Prosper

Customer
GlaxoSmithKline is a leading pharmaceutical company with heavy investment in new drug discovery.

Business Problem
Chemists at GSK had defined a way of managing the screening and testing of chemical production techniques and were designing an automated system for implementing this parallel method. An internal GSK group built the reaction control robot system and other parties wrote the low-level interface software. However, an application was needed to allow the Chemist to design a recipe defining the required hardware control, run this recipe on 96 simultaneous reaction vessels and display detailed logging and information.

Tessella Solution
Tessella was responsible for designing, implementing and testing this system, named PROSPER (Process Research Optimization and Screening Parallel Experimentation Robot). This was written in Visual C++ using the MFC library. The task involved discussions with the GSK Chemists and Engineers to capture their requirements.

The final system consisted of an application that managed all the stages of the experiment:

1. Design. An initial study is carried out to scope the variables that affect a reaction and define a test space. This is imported into PROSPER and defines the experiments. Recipes are designed to control the temperature profile and chemical additions using DX5 variables as control parameters.
2. Registration. The initial solid reagents for each reaction are weighed into the vessels. Each vessel has a barcode and is scanned into location on the robot, providing PROSPER with a link between the experiment and the location. This links via the same file to the DX5 design.
3. Process. PROSPER has a static scheduler for planning which operations to perform. Temperature, stirring and heater power are controlled according to the individual recipe parameters and logged for every vessel. Reagents are added using a modified Tecan Liquid Handling robot and samples are taken as specified for analysis by HPLC and results displayed.
4. Post-process. When complete a large amount of analysis work has to be done using the HPLC control software and DX5. When complete PROSPER stores this data into the corporate database.

Results and Benefits
In its first month of real operation PROSPER saved GSK the money spent on it by finding an optimization for a key production process. The machine is used for experiments that can run for up to a week and speeds the analysis of a wide range of chemistry.

HEAD OFFICE
Tessella Support Services plc
3 Vineyard Chambers • Abingdon • Oxfordshire • OX14 3PX • England.
Telephone: +44 (0)1235 555511 • Facsimile +44 (0)1235 553301 • E-mail: info@tessella.com

Scientific software solutions
www.tessella.com