

Result name	Production management and displacing products software for SSHOES eu-project
Brief description	<p>Main objective</p> <p>The SSHOES project addresses the development and demonstration of new sustainable production capabilities for diabetic feet such as innovative robotized milling solutions for footwear and insoles components.</p> <p>To achieve this result, a specific software package has been realized to help the order management and planning, to organize and manage resources for a footwear production plant, as well as to dispatch specific CAM and production information.</p> <p>Short Description</p> <p>SSHOES Factory Platform is a software tool aimed at the management, organization and scheduled dispatching of production orders to shop floor automatized production facilities. Handled production orders range from single component manufacturing - addressing last and insoles - to the entire shoe production. Target production facilities include particularly robotized cells and milling units.</p> <p>The software performs the automatic retrieval of information and data related to pending production orders from central order repository – the so called SSHOES Register - by means of specific authenticated web services. Information retrieved is structured internally and stored locally, exploiting the concept of production orders, composed of several production lots. Each production lot addresses a specific item in a family of products, to be manufactured according to set deadlines and geometrical (last based) constraints.</p> <p>In terms of general data, consumer information as well as manufacturer information are treated, including invoicing details: customer final product marking is also managed.</p> <p>With reference to specific technical information and data oriented to production, SSHOES Factory Platform targets robotized cells (for component/insole and last milling) and insole milling units.</p> <p>Each production cell is fed with a number of information, so as to target the single item (left/right) with dedicated part programs. Part program information is managed by keeping a link to the specific file, in order not to duplicate information and to reduce storing.</p> <p>SSHOES Factory Platform dispatching policy considers order release to production facilities based on a compromise between delivery times and local optimization criteria (e.g. material maximization using order grouping). User can select the subset of orders to be considered by the tool in its scheduling.</p> <p>Dedicated dialogs and screens are available, customized for the single shop floor production facility: by means of available functionalities, released orders, geometrical information and production oriented data are saved in specific folder structure and organization, which is different case by case. Production information such as e.g. tools type, feed rate, material shore are considered and can also be integrated also manually, where needed. In order to guarantee the monitoring and the advancement of production at higher supervising level, production tracking is also considered: each order can be sequentially characterized by a number of statuses. Each status is communicated to higher levels by means of web service.</p> <p>In order to enable security and trace work performed in various sessions, an authentication mechanism has been implemented, defining an administrator profile and normal users. Working sessions are therefore characterized with information on current user.</p>

Innovation

Main advantages in the adoption of SShOES Factory Platform are in the full decoupling between heterogenous systems at higher level and production facilities at low level.

Such decoupling is realised taking into account the unitary item as basic production lot, with all information properly binded.

In this way , all information are structured and conveyed at shopfloor level, enabling the operator and the machine to focus on the job, which is completely characterized and fed with all info, so maximizing the quality and the speed of the process.

Software features

License: No license (Art. 4 WCT 1996 - Berne Convention)

TRL : 6 – Technology demonstrated in industrial relevant environment

Picture/screenshot

SSHOES KB Tool V3.0

Production data

Prod Order: [] Prod Lot: []

Delete Item Save modified item
View selection Load Prod Orders

Test Obj

Order type: [] Model: [] Article: [] Size: [] Quantity: [] Last Code: [] Plan/Start Date: [] Plan/End Date: []

Customer data

Customer Id: [] Surname: [] Address: [] City: []

View Customer details

Name: [] Phone: []

Left foot digital file id: [] View Left Foot Digital File

Right foot digital file id: [] View Right Foot Digital File

Manufacturer data

Company name: [] Delivery Address: [] City: [] Invoice Address: [] City: []

Contact Name: [] Phone: [] Contact Name: [] Phone: []

View Manufacturer Data

Final product ID

Basic ID for product marking: [] Coding convention: (L) for last/insole = _L/_R for left/right

Machine Last part programs

Left Last Code ID: [] Left Last Part Program: []

View Last Manufacturing details

Right Last Code ID: [] Right Last Part Program: []

Machine Insole part programs

Left Insole Code ID: [] Left Insole Part Program: []

View Insole Manufacturing details

Right Insole Code ID: [] Right Insole Part Program: []

Material type (FF/EVA): [] Soft insole material Shore: []

Robotted call - Order Export

Save orders to local session Configure local saving directory Save orders to local session Configure local saving directory

Insole Milling Unit

Insole milling orders list:

<input type="checkbox"/>	9820111220155940	CMM-2011-997
<input type="checkbox"/>	9820111220155943	CMM-2011-978
<input type="checkbox"/>	9820111220155943	CMM-2011-767
<input type="checkbox"/>	9820111220155943	CMM-2011-698
<input type="checkbox"/>	98201112219155	CMM-2011-972
<input type="checkbox"/>	98201112219359	CMM-2011-1169
<input checked="" type="checkbox"/>	9820112219359	CMM-2011-011
<input type="checkbox"/>	9820111221165720	CMM-2011-1250
<input type="checkbox"/>	9820111221165720	CMM-2011-1311

Refresh Data

Select All

Uncheck all

Machine Insole part programs

Left Insole Code ID: [custom_insoletyped_R]

Left Insole Part Program: [path_to_CMM-2011-761_LpartProgram]

Right Insole Code ID: [custom_insoletyped_R]

Right Insole Part Program: [path_to_CMM-2011-761_RpartProgram]

View Insole Manufacturing details

Material type (FF/EVA): [FF]

Soft insole material Shore: []

Milling Unit - Order Export

Save orders to local session Configure local saving directory

OK Annulla

Activities/ Research lines/ Project	<p>PROJECT ACRONYM: SSHOES PROJECT FULL TITLE: Special SHOES movement DURATION: 36 months STARTING DATE: 01 July 2009 PROJECT NUMBER: 229261 STRATEGIC OBJECTIVE: Theme FP7.NMP.2008-SME-2 [Nanosciences, Nanotechnologies, Materials and new Production Technologies] Total Budget: 4.874.025 € EU Contribution: 3.509.000€ WEBSITE: www.sshoes.eu</p>
Author(s)	<p>Fabrizio Silva, Francesco Airoidi, Andrea Ballarino</p> <p>Name: ITIA-CNR Istituto di Tecnologie Industriali e Automazione – Consiglio Nazionale delle Ricerche Via Corti 12, 20133, Milano – Italy Phone: +39 02-23699914 Website: http://www.itia.cnr.it</p>
References/ Related documents	<p>Papers:</p> <p>Reports: [ID: 309546] Andrea Ballarino (2010) D. 5.3 Report: Engineering framework architecture</p> <p>[ID: 309551] Andrea Ballarino (2011) D. 5.4 Engineering Framework set-up</p>