INFLATABLE MARINE SAFETY EQUIPMENT

microcontroller increases sales by 200%

By applying gas generator technology activated by a microcontroller device Polymarine Ltd. has developed an innovative low cost, low weight inflation system for life rafts and life vests which is closely matched to the requirements for marine survival applications. The improved end user benefits will result in an improved competitive position for the company, and a significant increase in the company’s sales of inflation systems.

Polymarine designs, manufactures, assembles, and sells products and services to the UK and European marine markets. The company’s product range includes complete inflatable craft as well as specialised components for these systems including products such as life rafts, life jackets, inflatable marine escape systems and emergency buoyancy systems.

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<th>POLYMARINE LTD</th>
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<td>Employees</td>
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<td>Turnover</td>
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<td>Industrial Sector</td>
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<td>NACE code: 35</td>
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<td>Technical expertise before the project</td>
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SIGNIFICANT ECONOMIC BENEFITS

Polymarine projected a stagnating level of sales of its existing inflation systems because of competitive pressures from products using similar mechanical design solutions. The improved inflation system provides a range of technical and commercial advantages for the company’s customers including a considerable reduction in weight and size, a reduction in unit cost, and the elimination of functional and operational problems which exist with current cold gas inflation systems. The prototype development costs, funded by the FUSE programme, were 34 K€. The increased levels of sales will result in a payback period of approximately 27 months, and return on investment of 1,290 % over the product’s 10-year patent protected lifetime. Industrialisation costs are estimated to be approximately 60 K€.

PRODUCT IMPROVEMENTS

The traditional mechanical actuation and valve system used in marine safety and survival equipment is relatively heavy and bulky. The improved gas inflation system uses microcontroller control to provide an inflation system with much reduced space and weight requirements, as well as providing the following product benefits:

- Longer inspection intervals thereby reducing maintenance costs for the user.
- Automatic maintenance of a defined inflation pressure for the life raft or vest to maximise benefits.
- Inflation systems avoiding the use of cooling gas.
- The ability to actuate a gas generator in response to several possible sensor stimuli as required for specific applications.
Polymarine selected microcontroller technology to improve its life raft inflation system because it:
- Offered the capability of re-programming to enable a common module to be used for different inflation products.
- Met the extremely low power consumption requirements to maximise battery life.
- Offered a simple, low cost solution to promote high reliability.
- Enabled the program control of timing functions and the processing of a combination of trigger inputs to control the inflation system.

Polymarine conducted the project as a FUSE application experiment. The company’s staff participated in all of the project tasks in collaboration with selected subcontractors. The subcontractors provided support in:
- Training in microcontroller hardware and software design.
- Specification development.
- Hardware and software design.
- The final evaluation of the prototype.

The main project tasks, effort and costs are listed in the adjacent table.

Microcontroller technology provided Polymarine with the means of improving its product and enhancing its market position. You can also achieve significant benefits by acquiring the right microelectronics technology and utilising it in your product or manufacturing process. You can get help from FUSE to realise this.

FUSE is a technology transfer programme, funded by the European Commission to stimulate the wider use of microelectronics technologies by European enterprises to increase their competitiveness and enhance their economic growth. The demonstrator described here is one of many examples in the public FUSE portfolio covering the whole spectrum of microelectronics technologies and spanning a wide range of applications and industry sectors.

FUSE provides you with:
- Best practice in acquiring specific microelectronics technologies and conducting full development projects through the FUSE portfolio of real life demonstrator documents.
- Local training and expert support to plan your innovation realistically and help you conduct your project successfully.

Further information and support relating to this and other demonstrators can be obtained from the addresses below.

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