



Technology providers including Italian firm Comau are taking part in the Robofoot project because they believe robotics can improve the performance and competitiveness of fashion shoe manufacturers in Europe.

CREDIT: COMAU

EUROPEAN ROBOTICS PROJECT MAKES PROGRESS

Two prominent European footwear manufacturers, Rotta from Italy and Pikolinos from Spain, are reported to be working with research and development teams and technology providers to examine new and better ways of incorporating robotics into fashion footwear manufacturing.

As well as the two shoe manufacturers, four research centres—Tekniker-IK4 and Inescop from Spain; CNR-ITIA from Italy and DFKI from Germany—are involved in the project, known as Robofoot. Four technology providers—COMAU and QDesign from Italy, and Robotnik and AYCEN from Spain—are also taking part.

Robofoot's stated aim is to bring robotics to high-end European fashion footwear manufacture and the European Commission has funded it because it knows European manufacturers still have a commercial advantage in this segment of the shoe industry. However, making fashion

Research centres, technology providers and two footwear manufacturers are working together to find ways of using robotics to make high-end fashion footwear in the most efficient and most competitive way possible.

shoes in Europe is an expensive business because many of the processes involved require manual labour. Greater use of automation should help European companies stay competitive in the global market.

Work on Robofoot began in September 2010 and will continue until February 2013. The European Commission has provided €2.5 million in funding from its Seventh Framework Programme for research and technological development (FP7). This programme is the European Union's chief instrument for funding research over the

ROBOFOOT PLAYERS

- **Pikolinos, Elche, Spain:** maker of fashion shoes for men, women and children. Emphasis on natural materials and comfort.
- **Guglielmo Rotta, Sommacampagna, Verona, Italy:** maker of high-end women's fashion shoes.
- **Tekniker-IK4, Eibar, Basque Country:** research institution, specialising in automation.
- **Inescop, Elda, Spain:** research institution, specialising in the footwear industry.
- **CNR-ITIA, Rome, Italy:** research institution, specialising in industrial technology and automation.
- **DFKI, Kaiserslautern, Germany:** research institution, specialising in robotics.
- **COMAU, Turin, Italy:** technology provider, specialising in advanced manufacturing systems.
- **QDesign, Pisa, Italy:** technology provider, specialising in robotics.
- **Robotnik, Valencia, Spain:** technology provider, specialising in robotics and automation.
- **AYCN, Elda, Spain:** technology provider (a spin-off from Inescop), specialising in automation systems.



Basque politician Markel Olano (centre) visits the Tekniker-IK4 headquarters in Eibar.

CREDIT: TEKNIKER-IK4



Fashion footwear manufacture still relies heavily on manual labour and craftsmanship. CREDIT: MICAM

period 2007 to 2013. Its specific goals are to gain leadership in key scientific and technological, to stimulate creativity and excellence, to develop and strengthen “the human potential” of European research, and to enhance research and innovation capacity throughout the continent. Its broad objectives have been grouped into four categories: cooperation, ideas, people and capacities. In the overall context of the EU, for each of these, there is a specific programme, with a wide number of projects within each programme, each claiming a share of overall funding worth €51 billion.

Robofoot clearly represents only a tiny proportion of this, but many in the footwear industry are optimistic that it can make a difference. The project will introduce a number of robotised solutions to a range of operations that are currently carried out manually. The different companies involved have formed a consortium and will share ideas and the findings of their research among their partners and then with the wider industry.

Basque Country-based Tekniker believes that there is comparatively little automation in the footwear industry compared to other sectors to which it contributes research, including automotive, the steel industry and food manufacturing. These other sectors are “strongly roboticised” according to Tekniker, whereas the footwear industry “still uses, even today, artisanal methods for some of its processes”. The research centre’s explanation of this situation is that making shoes involves a high number of variables in the production and assembly process.

The organisation is firmly convinced that robotics can help shoe manufacturers overcome some of the complexity they face through having to make so many different stock-keep units (so many different styles, sizes and colours, and often a handful of each, but no more than a handful, in a customer’s order).

Robofoot has just less than two years to run now. Over the course of the project, Tekniker and its partners have said that they intend to increase steadily the number of



Europe still leads the way in high-end fashion footwear.

CREDIT: MESSE DÜSSELDORF

robotics solutions that can ease the strain in the areas of fashion footwear production that are still dependent on manual labour, thereby helping manufacturers increase their productivity and competitiveness. These advances will take the form of three prototype operations that will come on stream as the project progresses.

To go into these objectives in more detail, the companies believe they can come up with new strategies and devices for handling “non-rigid parts” so that robots can grab, handle and package shoes without damaging the materials. They also believe sensor-based robot programming and controlling tools will be able to link to computer-aided design systems to make it easier for shoe manufacturers to use the robotic technology in a variety of operations. Another Robofoot aim is to redesign some production processes to allow “robot-assisted manufacturing and assembly”, with heating the materials at specific points in the chain, visual inspection and packaging among the activities the project team believes robots can perform well.

In total, the consortium has identified a set of six operations in the shoe manufacturing process that are suitable for the introduction of robotics in the short- or medium-term. The hope is that bringing these innovations in gradually, rather than all at once, will help convince the wider footwear industry that the technology works and can help shoe manufacturers improve. 🍷



Pikolinos places great emphasis on the comfort of its shoes and sandals and on its preference for natural materials.

CREDIT: PIKOLINOS