

Initial Plan: Usability of Mobile Devices

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Project Description

This project aims to investigate the issue surrounding elderly people who cannot be discharged from the hospital due to lack of care at home. Due to cuts in social care, elderly people are taking up hospital beds, through no fault of their own, causing a major strain on NHS services. Therefore, my project and research will be focussing on the requirements and what is needed to monitor the elderly from the comfort of their own home.

The project aims to measure the usability of current mobile applications to be used by the elderly, in order to monitor their specific medical needs. The chosen mobile applications will be determined through preliminary research. Initially I will interview users, those who this app may be useful for. I will also research further into the problems the healthcare system is struggling with, and their current ways of attempting to deal with the issue. This will help me to determine where to focus my interests, and allow me to define requirements for the problem.

The method will be a mixture of usability and functionality testing of the existing applications. Two applications will be chosen for my research. These two applications will be evaluated against the requirements and compared to each other, assessed on usability, and a gap analysis will be undertaken. The usability of the chosen applications, will be assessed in terms of efficiency, effectiveness and user satisfaction.

Based upon my research and gap analysis, the requirements gained from this will allow me to focus on designing experimental tests for the chosen applications. From this, I will undertake a series of tests including a cognitive walkthrough, heuristic evaluation and user testing. These tests will be considered and their adaptation to mobile situations studied on different applications and platforms. The user categories will include those who are in the medical field, such as GP's, nurses or medical students, as well as elderly people who may need this type of application for aid. This will be undertaken through a series of different tests, to see how appropriate, the applications can be used for their supposed function. The aim is to create a series of results to conclude whether the application(s) is appropriate for its function.

When undertaking these tests, and collecting data, I will ensure that the answers provided by the users are not influenced by any external factors or bias. Opinions will be collected through questionnaires, interviews, and the 'think aloud protocol' which allows users to express what they are doing on the application, and their opinions as they are navigating around it.

Based upon my research and gap analysis, I will propose how the apps can be modified to enhance usability, and create a design based upon this. I will then test these ideas with the users.

The result of this project is a recommended approach to evaluate the usability of current medical applications for the elderly, so that they can be enhanced and improved for usability purposes.

Project Aims and Objectives

The core objectives for this project are:

Objective 1: Study the problem

- ↳ Research into the current issues surrounding healthcare support, to ensure elderly people can be discharged from hospitals and return home.
- ↳ Research into publications, research papers and current affairs to understand the current problems the hospitals and elderly are struggling with, to see where the focus lies.
- ↳ Research into currently available technological solutions. A soft systems methodology approach will be used to understand the problem and its dimensions.
- ↳ The output from this objective will be a conceptual model of the problem identifying and defining the issue at hand.

Objective 2: Requirements Definition

- ↳ Plan and conduct primary research in the form of user interviews and questionnaires using representative user groups to understand user needs from a technological solution.
- ↳ Review the range of technological solutions available and identify representative samples to be evaluated.
- ↳ Identifying the gaps between the available solutions and the identified user needs.
- ↳ Draw up an initial list of requirements for the system needed.
- ↳ The output from this objective will be a Gap Analysis Report and list of requirements for the proposed system.

Objective 3: Carry out the testing

- ↳ Research and learn how to measure and test usability factors, specifically for mobile devices.
- ↳ Created detailed tests based on the research found. This will include such tests as:
 - Heuristic Evaluation
 - Cognitive Walkthrough
 - User testing/Think aloud tests
- ↳ Arranged slots and times will be given to the testers, and the tests will be undertaken in a quiet location.
- ↳ I will analyse and find correlations from all the data received from the tests, experiments and interviews. I will present them in a format that is easily accessible.
- ↳ The output from this objective will be an analysis of results

Objective 4: Propose a design for an application

- ↳ Based upon all my research, test findings and analysis, I will propose a design of what I believe the application should feature.

- ↳ The design will take into consideration all the different test results and will be based upon Nielson's Usability Heuristics (Nielson, 1994).
- ↳ The output from this objective will be the prototype designs for the medical application

Objective 5: Evaluate prototype design

- ↳ Through reviewing the feedback from the user evaluations, improvements to the prototype designs will be made.
- ↳ After the prototype refinements, user testing will be undertaken in order to check for improvements in design, usability and user satisfaction, compared to the first prototype design.
- ↳ The output for this objective will be an analysis of the reviews from the prototype designs

Objective 6: Project conclusion

- ↳ Evaluation of all research and findings found throughout the project
- ↳ Answer the project aim – is there a need for this application in the real world?
- ↳ Review the success of the project, and suggest improvements for the future
- ↳ Final conclusion based on the initial project aims

