes to the final design of the modular solar panel production line purchased by the PV equipment supplier's end customer. Recipe management and equipment state and cycle time reporting is available from any plant network PC via a web application.

Solution

The PV supplier's modular solar panel production line is a medley of manufacturing stations linked together by a conveyor system. MAVERICK designed the SCADA / MES architecture to support the production line's modularity, as follows:

Specified a client-server architecture for the SCADA.

» Podiums housing an industrial touch screen and thin client are placed strategically around the line.
» Each thin client hosts a Microsoft Terminal Services session with the server.
» FactoryTalk® View from Rockwell Automation provides the operator interfaces, and each session runs an instance of FactoryTalk View Client.

The team developed a supervisory control HMI application that reflects the modular design of the production line. Screens were developed for each production line station. Overview screens showed the final production line layout through initial configuration parameters.

MAVERICK developed the MES web application, housing recipe management and reporting functionality. The MES web application, written in ASP.NET, is integrated into the SCADA's HMI application, but also can be run from any PC on the plant network.

A web-based recipe management system (RMS) was developed to store initial equipment setup parameters and production recipes in a SQL Server database located on the server. The RMS is modeled after the ISA-88 standard.

The team logged equipment SEMI E10 states and cycle times to the database.

Web-based reports were developed and are used to analyze the logged equipment state and cycle times to determine how well the line is running.

The results of this project provided a communications bridge between the production line's control system and the MES which facilitates recipe uploads / downloads, as well as the logging of equipment states and cycle times.

The application provides multi-lingual support, both in the HMI application and the MES web application. The PV supplier initially configured the system for English and German speaking operators / users.

The MAVERICK Difference
MAVERICK provided system architecture, design and development expertise to design a manufacturing execution system solution that mates perfectly with the modular nature of the PV equipment supplier's solar panel production line.

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