G54MRT Coursework 1 Specification

Draft for early information – could change following internal moderation

Overview

The goal of Coursework 1 is to design, prototype, test and analyse a locative mixed reality experience and to document and critically reflect on this activity in a **written report** that will be submitted for assessment. The experience will be a mixed-reality game that is designed to be engage visitors to a museum or historic site. The aim is that the museum/site might be a great setting for playing an entertaining game at the same time as the game might be designed to enhance the visitor's appreciation of the museum and interpretation of its contents.

The key concepts and techniques that you require to achieve this will be introduced in lectures and supporting lab sessions.

This coursework is worth 50% of the overall mark for the module. This and CW2 (worth the other 50%) provide the only formal assessment of the module.

Contents

The brief

Your brief is to create a mixed reality game that can be played using a mobile device while exploring a museum and/or its grounds. The core idea is that players need to move to different locations in order to trigger appropriate and engaging digital gameplay on their device, for example revealing historical narratives, clues, collectable assets and so forth. This might utilise various locative-technologies including the location interface on the phone, scanning augmented reality markers in order to trigger digital interactions or others. Your game should clearly relate to and draw on a museum or historical setting, its exhibits and surroundings. You are free to choose whichever museum you like. However, you will most likely want to visit it in person to scope it out, gather materials and test out your design in some way, so choosing a local museum is a very good idea. There are many good possibilities locally, from the University's own Lakeside museum on University Park, to Wollaton Hall, Nottingham Castle Museum, Nottingham Contemporary, Greens Windmill, New Art Exchange and many other museums around the city and region. It is also acceptable to adopt a 'virtual museum' approach in which you base your game in a general historical location where there is currently no physical museum present and then use the locative technologies to deliver the museum experience. So there is plenty of scope for getting creative. The key to the challenge is to make deep connections between the history of the place and a playable game.

You will need to:

- **Design**: Use the mixed reality game ideation cards introduced in labs to generate an interesting and appropriate game design and document this as a *concept sketch*.
- **Prototype**: Realise the core of your design as a prototype, either using either the specific authoring tools that we introduce in labs (and that don't require coding on your part) or using other platforms of technologies of your choice if you prefer to code your own system. You will need to document your prototype as an *annotated photostory*, a series of photos presented in a comic-book style that show the user experience and are annotated with key design and technical information
- **Test**: Describe the testing of your prototype and the lessons learned from this.
- **Analyse**: critically reflect on and explain how your design, prototyping and testing were informed by or illustrate the key HCI concepts that were covered in lectures.

Your design should:

- Clearly demonstrate how digital media and interactions can be connected to physical locations in an appropriate and reliable way, including the detailed design of appropriate location triggers.
- Be a game, though this can be lightweight in nature. Specifically, we are not anticipating that you will produce traditional videogame designs (multiple levels, extensive artificial intelligence, very complex rules, characters, rich 3D graphics and sound and so forth), but rather are looking for technically quite simple games that maximise the value of being connected to a real-world environment that provides much of the content (more of this in lectures).
- Be connected to a museum or historic setting, technically but also in terms of theme and content.
- Clearly demonstrate and reflect on the application of HCI principles and techniques as noted above.

Lab support

We will run a series of labs that provide you with the tools and techniques required to complete the coursework including:

- a locative-media authoring tool called Wander Anywhere

- an augmented reality marker authoring tool called Artcodes
- a set of 'mixed reality game ideation cards' that will help you come up with interesting and appropriate designs

These will provide you with everything that you need to complete the coursework, though you are welcome to use other tools and platforms if you prefer.

Additional requirements

Coursework 1 is an **individual** coursework. The report must be your own work, and the work reported in it must be your own work, including the design, implementation, testing and critical reflection. Any exceptions to this must be clearly identified and acknowledged:

- Some of the supporting lab sessions involve group activities, although this is not formally assessed. You can build on the ideas and experience that you develop as a result of this group work, but this must be clearly identified and acknowledged in your report.
- You can make use of pre-existing (e.g. found) images, text and other media within your application, but these must be clearly identified and acknowledged in your report.
- You may include quotations or figures from papers and websites but these must be clearly identified and acknowledged in your report (with a full citation).
- You can give and receive technical assistance but must not do substantial development or coding for someone else, or allow someone else to do so for you.
- You can discuss your concept and prototype with others but must do the bulk of the work yourself (including thinking through the project concept).
- You can make use of existing code libraries, code samples and code fragments within your prototype but these must be clearly identified and acknowledged.

The core of prototype experience must be working and playable and have been tested. **However it is NOT required that *every* part of the concept or design is fully implemented**.

