Digital to Tangible Images…part 1

Title: *Instant reproduction/conversion of a digital image into a tangible image*

Institute: ICT

Description: The mindset behind this research title stems from the observation and understanding that people who are visually-impaired rely on sensory-enhanced features in order to be able to experience day-to-day activities, however, unless such multi-sensory experiences are provided, visually-impaired people face challenges daily on activities that are common and simple, since they are based on vision. Going on holiday, seeing a photo of a relative or using Skype, wanting to remember someone's face when they were a baby or reminiscing on a past fun event – these are things that someone who does not avail of vision is deprived of. At MCAST, we have a forward vision and we treat disabilities as challenges that we can overcome, to treat and solve concurrent issues and make a difference!

Research Objective: This aims of this research are:

a) to develop a system through which a digital photo is instantly transformed into a set of pixel values,

b) to propose a system which is capable of instantly representing these values tangibly,

c) to propose a system that is able to save 3D images for later use or for 3D printing.

Final Testing: As part 1 of the *Digital to Tangible Images* project, this dissertation will provide a set of pixel values that will then be imported to part 2 of this project, whereby an electrical system will extract the images that are originally intended to be represented.

Project Supervisor: Dr Suzanne Psaila at Suzanne-Marie.Psaila@mcast.edu.mt

Digital to Tangible Images…part 2

Title: *Using pixel hue values to reproduce digital images into tangible results*

Institute: Engineering and Transport (Electrical)

Description: The mindset behind this research title stems from the observation and understanding that people who are visually-impaired rely on sensory-enhanced features in order to be able to experience day-to-day activities, however, unless such multi-sensory experiences are provided, visually-impaired people face challenges daily on activities that are common and simple, since they are based on vision. Going on holiday, seeing a photo of a relative or using Skype, wanting to remember someone's face when they were a baby or reminiscing on a past fun event – these are things that someone who does not avail of vision is deprived of. At MCAST, we have a forward vision and we treat disabilities as challenges that we can overcome, to treat and solve concurrent issues and make a difference!

Research Objective: This aims of this research are:

a) to develop a correlation between determined pixel values and 3D positions,

b) to propose and create a prototype of a 3D surface based on the provided values.

c) to create 3D images of the set of pixel values provided, and

d) to provide a 3D print of the images.

Final Testing: As part 2 of the *Digital to Tangible Images* project, this dissertation will then test the provided set of pixel values with the intention to extract the original images that were intended to be represented.

Project Supervisor: Dr Suzanne Psaila at Suzanne-Marie.Psaila@mcast.edu.mt

Digital to Tangible Images…part 3

Suggested Future work: Both part 1 and part 2 are united to create one functional prototype. This project will then be developed as a final year dissertation at the MCAST Arts and Design institute OR as a Master's in Product Design project, where a device will be designed to encompass the system, taking into account the aesthetics, ergonomics, portability, price and health and safety.