

Global Explorer (Ben's PhD)

Anyone should be able to demonstrate this assuming that it has been set up beforehand (also possible to do without my help). For a full tour you may well need 15-20 minutes, but parts of the demonstration can be shown individually if the system is set up specifically for this.

Blurb

My PhD involves investigation of different combinations of mobile and situated technologies - e.g. mobile phones with public displays - to afford new interesting possibilities for interaction. The reasoning behind this is that mobile phones are ubiquitous, allowing us access to computational services anywhere, yet the capabilities of these devices are limited so the services offered are also limited. On the other hand the amount of powerful public technology (such as large displays) situated around us is increasing rapidly, promising the opportunity for synergy between the two types of technology. Outcomes of this synergy are the abilities to:

- capture images/video using a mobile, then carry that content to a large display to view it rather than the mobile's small display (note that we already do this on our home TVs and PCs, but could do it in public to share the content);
- capture content from a public display to the mobile to take it home or to another public display (e.g. to take home details about products advertised on a shop window display);
- broadcast sound (by speaking into a mobile connected to a large speaker installation);
- personalise a public display (by identifying oneself via their mobile as an ID token);

and so on.

These kinds of interaction are particularly relevant to environments such as shopping centres, exhibitions and universities where visitors flow constantly and a range of situated technologies are installed.

The lab demo represents a small exhibition, combining six different opportunities to couple a visitor's mobile phone with situated installations in order to discover and learn about a range of geographical locations. Of additional interest is how the visitor's mobile is used to guide the visitor between installations, supporting navigation of the exhibition but also shaping the visitor's tour according to a specific narrative by offering certain choices at certain times depending on what the visitor has already seen and what other visitors are doing.

Also important – the demo does not require any modifications to the mobile phones, only the installation of a Java application. This allows the system to be used, potentially, by visitors' own devices, not unfamiliar devices loaned by the exhibition. The installations also only use widely available, cheap software and hardware (the projectors being the most expensive components).

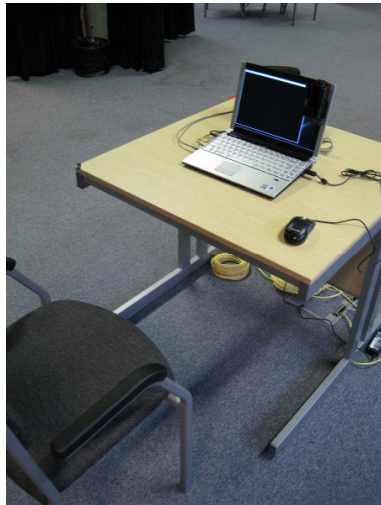
Set-up

For a fresh demo (if the installations don't already appear to be set-up), close **all** open folders, applications, terminals, etc. on all the laptops listed below.

All laptops will have a shortcut on their desktop to a folder called *Demo* – this contains all you need to get the demo running so open it on each machine.

The instructions below assume that you have closed everything and that you have opened the *Demo* folder. It is best to follow the instructions in the order they are written.

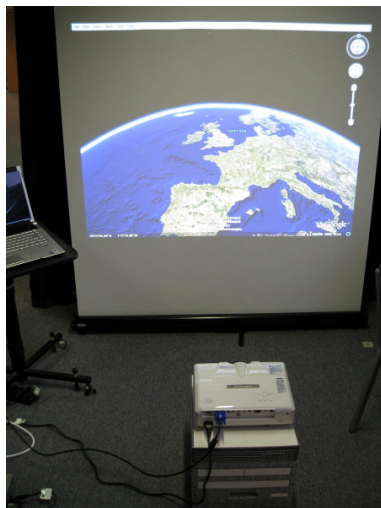
[To demonstrate only specific installations: you **must** set-up the Registration installation (even if you don't want to demo it), then you can ignore set-up instructions for any other installations that you don't want to demo. Finally **only after you have set-up all the installations that you wish to demo** you **must** run *cheat.bat* on the Registration laptop (this removes the restrictions on which installations the visitor can see, so **don't do this** if you are running a full tour).]



Registration (laptop: bzb4; on a small desk in the middle of bay 6)

You must set-up this laptop for any of the demos to work.

