4. Design Prototype

Due Dates:

- 4a. Design Prototype: Stand-up One: Week 8 contact sessions
- 4b. Design Prototype: Stand-up Two: Week 10 contact sessions
- 4c. Design Prototype: Tradeshow: Week 12 contact sessions 14 + 16 October
- 4d. Design Prototype: Artefacts: 5pm 21 October

Weighting: *x 4 Team assessed across 4a, 4b, 4c, 4d*

Tasks:

At the end of this project, your team/group will:

Demonstrate an interactive proof-of-concept prototype that implements social (collaborative) & mobile (contextual) computing within your chosen domain at an in-person exhibit. Multi-user prototypes will be necessary to demonstrate how your project successfully delivers a social and mobile experience for different users and/or different contexts.

Present your project at the end-of-semester tradeshow. Design a self-contained conference-style poster to accompany your demonstration, and to explain your domain, opportunity, and solution. You will also prepare a 3-minute presentation to explain and showcase your project to visitors.

Submit documentation of your team design process, research, evaluations with users, source code, poster, and promotional material. Teams will setup public GitHub repositories to keep track of documentation and development.

Introduction

Building upon the work done in previous assessments, you will produce a proof-of-concept prototype to demonstrate your design opportunity to your target audience, domain experts and other stakeholders. Projects should aim to exploit digital, social and/or mobile computing within your chosen domain and might take various forms, e.g.: web application; mobile application; social software; interactive story; tangible interfaces, ubiquitous computing and augmented spaces. Projects should also be informed by both literature-based and user-based domain research; and should reflect a deeper understanding of the social and/or mobile issues for that domain.

As you will have observed from the proposals, the settings you are working in are diverse, and so the nature of your prototypes will vary across domains. The process of making them, however, will be similar. You will all engage in a design process. This includes phases of **research and data collection**, **establishing requirements**, **design activities**, **construction**, **evaluation**, and **refinement**. Your work from the design implications research and proposals should provide a strong foundation for moving forward in the design process. We want you to document the process that the team takes and the incremental insights, challenges and refinements that occur as you investigate your design opportunity.

The specifics of each prototype will vary, depending on the project and what is best suited to manifesting that concept. This document is intended as a guide to the format and content for delivery.

The aim of the prototype(s) is not to build a product that solves the problem entirely. The aim of your prototype is to test your idea, for the purpose of learning more about your domain & users. What you learn will be used to better understand the problem space, and influence how you would build a future product. At the end of the semester, each prototype should have undergone **at least one significant evaluation with the target audience** prior to final delivery at the exhibit.

What to do

Research (Current & Ongoing)

All good design invests time in research, and it is the data you gather that will establish requirements for your design, will inform your sketches and wireframes, and determine how well your prototype addresses user needs.

The domain & proposal research done to date will provide a foundation for your prototype work, however you should continue to look to contemporary literature to support your approach, decisions and outcomes.

At this point you will be focussing on your users to understand their needs & desires in relation to the design opportunity you have identified. Your research should include:

- Academic studies: what does the literature say about the problem you are exploring;
- Other published documents: statistics or reports that help map the domain;
- Primary data: interviews, focus groups or surveys of target users;
- Observations: what is the use context.
- Outcomes of alternative user-focused research methods & activities (e.g. probes)

We do not need to read a complete literature review or transcripts of interviews. Rather, we want you to synthesise what your research has told you and quote studies, sources, observations to support your claims. Photos are a great way to show use context. While research is ongoing at all stages in a design project, you should aim to have most of your fundamental research conducted by Week 9.

Requirements

Based on the evidence you have collected, you will need to clearly define what the problem or opportunity is, and what your design needs to do to better understand that problem or realise that opportunity. You should be articulate what you aim to achieve and how; and further R=refine your requirements in response to insights gained from your ongoing research. You should be prepared to adjust your approach/concept/focus in response to insights gained through your user research and design evaluation. Your initial design requirements should be documented and defined by Week 8, though you will need to revisit them regularly throughout your project.

Designs

Prototyping is a core part of designing and we want to see how you have translated your research into design concepts. This phase is about developing the conceptual model of what your product will do and how it will work.

You should draw on your research and requirements to inform wireframes, mood boards or low-fidelity prototypes. You might mock up or sketch story layouts, or create user scenarios, maybe you need to come up with a workflow. Include these, or images of them, in your design documentation and provide explanation and context where necessary.

You do not need to produce all the items above, nor is it a definitive list of options. Rather, document your design work and the process and decisions that shaped it.

Interactive prototype/s

All this design work should give you a solid base on which to build an interactive version of your design. Given the time and resource constraints, it is unlikely you will be able to fully develop your project, **so we are not expecting a fully-functioning product.**

For any prototype, we are looking for a prototype that exhibits enough functionality to demonstrate the core concept/s you are exploring. This might be showing how content is delivered at specific locations, or how users might collaborate around content on the platform. The purpose of this prototype is to demonstrate your idea (or key parts of your idea) to learn more of the domain space and context of use - not to solve the problem entirely. As you are working in a social/mobile context, your prototype/s will be **expected to demonstrate a multi-user experience** to better understand the social/mobile aspects of your work.

