

The COG Scrapbook – Creating montages of document components for scrapbooks, posters and other wall displays

General Overview

The aim of this group project is to enable users to create digital montages of related material from various document components (charts, photographs, graphics, captions etc.). When printed out, the created documents will be rendered at A4 or A5 size in scrapbooks, or at larger sizes, from A3 up to A0. In the many cases the montage is expected to be a poster or other form of wall display.

Creating truly dynamic documents from disparate components is not an easy process, especially for untrained end users. Existing packages such as InDesign are for graphics arts professionals and even these are not optimised for the process of integrating disparate components. The group project will exploit the technology of COGs (Component Object Graphics) and supporting tools that have been newly-developed at the Document Engineering Laboratory at Nottingham University. A COG is a self-contained final-form object that can be expressed in any rendering technology but it is required to be encapsulated in such a way that its properties (e.g. fonts, bounding box, fill colours) are readily apparent. In this way multiple COGs placed on a page are guaranteed not to mutually interfere or to cause unwanted side effects.

The group project will develop tools to support both:

- the process of acquiring document components (e.g. collecting materials, such as photographs, from trips and site visits)
- the creation of montages from a database of acquired document components, to be printed as ‘posters’ in a variety of sizes from A5 to A0

Specific Scenario: Museum Visit Montage

A specific scenario, that the work of the group project should support, involves enabling school children or families to capture materials during visits to sites of special interest (such as museums or exploratoria) and then to create montages about their experience.

More specifically, during the visit users will be able to take their own photographs with digital cameras. They will also be able to tag artifacts that they are particularly interested in, so that later they can access additional information, such as text and graphics (in the form of COG components) from the museum database. At the end of the visit users will be able to directly upload their own digital photographs, annotate them and combine them with document components from the museum’s database to tell the story of their own visiting experience. The created posters could either be displayed on site or taken home and kept as souvenirs by the visitors.

Development

To realize this scenario, the group project will need to perform research, make use of and possibly enhance existing COG tools and develop their own tools.

To allow users to record artefacts that they have visited, the group project members will need to explore different options for tagging objects and implement the most suitable technique. Options include: RFID tagging (where users either carry a portable RFID reader and artefacts have tags, or users carry a tag and there is a reader associated with each artefact), and placing of bar codes, glyphs or other unique visual labels on artefacts (and recording these through portable readers or through photographs for later analysis).

The group project will need to create the “museum” database with some pre-prepared COG objects about example museum artefacts. An interface will be implemented that will allow users to add to the database their own materials collected during the visit. To convert materials such as photographs to COGs, the group project can make use of the *COG Encapsulator* tool (this puts a COG PDF wrapper around free-standing images, e.g. TIFF or JPEG, or a COG wrapper around ‘clean’ PDF objects exported from Illustrator, Photoshop etc.). The project may also make use of the *COG extractor* tool to create additional COG objects by selecting parts of existing PDF documents (e.g. extracting graphics or text from a brochure).

To allow users to create the montage about their visit, the group project will make use of the *COG manipulator* tool. The COG manipulator is an Acrobat plugin that reads in pre-prepared PDF COGs and allows them to be placed and fitted on a page using a simple visual drag-and-drop interface.