Critical thinking is required throughout, e.g. justifications for decisions, evidence for judgements, realistic assessment of strengths, weaknesses, relationship to prior work. This will form a key aspect of the assessment.

Please note that this is primarily a design exercise and that the technical complexity of the system (software) is NOT the sole criteria for our evaluation of your coursework. Indeed, it is quite possible to realise a prototype using the tools that we introduce in labs without writing any code. A key criteria in our evaluation of your coursework is balance. Thus, criteria such as appropriateness, quality of design, quality of testing and critical reflection are very important. You can get an excellent mark using our authoring tools while providing extensive testing, just as you *could* gain an excellent mark through developing a technically sophisticated system. Note: technical difficulties are NOT normally considered to be an extenuating circumstance.

The module convenor(s) reserve the right to require you to do a live demonstration of your prototype and to explain how it was realised and the tests that you have performed. It is an academic offense to deliberately mislead the reader of your report, for example by claiming or implying that the prototype is more functional than is in fact the case.

Marking Scheme

The following areas of the report are assessed (contribution to mark shown in the weights column):

Area	Weight	Comments
DESIGN: Quality of the proposed concept as expressed in the *design sketch* using ideation cards	20%	Including creativity and appropriateness of the design alongside an explanation of the ideation process using the mixed reality game ideation cards
PROTOTYE: Quality of the realisation as shown through an *annotated photostory*	40%	A walkthough of your prototype as a photostory annotated with information about key features, challenges and technologies used.
TESTING: Quality of *testing*	15%	A discussion of how you tested your prototype and an analysis of lessons learned
ANALYSIS: Quality of the *critical reflection on HCI challenges*	25%	A written analysis of how you design, prototyping and testing were informed by or illustrate the key design concepts that were covered in lectures.

Each area is graded according to the following levels, mapped to the standard University scale:

Grade	Summary	Mark	Description
A+	**Outstanding**	90%	warranting an A, and in addition exceptionally clear, original and/or deep treatment
A	**Excellent/ Distinction**	80%	complete, sound, without flaws
B	**Good/ Merit**	65%	a good and sound answer, but perhaps omitting some details or with small errors but correct method
C	**Adequate/ Pass**	55%	adequate answer, dealing with key principles, but with omissions and error in non-critical aspects
D	**Borderline/ Compensatable**	45%	a marginally acceptable answer, with at least basic coverage.
E	**Poor/ Soft Fail**	30%	an unacceptable answer, for example with substantial errors and omission, but still with some reasonable elements
F	**Very poor/ hard fail**	15% and below	unacceptable and with little merit in any element

Deliverables

There is one key deliverable for Coursework 1: the **final report**. The *suggested* structure of the final report – which reflects the areas of assessment – is as follows:

1. **Title** – of your mixed reality museum game.
2. **Anonymous** – please ensure that your report is anonymised and that your identity is not revealed
3. **Design sketch**
   a. A text summary of the intended game, including where and who it is designed for
   b. A discussion of how the mixed reality game ideation cards shaped your design
   c. An annotated sketch of your concept, including images of the cards where appropriate
4. **Photostory**
   a. A photostory that shows the user experience
   b. Annotated with commentary, key design challenges, insights and decisions
5. **Testing**
   a. A description of how your tested your prototype
   b. A summary of the issues that were revealed and a discussion of how these would be resolved in future iterations of the prototype (you do not need to have implemented the revisions).
6. **Critical reflection**
   a. A critical reflection on how your experience of design, prototype and testing relate to the HCI concepts covered in lectures. How were specific concepts useful (or otherwise) in informing your design or in explaining the results of testing.
7. **References**
   a. complete list of references to papers and other resources referred to in your report, with a full citation for each.

As per the module specification**, the maximum length of final report is 2000 words** (excluding references and annotations to diagrams). The module convenor(s) reserve the right to ignore submitted material after the first 2000 words for the purposes of assessment.

A simple report template is provided on the module page in Moodle.

Deadlines

The deadlines are as follows:

Deliverable	Due	Via
Final report	30/03/2019 15:00	Moodle

Marks and Feedback

Marks and feedback (note that dates indicated are the *latest date* that feedback or marks will be delivered by, i.e., 15 working days after submission deadlines as per university regulations):

Deliverable	Feedback	Date	Via
Final report	Overall mark and explanatory comments	23/04/2019 17:00	Moodle

Penalties

The late submission penalty for the final report follows the standard University penalty, i.e. 5% penalty per working day (or part) late.

Plagiarism or other academic offenses will be dealt with using the standard University procedures[1], and may result in a mark of zero for the entire assessment.