The degree of interaction supported will vary between projects and you might simulate some aspects. For example, it might be appropriate to use video, animation, or graphics to indicate non-core functions. Similarly, dummy content, using pre-existing APIs or an RSS feed, may suffice for original content (as long as the data/content is not central to your project).

Spend time on the unique aspects of your project. You need to clearly identify the core concept of your proposal and work toward being able to demonstrate that. This will involve mobile/social aspects and domain aspects. Use the location framework (http://designforlocation.org/) to guide your considerations throughout your process. Do not waste resources on developing a user login/profile system if that is not core to your idea - everyone can be Joe Bloggs & Kit Cook for the purposes of demonstration.

It should be possible for someone outside your team to use the prototype and access content and features without the need for a member of the team to intervene or explain. The outcome may be a single prototype that mixes simulated and functional interaction; or a portfolio of prototypes that demonstrate different views of the experience (groups must develop a portfolio where each member produces a prototype). For example, if your concept is a mobile application that delivers location-specific content to the user, you might have:

- an interactive (but simulated) prototype that allows users to navigate fixed pathways through the various features of the interface in order to understand task flow across the application;

- and a second functional prototype installed on a mobile device that shows content specific to the location the user is in, that changes that content when the user moves to a new location and that concentrates only on the area of the application concerned with showing location-specific content.

You need to show how the project exploits social and/or mobile technology. Consider theoretical concepts covered in lectures such as awareness, coordination, collaboration, activity traces, synchronous/asynchronous interaction, place/space, location-dependence, location-awareness, relative/absolute location etc. Use the location framework (http://designforlocation.org/), or other more suited to your project, to guide your considerations throughout your process. You will be asked about the concepts and theories you have applied and methods and techniques you have employed in your design process.

Stand-ups and documentation of the design process

Stand-ups

The process we are following is effectively a complete design cycle run in three 2-week sprints. You will conduct *stand-ups* in weeks 8 and 10 to discuss your current work and re-plan future milestones. These meetings aim to be intentionally short, to the point, and focus on getting things done. Stand-ups are now commonplace within industry, and graduates are expected to be proficient at the process. While they may seem like a distraction from the assignment process, their aim is to make sure that work is spread across the semester. Additionally, this allows team members to work independently, and report back in a timely fashion. A few hints:

- Stand-ups should be short & will include a member of teaching staff to provide additional advice/direction.
- Stand-ups should not require any more than a few minutes to organise your thoughts.
- Each team member must speak equally, discussing what they did since the last stand-up, and what they will do before the next one.
- Use the documentation of your process & work completed on Github to help discuss & illustrate what has been done.
- Discuss any issues or changes to plans
- Document what has happened after the sprint, take some time to capture the state of the project and identify the next stages of work.

For week 8, we expect that you can describe findings from user research (interviews, observations, cultural probes); that you can describe a clear set of experience requirements for your design opportunity; and that you have generated some designs for your domain, as well as one or more non-functional prototypes. Where this work has not been done, you should identify the reasons why.

For week 10, we expect that you can describe findings from prototype evaluations conducted with users (or suitable proxies); that you can describe refined requirements for you concept; that you have started work on the functional aspects of your prototype. Where this work has not been done, you should identify the reasons why.

Stand-ups are formative (for feedback) but a compulsory pass/fail component of the project. Each team member must attend and be prepared to discuss their contributions to the project.

Github Repository & Documentation

Readme.md

This file will provide a guide to the contents of the repository, providing a hyperlinked overview for the project and structure of your documentation. This should also include instructions for how to deploy and use your prototype, including any login credentials.

Prototype

Your final proof-of-concept prototypes should be accessible from the root of your repository with instructions for use included in the readme.md file (including login details if required). Any links to prototypes hosted elsewhere should be included here.

Note: a proof-of-concept prototype is an advanced prototype that balances simulation and functionality to provide an accurate representation of the concept to the target audience. The prototype will allow users to interact meaningfully with key aspects of the concept - while providing a clear view of the broader concept form.

Ongoing documentation of work

We would expect to see examples of the evidence you have gathered, such as graphs, quotes or observations from surveys, interviews, or academic studies. We would also expect to see images of physical evidence, such as photographs of users, sketches, wireframes, or functioning websites. The team should decide how best to manage and document the day-to-day work of the team and consider how this can be packaged for marking purposes.

Consider how you can use Github's features, such as *projects* for tracking issues and tasks to capture team workflow and task allocations in a way that minimises additional documentation load. The record and outcomes of each stand-up meeting should be documented in the WIKI to capture the state and future directions of the project at that point in time. We suggest that the documentation is written throughout the semester and used as a method to summarise the stand-ups. This will mean that by the conclusion of the prototypes, process documentation is for the most part already written.

Stand-ups: Following (or in preparation for) each stand-up, teams should capture the state of the project, along with key outcomes and action items on the WIKI. This should be concise, capturing key points and should provide a way forward for the next stage of the project.

