

Case Study: Application Development

Synopsis

Resource Engineering Projects undertook a data preparation tool project to produce Motorola S-Records output from XML data.

The project used UML and C# and was produced using a EN 50128 SIL 0 process, with additional verification activities.

The Targeted Time and Material contract allowed the customer to refine requirements during the project whilst benefitting from full visibility of the latest progress and cost.

Key Project Facts

Team Size: 3 engineers

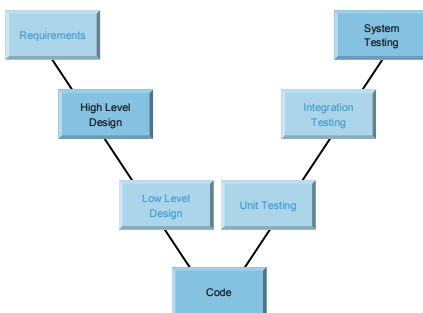
Duration: 6 months

Contract Type: Targeted Time & Materials

Tools/Languages: XML, ARTISAN UML, C#, FxCop

Standards: EN 50128 SIL 0 (CENELEC)

Lifecycle Involvement:



Accreditation



Project Overview

A major rail company asked Resource Engineering Projects to engineer a Microsoft Windows based application that would produce Motorola S-Records from data contained within an input XML file. These S-Records could then be loaded onto a number of existing industrial units to configure them for deployment.

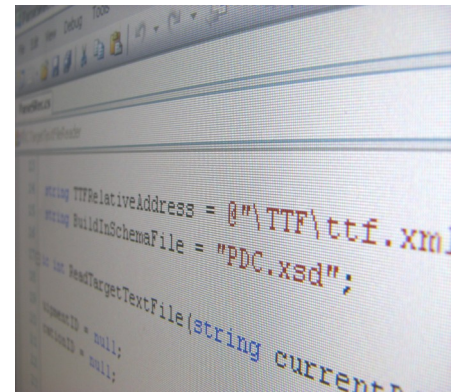
The software was classified by the customer's safety assessor as the lowest level of safety criticality—EN 50128 Safety Integrity Level (SIL) 0. However the customer requested that selected development techniques from higher safety levels should be employed to minimise the chance of field-testing problems.

By working with the customer's safety and quality assurance team an acceptable strategy was put in place. In addition to the mandated SILO practices, Resource Engineering Projects would produce reviews of each lifecycle stage and conduct high-level system testing activities.

The product requirements were produced by the customer and were updated throughout the project as Resource Engineering Projects suggested improvements. Resource Engineering Projects then produced a design in UML using its own Software Development Standards and coded in C# using the customer's standards.

An informal delivery of the product was provided to the customer mid-project to allow

feedback to be provided, and changes to requirements to be made. The changes were assessed by Resource Engineering Projects and the impact was discussed with the customer to ensure both timescales and project budget were protected.



The C# code was statically analysed using the Microsoft FxCop tool to ensure the code was written in a consistent, robust and maintainable manner. This static analysis activity was conducted at several key points in the development process to minimise the risk of large changes being needed later in the project.

Regular reports were provided to the client to ensure full visibility of progress, issues and risks. This communication allows project changes to be managed and de-risked, leading to successful delivery.

The Resource Engineering Projects Advantage

Experience:

Over 15 years experience of software design for real-time, safety critical, embedded applications using expert project management and engineers. Proactive approach to challenges adds value to projects and keeps the client's best interests in the forefront.

Safe Hands:

Quality product and service guaranteed. Internal, client, and independent audits passed as a matter of course. Continual improvement ensures optimal performance and quality is always maintained.

Flexibility:

Many types of service packages are available, from support for a discrete project phase within the client's team, to full “fire and forget” solutions where total ownership, responsibility and accountability for the software lifecycle can be entrusted.

Price:

Fixed Price, Time and Materials and Targeted Time and Materials contracts are all available, and the advantages of each can be discussed up front to ensure the client has the flexible or fixed arrangement that suits their needs.