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[1] https://www.nottingham.ac.uk/academicservices/qualitymanual/assessmentandawards/academic-misconduct.aspx

School of Computer Science – Coursework Issue Sheet (required for each component)

Session	2018-2019	Semester	2
Module Name	Mixed Reality Technologies	**Code**	G54MRT
Module Convenor(s) **(CW Convenor in Bold)**	**Steve Benford**, Joe Marshall, Stuart Reeves,		

Coursework Name	CW1	**Weight**	50%
Deliverable (a brief description of what is to be handed-in; e.g. 'software', 'report', 'presentation', etc.)	The goal of Coursework 1 is to design, prototype, test and analyse an example mobile mixed reality experience and to document and critically reflect on this activity in a **written report** that will be submitted for assessment. The experience will be a mobile mixed-reality game that is designed to engage visitors to a museum. The key concepts and techniques that you require to achieve this will be introduced in lectures and supporting lab sessions. This coursework is worth 50% of the overall mark for the module. This and CW2 (worth the other 50%) provide the only formal assessment of the module.		
Format (summary of the technical format of deliverable, e.g. "C source code as zip file", "pdf file, 2000 word max", "ppt file, 10 slides max", etc.)	There is one key deliverable for Coursework 1: the **final report**. The *suggested* structure of the final report – which reflects the areas of assessment – is as follows: 1. **Title** – of your mixed reality museum game. 2. **Design sketch** a. A short text summary of the intended game, including who it has been design for b. A discussion of how the mixed reality game ideation cards shaped your design c. An annotated sketch of your concept, including images of the cards where appropriate 3. **Photostory** a. A photostory that shows the user experience b. Annotated with commentary, key design challenges, insights and decisions **4. Testing** a. A description of how your tested your prototype b. A summary of the issues that were revealed and a discussion of how these would be resolved in future iterations of the prototype (you do not need to have implemented the revisions). 5. **Critical reflection** a. A critical reflection on how your experience of design, prototype and testing relate to the HCI concepts covered in lectures. How were specific concepts useful (or otherwise) in informing your design or in explaining the results of testing. 6. **References** a. complete list of references to papers and other resources referred to in your report, with a full citation for each. As per the module specification, **the maximum length of final report is 2000 words** (excluding references and annotations to diagrams). The module convenor(s) reserve the right to ignore submitted material after the first 2000 words for the purposes of assessment.		

Issue Date	5th February 2019
Submission Date	15:00 30th March 2019
Submission Mechanism	Moodle
Late Policy (University of Nottingham default will apply, if blank)	Standard
Feedback Date	23rd April 2019
Feedback Mechanism	Moodle

Instructions	
	Your brief is to create a mixed reality game that can be played using a mobile device while exploring a nearby museum. The core idea is that players need to move to different locations around the museum in order to trigger appropriate and engaging digital gameplay on their device, for example revealing prompts, clues, collectable assets and so forth. This might utilise a combination of locative-technologies including the location interface on the phone and/or scanning augmented reality markers in order to trigger digital interactions.

You will need to to:

- **Design**: Use mixed reality game ideation cards to create an interesting and appropriate game design and document this as a *concept sketch*.
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- Demonstrate the application of HCI principles and techniques as

	noted above.
Assessment Criteria	**Area:** DESIGN: Quality of the proposed concept as expressed in the design sketch using ideation cards **Weight:** 20% **Comments:** Including creativity and appropriateness of the design alongside an explanation of the ideation process using the mixed reality game ideation cards **Area:** PROTOTYE: Quality of the realisation as shown through an annotated photostory **Weight:** 40% **Comments:** A walkthough of your prototype as a photostory annotated with information about key features, challenges and technologies used. **Area:** TESTING: Quality of testing **Weight:** 15% **Comments:** A discussion of how you tested your prototype and an analysis of lessons learned **Area:** ANALYSIS: Quality of the critical reflection on HCI challenges **Weight:** 25% **Comments:** A written analysis of how you design, prototyping and testing were informed by or illustrate the key design concepts that were covered in lectures. Each area is graded according to the following levels, mapped to the standard University scale: **Grade Summary Mark Description** A+ Outstanding 90% warranting an A, and in addition exceptionally clear, original and/or deep treatment A Excellent/ Distinction 80% complete, sound, without flaws B Good/ Merit 65% a good and sound answer, but perhaps omitting some details or with small errors but correct method C Adequate/ Pass 55% adequate answer, dealing with key principles, but with omissions and error in non-critical aspects D Borderline/ Compensatable 45% a marginally acceptable answer, with at least basic coverage. E Poor/ Soft Fail 30% an unacceptable answer, for example with substantial errors and omission, but still with some reasonable elements F Very poor/ hard fail 15% and below unacceptable and with little merit in any element