- 1) Run *clearDB.bat* (this clears any leftovers from any previous demo)
- 2) Run *vmon.bat* (this is the necessary one; it communicates with the visitor between installations)
- 3) Run *reg.bat* (this is the registration installation)
- 4) Maximise the window with the photos



Google Earth (laptop: bzb1; next to registration in bay 6)

- 1) Turn on the projector
- 2) Run *gearth.bat* (this is the Google Earth installation; the Google Earth application should launch)
- 3) Move the *Google Earth* window to the projector display by dragging it off the laptop display, then maximise it
- 4) Arrange the projector so that the display best fills the screen



Slideshow (laptop: bzb2; opposite Google Earth in bay 6)

- 1) Turn on the projector and speakers (at the foot of the projector screen)
- 2) Run *slide.bat* (this is the slideshow installation)
- 3) Move the *Global Explorer* window to the projector display then maximise it
- 4) Arrange the projector



Art (laptop: bzb0; on the long desk with FlyPad in bay 7)

- 1) Switch on the large black monitor (the one with the webcam attached at the top)
- 2) Run *art.bat* (this is the art installation)
- 3) Return to the desktop and follow the shortcut to the *InScape* folder
- 4) Run *run dataspace*
- 5) Run *run component container*
- 6) Run *ARTECT editor*
- 7) In the application that loads, choose to open a file and find the *globalexplorer* file in *C:\demo*
- 8) A new window should appear (you may need to look for it on the bar at the base of the screen) in which you need to specify the *video output* source as the *Logitech* web-cam
- 9) After a **long** delay (up to a minute) another window will appear showing the web-cam view: move this to the large display and maximise it



World Map and Photo Wall (laptop: bzb5; next to Art in bay 7)

- 1) Switch on the projector
- 2) Run *map.bat* (this is the world map installation)
- 3) Run *photowall.bat* (this is the photo wall installation)
- 4) Move the Global Explorer window to the projector display and maximise it



Once the installations are set-up you can start any mobile clients that you wish to use. It is likely that visitors to an exhibition would visit in pairs or groups, so visitors may share mobiles for the demonstration. This is also recommended because it makes any visitors feel more comfortable with the technology.

For tours without much time I tend to run one mobile and use it myself, showing others what I am doing, then letting volunteers try out some of the installations with my phone; it takes too long to give visitors their own mobiles. For longer tours you can take one phone yourself and walk through the Registration and finding the next installation (to show what to expect), then hand out some phones to visitors to start their own experiences.

Starting the mobile app



- Go to the phone's main menu (button indicated above)
- Go to *Applications*
- Click once on *Main* (it takes a few seconds to start)
- Press *Yes* (using the left soft-key) to all the security prompts that follow and choose *MRL* as the access point (if *MRL* isn't there, do a search for *WLAN*); there are 3 or 4 security prompts and sometimes there are pauses of several seconds between them, but you need to wait until they're all accepted
- Choose *Enter exhibition*
 - The phone will offer you the *Registration* installation - you can hand over the phone to a visitor at this point if required, or begin the tour yourself.

A typical tour

Registration: The tour begins with the *Registration* installation. Only one visitor may use it at once. When asked to place the phone in the holster, make sure that it is pushed far enough down to press the switch inside the holster (it will trigger the next screen on the laptop display). The registration serves the purpose of asking for and storing useful pieces of data about each visitor, so that other installations can personalise the experience. Name and photo are used to greet visitors elsewhere,

while age is used to determine what content might be interesting to the visitors (this is most obvious at the Art and Slideshow installations).

Finding exhibits: Once the visitor leaves the registration, they can choose *Find exhibits* to look for more installations. When a visitor chooses *Find exhibits* their mobile searches the exhibition for other installations, then filters this list according to what they have already seen and what is logical to visit next, ordering the results accordingly (thus the most 'suitable' installation is at the top of the resulting list, and unsuitable installations are omitted). Explain that they can still choose an installation from anywhere on the list (as long as it is not currently fully occupied). You can also hint that they may visit the *Story-chart* exhibit (this should be on the list) as this visualises the order in which the system prioritises the installations. A copy of the story-chart is included on the next page for you to familiarise yourself with the structure of the exhibition: links between installations indicate that one must be visited before the other becomes available.

Once an exhibit has been chosen, the mobile calculates a path from the previous exhibit (at this stage the registration) to the next, and creates a photo-trail for that path. The mobile will ask the visitor whether they can already see the next exhibit, and if not it will show them the trail.

