CSC3503: Graphical User Interfaces

Designing a Graphical User Interface for the Bracelet Computer

### Submission deadline: 9.00am Tuesday 22 November, 2011

This assignment counts for 20% of your total mark for CSC3503: Graphical User Interfaces.

Aims:

In this assignment you will demonstrate your understanding of how to design a graphical user interface in a context that is tightly constrained by both the available technology and nature of the intended user. Specifically, this coursework will require the creation and justification of an interaction design for small, mobile displays for older adults with cognitive impairments.

Context:

The bracelet computer is a bracelet, worn on the wrist, and houses a small computer, a GPS unit, an electronic compass, two small displays, and a knob (see diagram). The dimensions of the bracelet is 2.5 x 8.5 cm. The dimensions of the colour displays are 2.5 x 2.5 cm and these each have a resolution of 80 x 80 pixels. The dimensions of the knob is 1.5 x 1.5 cm; it can be pushed up, down, left or right, and be pressed. The bracelet also incorporates a motor that can make it vibrate. The GPS unit can sense the outdoor location of the bracelet, and the electronic compass can detect its orientation.
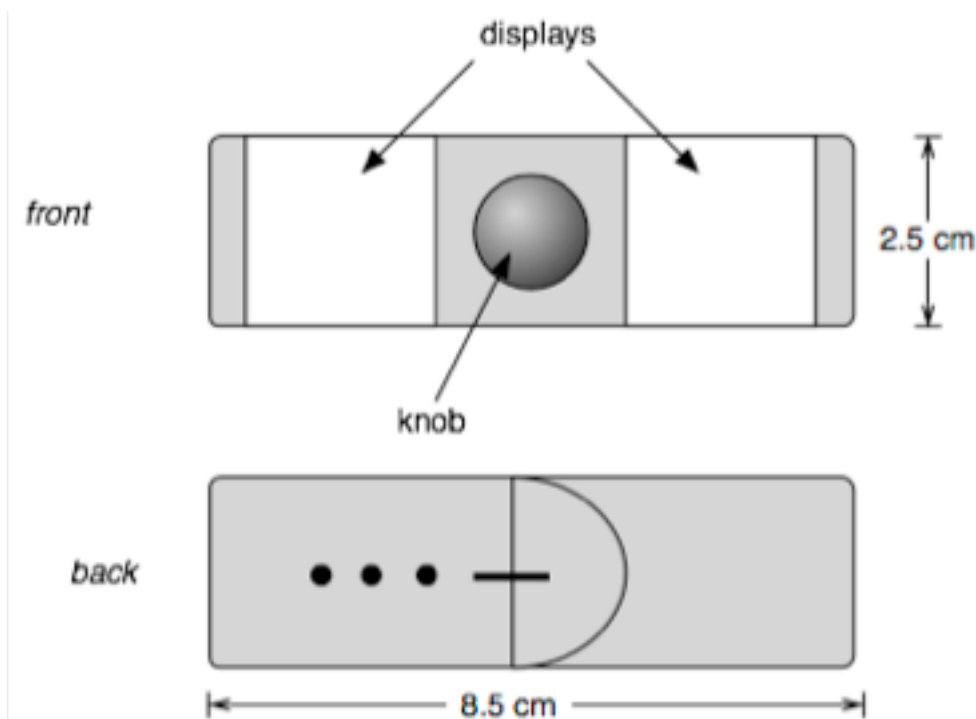
The bracelet computer is intended for older people who have mild dementia that will occasionally affect their ability to navigate. Typical symptoms are that they forget where they are, how they got there, and how to get back to where they started. The bracelet computer

should enable them to overcome the problems resulting from such incidents, and thereby prolong the time they can live autonomously.

Problem statement:

Design a graphical user interface for the bracelet computer and create a simple mock-up of the interface using Microsoft PowerPoint.

The following functions should be included in your design:

- **self-localisation**: enable the user to determine their current location;
- **defining a 'home' location**: provide the user with a means to specify where their home location is;
- **defining known locations and a maximum distance**: enable the user to define a set of buildings as known locations (e.g. shops, medical centres, relatives' homes); also provide a means to set a maximum distance the user should stray away from the nearest known location;
- **guidance to a previously defined 'home' location**: enable the user to navigate to their home location;
- **alerting the user when they are moving out of their neighbourhood**: notify the user when they move outside of their neighbourhood, i.e. when the distance to the nearest known location is greater than the set maximum distance.

Your mock-up should demonstrate the graphical interface design and the interactions required to use each particular function. The mock-up should take the form of a set of Powerpoint slides. Elements in the slides should be linked so that in the "Show" mode of Powerpoint you can select an action and the linked slide will illustrate the result of this action. This can be done in a number of different ways in Powerpoint (e.g. using transparent or visible graphics elements, overlaid over an image of the bracelet, that contain links to another slide).

The first slide of your Powerpoint mock-up should describe how to "use" the mock-up.

You should also provide a separate rationale for your design choices (a PDF document of no more that 750 words). This should describe why you made particular design choices, and what the benefits and drawbacks of this choice are compared to other options you considered. This rationale should be both grounded in relevant concepts that have been discussed in the lectures, and based on your own background research (include references to such sources). The mock-up can also include notes that relate aspects of the interaction to your rationale document.

Where you feel there is insufficient detail in the specification of the technology or the intended user, please state the assumptions you have made in the rationale for your design choices.

Submission requirements:

You should submit the mock-up (Powerpoint file) and the design rationale (PDF file) as two separate documents in a single archive.

Marking scheme:

40%   Mock-up clarity and completeness in illustrating the interaction design.
30%   Quality of the interaction design.
30%   Quality of the "rationale" for design choices.