CREATIF allows smart fabric printing directly from a designer's drawing

The CREATIF project will allow creative designers to convert their design drawings directly into smart fabrics using printing technology without the need for specialist electronics or smart fabric expertise.

Three creative partners; Base Structures (UK), Diffus Design (DK) and Zaha Hadid Architects (UK) collaborate in the project with four technical and research based partners Ardeje (FR), Grafixoft (BG), Institut für Textiltechnik Aachen (DE) and the University of Southampton (UK). Year 1 focused on the development of the printing technology, the printer and the software tools to enable the design of smart fabrics.

The new software tools will allow the user to design, create, layout, visualise and simulate smart fabrics before printing them using the bespoke smart fabric printer. CREATIF (http://www.creatif.ecs.soton.ac.uk/) is funded by the EU´s Seventh Framework Programme to provide design solutions and tools for the culture and creative industry (CCI). The first two software tools were produced in year 1 of the project, which has just been completed.

The **'Collaborative Drawing and Design in the Cloud Tool'** is an add-on to Adobe Illustrator CC. Designers can create colour based images as usual using Adobe Illustrator. The CREATIF add-on allows designers to add smart functionality to their colour designs in the form of pre-determined smart functional elements for light emission, colour change and sound emission. Additionally these smart functions may be coupled to a sensing capability allowing proximity or touch to control the smart functions. All aspects of the designs can be uploaded to the cloud to allow interactive design between designers. Users of other drawing packages can also upload colour drawings to the cloud for the addition of smart functions within a bespoke design in the cloud interface.

The **'Translation Tool'** converts the user generated designs into the required printed layers necessary to achieve the smart fabric consisting of a colour image based on conventional inkjet inks and the smart functions based on advanced electronic inks. Further software, which will be produced in year 2 of the project, will allow the user to view and customise the printed layers and simulate functionality. An electronic circuit containing bespoke embedded software, compatible with the ubiquitous Arduino microcontrollers, will enable control of the eventual smart fabric's functionality with the ability to wirelessly update its operation.

Key project data

Title: CREATIF – Digital Creative Tools for Digital Printing of Smart Fabrics

Start date: 1 Oct 2013
End date: 30 Sept 2016

EC Research call: Objective ICT-2013.8.1 Technologies and scientific foundations in the field of Creativity

Website: www.creatif.ecs.soton.ac.uk

Partners: Base Structures (UK), Diffus Design (DK), Zaha Hadid Architects (UK), Ardeje (FR), Grafixoft (BG), Institut für Textiltechnik Aachen (DE) and University of Southampton (UK)

Background: In Oct 2012 the EU issued a call within the Information and Communications Technology Programme covering 'Technologies and scientific foundations in the field of creativity'. This call addressed creative tools and aimed to equip different industries with more effective creative tools that make use of all our senses and allow for richer, more collaborative and interactive experiences. This challenge called upon research and industry to unite their forces to produce more powerful and interactive tools for creative industries, enhance the creativity of workers pursuing different professions, and anticipate future trends in research and innovation by encouraging interaction in and between different segments of the creative industries.

Further information: If you would like to be kept informed via future newsletters and press releases please contact us at creatif.network@gmail.com.

Consortium: The consortium consists of Electronics and Computer Science, University of Southampton (UK) www.southampton.ac.uk, as project coordinator and with world leading expertise in creating smart fabrics by printing electronic functional materials, Institut für Textiltechnik der RWTH Aachen University (DE) www.ita.rwth-aachen.de, specialised in fabric machine design, Grafixoft (BG) www.grafixoft.com, a digital design software developer, Ardeje (FR) www.ardeje.com, an SME specialised in advanced inkjet printers and finally, three creative partners active in both architecture, design and tensile fabrics: Diffus Design (DK) www.diffus.dk, Base Structures (UK) www.basestructures.com and Zaha Hadid Architects (UK) www.zaha-hadid.com

Partner presentation:

UNIVERSITY OF Southampton School of Electronics and Computer Science	The Department of Electronics and Computer Science is the coordinator of CREATIF. We have been researching printed electronics and sensors for 30 years with particular emphasis on printed smart fabrics for the past 6 years.
ITA	The Institut für Textiltechnik belongs to the Faculty for Mechanical Engineering of RWTH Aachen University. The focus of our research is therefore on the development of new textile machines and new textile processes. We carry out research within publicly funded projects (e.g.EU) and also in direct R&D projects for industry.
GRAFIXOFT SOFTWARE ENGINEERING	Grafixoft Ltd is an innovative software engineering company with more than 15 years of experience in the development of complex business solutions. It has a wide background in implementation of reliable and custom tailored software applications. Always eager to face challenges and deliver competitive advantage to its partners, the company has gained an impeccable and trustworthy reputation across Europe.
DIFFUS	Diffus Design has a main missions to combine traditional know-how and codified production processes with uncharted 'soft' technologies and complex materials. The idea is to emphasise familiarity, luxury and comfort and try to combine different materials and innovative technology in often unpredictable ways and unconventional twists but always with strong concepts and clear narratives.

	Base Structures designs, manufactures and installs world class tensile fabric structures across the globe. From iconic architectural fabric structures that define a building to smaller scale tension structures that make a statement, Base' reputation for quality and experience is unrivalled. Notable client projects include Up at The O2, Heathrow Terminal 5, London 2012 sporting venues and the Mound Stand at Lords Cricket Ground.
	Zaha Hadid Architects work at all scales and in all sectors. They create transformative cultural, corporate, residential and other spaces that work in synchronicity with their surroundings. Zaha Hadid Architects continues to be a global leader in pioneering research and design investigation.
	Ardeje is acting in significant Research works at the European level, and have been cultivating Science and Technology in terms of fluid jetting for more than fifteen years. Motivated by a sense of results, Ardeje combine technical know-how and total commitment. From design to implementation in specific environment, they develop industrial solutions that meet needs in terms of fluid jetting.