Ethical Considerations: As practitioners who develop technologies that will impact the context in which it is introduced, it is important to consider the ethical risks, implications, and potential impacts of the work you produce. To this end, teams are asked throughout the design process, to consider their work through the lens of the Ethics for Interaction Design framework (Loke & Matthews, 2020) and the potential ethical risks in the project being adopted widely. Teams should provide, on a dedicated WIKI page, their assessment of the ethical risks and implications of their project. The resources at Ethics for Designers (www.ethicsfordesigners.com) may assist in this process – in particular the Ethical Disclaimer canvas will assist.

Loke, L., & Matthews, B. (2020). Scaffolding of Interaction Design Education Towards Ethical Design Thinking. Available via UQ Library.

Design Process Overview: On a dedicated WIKI page, you will synthesise and explain your design process. Consider this a top-level narrative of the design work you have carried out, curated from the day-to-day documentation of the work completed. You may use the location framework (http://designforlocation.org/) to think through your process, and how you communicate it to an outside audience. You will also need to document your evaluations with users, methods you have selected and any analysis of evaluation data.

We are looking for a document that compliments the other parts of the prototype: the prototype itself, ethical considerations, design artefacts & promotional material. It should explain how the prototype came to be and why it is the way it is. We expect this will contain both written and pictorial content and should be referenced or hyperlinked where appropriate. Please note that this is not an essay or research paper—in some cases, a sequence of photos, screenshots or wireframes of your prototype with annotations may suffice.

The design process overview will be presented as a page on the GitHub WIKI and will form the basis for your conference poster to be shown at exhibit. There is no set format for this, however, we are keen to see a strong visual component as well as some contextual detail.

Here is a suggested outline for the Design Overview page:

- Conference poster & Promotional Material: link to this up front so we see it first;
- Link to the prototype, and instructions for how to deploy and use it, including any login credentials;
- Summary: what is the problem/opportunity space and how did you address it?
- Process: how did you tackle this problem? Use images and extended captions to explain the design process and how your ideas evolved. Mention any limitations and relevant theory.
- Include a list of who did what in the project.
- Aim for no more than 1,000 words plus images. References not included in count. Reference in any style but be consistent.

Exhibit: Conference poster & supporting promotional material

Your conference poster will detail your problem space, concept and process as captured on Github and present it for your peers, industry guests and general public in poster form at the end of semester exhibit. **Posters should be created at A2 page size (420mm x 594mm) portrait orientation and are meant to be read up close.**

You should also prepare a short 1 – 2 minute oral pitch that captures the key aspects of your work. This combined with the conference poster and supplementary promotional material will be used to communicate your idea at the exhibit. Additional promotional material might include one or more of the following:

- a kickstarter style video (2 - 3 minutes)
- a website to house your prototype and promotional material
- brochures/information sheets about your idea
- a social media presence, campaign, and/or dedicated #hashtag

The role of the promotional material is to pitch your idea without you being there:

- Focus on the problem it solves and what makes it unique.

- Demonstrate or explain how your prototype works and why it is innovative.
- Avoid overly detailed, low-level, descriptions of technical aspects of the project.
- Select mediums/methods that best communicate the aims and process of the project.

While the primary use of the promotional material will be for display at the exhibit, consider how the material might live on beyond the course. You may not have an opportunity to talk to everyone that visits your display, so your materials should standalone to explain your ideas.

Your promotional material should either be visible on your Github main repository page or linked from there.

Submission

Submission & Preparation of Documents:

For each stand-up, the team should create a WIKI page on their repository to capture the state of the project and outcomes of stand-ups.

Following the tradeshow and no later than **5:00pm Monday 21 October**, one member of the team will submit:

- GitHub repository URL. Your repository should contain the documents and artefacts as outlined in the **Documentation & Artefacts section** above.
- PDF export of **Design Process Overview** & **Ethical Considerations** WIKI pages, with filename TeamName_4dDesignPrototype.pdf

Criteria

- Innovative project that provides strong insights and a realistic idea of how social and/or mobile technologies can be used in an aspect of the problem domain.
- The prototype (group)/pair of prototypes (team) effectively balance functionality and simulation to provide meaningful interaction with the intended experience.
- Highly creative and engaging pitch & poster that effectively explains your project.
- Poster and promotional materials exhibit high production values and are tailored to the project's domain.
- Documentation is comprehensive and captures the work completed in a consistent and coherent manner; including methods, results & analysis of user-centred research, task & work management, interim designs & prototypes, ethical considerations and other relevant work outputs.
- Design process overview clearly and concisely communicates a strongly user-centred process evidenced through well-considered ethical considerations, critical research and creative design outcomes.
- Across all communications, language and writing style is fluent and literate, of a high standard with coherent flow and logical structure.

Note: a proof-of-concept prototype is an advanced prototype that balances simulation and functionality in order to provide an accurate experience of the concept to the target audience. The prototype will allow users to interact meaningfully with key aspects of the concept - while providing a clear view of the broader concept form.