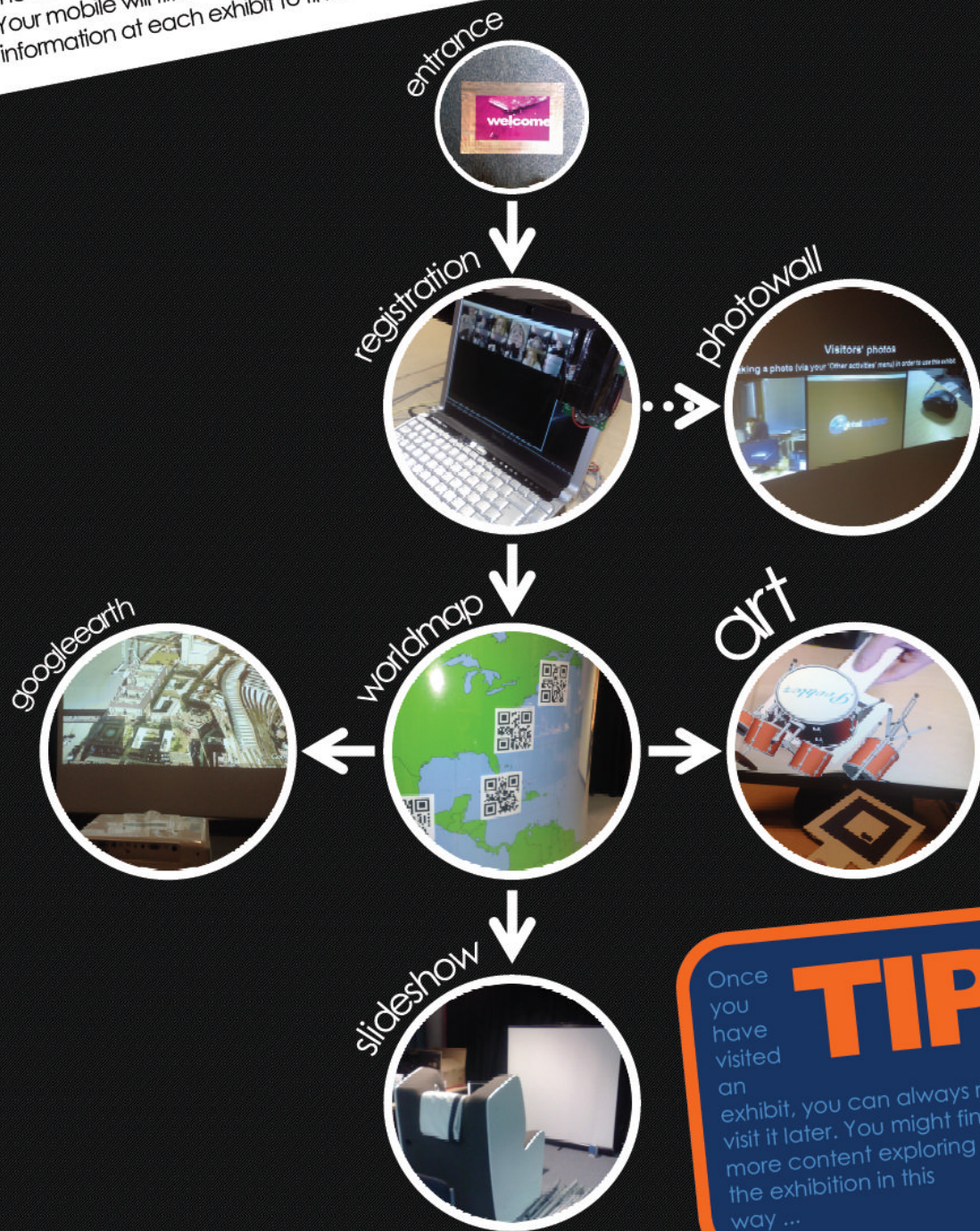
World Map: Following the registration, the tour should continue to the *World Map* – here the visitor needs to scan the barcodes which each hide an interesting location. Three of the locations (*Kenya*, *Cuba* and *Japan*) are the keys that unlock the *Slideshow*, *Art* and *Google Earth* installations – at least one of these needs to be successfully scanned in order for these installations to become available. Interaction at these installations is shaped by the keys found at the World Map: more content will be offered at these installations if more of the keys are found. The World Map is a good example of how a dynamic exhibit can be created very cheaply, as it uses freely available mobile software and printed barcodes (also created using freely available code generator software) – there is not even a need for a PC.

Art/Slideshow/GoogleEarth: Once key(s) have been collected from the World Map, these installations are available to be found. They are fairly self-explanatory: *Art* is simply an [ARTECT](#) installation (where the 3D objects displayed should really be related to the keys found at the World Map), the *Slideshow* displays content in a typical slide-show format with relevant music (again depending on the keys found earlier), and *Google Earth* allows the visitor to explore the globe in varying levels of detail, and also shows which keys have been found and which have yet to be found. Of note is that Art and Slideshow present different content based on the age entered during registration (the distinction being between visitors who are ≤ 15 years old and those > 15 years old).

Photowall: This installation only becomes available once the visitor has taken a photo (via the *Other activities* menu). It is essentially a digital guest-book, allowing visitors to share their experience of the exhibition. It can be visited at any point in the tour, once a photo has been taken.

story-chart

The network below illustrates the links between the different interactive exhibits.
Your mobile will filter adverts from the exhibits based on these links—pay close attention to the information at each exhibit to find out what you need to do to progress to the next...



Once you have visited an exhibit, you can always re-visit it later. You might find more content exploring the exhibition in this way ...

TIP