Del Mar Reynolds

EVO - Ambulatory ECG system

Brief

Del Mar Reynolds (DMR, now part of Spacelabs Healthcare Inc) is an innovator in cardiac diagnostic solutions. DMR wished to develop a new, easy to use ambulatory ECG recorder and docking station to interface with its current PC driven software, replacing its current unit.

PDD was engaged to help DMR meet the challenge of designing, developing and specifying the system for launch at the American Heart Association (AHA) exhibition, just over 6 months later. While DMR focused its efforts in its own area of expertise - cardiac monitoring electronics - PDD supported the rest ofthe system development, which included recorder unit, docking station, holster and disposable pouch.

Solution

The project demanded a rapid response. Several activities needed to run in parallel so the product development experience of the two groups was combined to agree a plan that would allow risk-managed development of the system within the timescale.

It was critical to establish ground rules for low risk design at the start of the project. Build principles and configuration were established through the development of 2D CAD critical sections and initial 3D CAD block modelling of all components. Simple card and foam blocks representing all the proposed sub-assemblies were used to test assembly sequence and maintenance access requirements. Within 2 weeks, design concepts were presented for all parts of the system.

Just over 3 weeks later, engineering development including Finite Element Analysis, tolerance analysis and materials/process selection was completed and 3D CAD files of the system components produced. Potential manufacturing partners were identified and cost estimates obtained.

Using our rapid prototyping facilities, the first set of 18 prototype parts were delivered two weeks later. Following initial assembly and verification testing, it took another 3 weeks to produce 12 sets of fully finished components for verification testing and concurrent usability validation.

Manufacturing partners (in Singapore) were selected and tool design started concurrently with specification for manufacture. First moulded parts were delivered between 4 and 6 weeks from initial data issue.

The system was launched at the AHA on November 11th 2006 and at Medica later in the month. The project demonstrates that outsourcing support for rapid product development can work if the combined team has the relevant skills, experience and attitude to be able to rise to the challenge..

Result

The project was a success because:

- DMR had a clear specification at the outset.
- The DMR project team had decision-making authority.
- The team had the experience to be able to plan a tight, but risk managed plan.
- Team responsibilities and deadlines were clearly defined.
- The two parties worked as one team with regular and open communication.
- The database was managed by one party but shared by all.
- Simulation tools were used to confirm feasibility of design and production prior to toolmaking.
- The selected manufacturing partner was involved early and was both flexible and responsive.
- The team had the passion to make it happen.

"PDD met the tight timescales imposed on this project and we have developed a good working relationship with them… PDD have both a realistic and pragmatic approach to planning and implementing a project and quickly identified risk areas during the initial consultation meeting. We were also impressed with the processes PDD implemented in finding suitable manufacturing partners for the Evo mouldings, enabling us to select the best sub-contractor for the job".

Del Mar Reynolds Medical

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