

DTI Technology Programme - Smart Materials Theme

Enhanced Display Performance through Smart Thin Film Coatings (ENDSENSE)

Project Summary - Status January 2006

Project Partners:

Micro Circuit Engineering
Thin Film Solutions
University of Greenwich
University of Abertay Dundee

The Need

Enhancing the viewability of flat panel displays in high brightness lighting conditions (e.g. sunlight) is one of the major goals of the display community. The problems of glare and difficulty in reading information face the end user, whilst adapting the output of the display to the ambient conditions to minimise power consumption and extend product lifetime challenge the display system integrator.

The Solution

The approach proposed in this programme is to develop smart display systems with sensing and actuating functions using thin film coatings. Thin coating materials having photochromic, thermochromic, photovoltaic or electrochromic properties that are sensitive to the environment and provide a suitable actuation to modify the output from the display will be assessed. Modelling work will be undertaken to create an integrated optical, thermal and mechanical design tool to assist in the optimisation of the performance of existing and emerging display technologies.

Project Description

The ENDSSENSE project comprises five stages:

- Work Package 1: Human Factors
- Work Package 2: Optical Design
- Work Package 3: Integrated Model
- Work Package 4: Display Demonstrator
- Work Package 5: Exploitation Planning

Objectives

The overall project objectives are to:

- Define, manufacture and validate a smart display system using thin film coatings
- To integrate and validate design analysis tools
- To exploit the technology developed in niche and mass display markets

The Benefits

The project will deliver a step change in the responsive performance of display systems in different ambient lighting conditions, through development of thin film optical coatings, independent of the display technology itself. The smart thin film coatings and integrated modelling techniques created within the project will enable end-users to specify and integrate optical components onto existing and emerging display types. The end user requirements of readability in high brightness conditions, slim form factors, good contrast ratios and wide viewing angles will be satisfied through optimisation of the optics. The feedback and control offered by the thin film coatings will reduce energy consumption, extend service life and reduce ownership costs.

Exploitation/Spin offs

The ENDSSENSE project consortium will be working on various ways of exploiting the results generated from the project including direct sales and possible licensing arrangements in both niche (safety critical, marine, cash dispensers, public transport) and mass markets (automotive, industrial controls, outdoor advertising, mobile).

Further information

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End date: 2 January 2008

Total Costs: £603k