

D4.1: Embedded Software to Enable the Microcontroller to Control the Functions on the Fabric and Documentation (Design and Operation)

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Project acronym: CREATIF

Project full title: Digital creative tools for digital printing of smart fabrics

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SEVENTH FRAMEWORK PROGRAMME

FP7-ICT-2013-10: Objective ICT-2013.8.1 Technologies and scientific foundations in the field of creativity

Publishable short non-confidential summary

This deliverable describes the functionality, design and operation of the embedded software. The software is embedded within the smart fabric electronic circuit and controls the electroluminescence, colour change, sound emission function and the proximity sensor. Its function is specified by the uploaded electrical parameters set as user parameters within visualisation tool using its add-ons.

The key parameters of the design are set by the user using the visualisation tool which forms part of the CREATIF design suite. The initial settings for these parameters are loaded when the control software is loaded onto the Arduino Due microcontroller which is located on the electronic circuitry which controls the functionality of the smart fabric. These control parameters within the control software can then be wirelessly updated.

This deliverable describes the software within the microcontroller which controls the functionality of the electroluminescence, colour change, sound emission function and the proximity sensor. A code auto-generation approach used to produce a bespoke embedded software implementation to operate the CREATIF controller and give the desired operation as defined during the visualisation process in the CREATIF.cc software. Means of wirelessly updating the operational variables on the CREATIF controller are identified in with a range of potential implementations detailed.

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ITA - RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN -
<http://www.ita.rwth-aachen.de/> - Germany

GSoft - Grafisoft - <http://www.grafisoft.com/> - Bulgaria

Diffus – Diffus Design - <http://www.diffus.dk/> - Denmark

Base – Base Structures Ltd - <http://www.basestructures.com/> - UK

Zaha – Zaha Hadid Architects - <http://www.zaha-hadid.com/> - UK

Ardeje – Ardeje - <http://www.ardeje.com/> - France