Work Plan

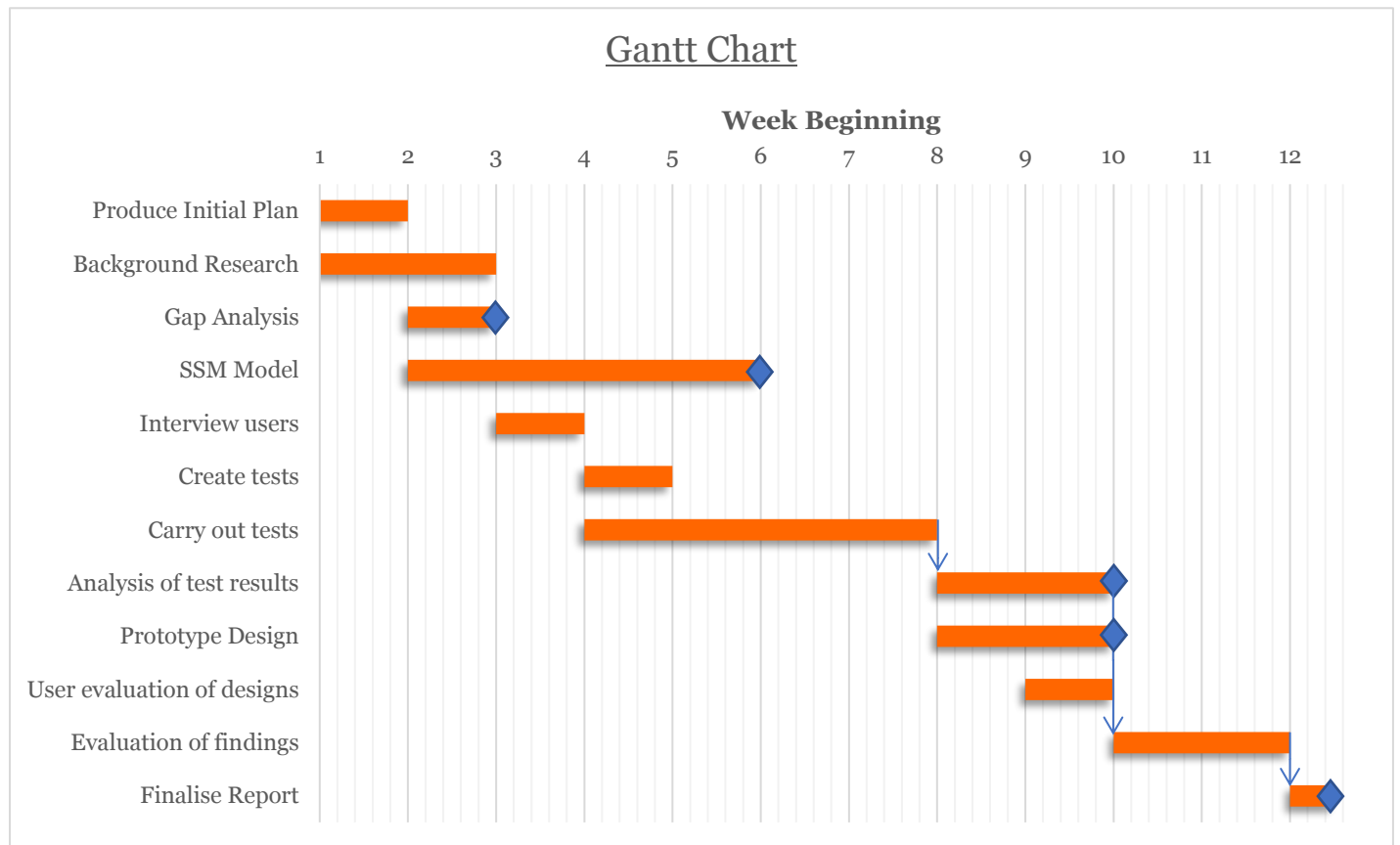
Week	Week Begin	Task	Deliverables
1	23/01/17	<ul style="list-style-type: none"> • Produce the Initial Plan • Research into background areas surrounding the project and healthcare industry 	The Initial Plan
2	30/01/17	<ul style="list-style-type: none"> • Research further into applications that will be relevant to the project. • Research into already relevant publications and public affairs that are relevant to the project • Find users relevant to the project (medical and elderly), who would be interested in having an Interview with myself to discuss their ideas on the applications. • Create two interviews for Elderly users and for Medical users. • Start to create a Soft Systems Methodology (SSM) approach and conceptual model to show all aspects of the problem. 	<i>Milestone: SSM Conceptual Model</i>

3	06/02/17	<ul style="list-style-type: none"> • Interview users who previously said they would be happy to be interviewed. • Write up interview results and combined opinions • Choose two applications to compare • Create a Gap Analysis Report • Review Meeting with Supervisor to discuss the preliminary research that I have undertaken. Discuss how to start the testing methods. 	Milestone: <i>Gap Analysis Report</i> Interview results Chosen applications for comparison
4	13/02/17	<ul style="list-style-type: none"> • Choose methods for testing, and create the written user tests. • Undertake a heuristic evaluation – inspect the User Interface of the applications, compare them and evaluate the usability against Nielsen's heuristics guide. Inclusive of severity ratings 	Recorded findings from Heuristic Evaluation Written tests for user testing and think aloud tests for the two focus group who could use the app in the real world.
5	20/02/17	<ul style="list-style-type: none"> • Undertake a Cognitive Walkthrough: Meet with a random sample of people who are not in the specified field of medicine, and allow them to perform specific tasks on the app. 	Recorded findings from the cognitive walkthrough
6	27/02/17	<ul style="list-style-type: none"> • Organise times to meet with users who are interested in participating in the user testing • Meet with test participants and undertake the user tests. • Review Meeting with supervisor to review how the testing is taking place, and for support on how to continue the testing for the following few weeks. 	
7	06/03/17	<ul style="list-style-type: none"> • Continuation of user testing 	Milestone: <i>Document and analyse results from user tests</i>
8	13/03/17	<ul style="list-style-type: none"> • Analysis of results and identify any common thoughts and trends in the results. • Review results from all tests undertaken to notice any links between them all. 	Graphical representations of user test results

		<ul style="list-style-type: none"> • Create prototype designs of the applications, based upon the feedback from user tests. 	
9	20/03/17	<ul style="list-style-type: none"> • Review current report progress and make alterations. • Interview users to receive feedback on the design prototypes • Review Meeting with Supervisor to discuss the results from the tests, and to discuss how to write up the results and conclude the project aims and objectives. 	<i>Milestone: Design Prototypes</i>
10	27/03/17	<ul style="list-style-type: none"> • Evaluation and write up of report 	
11	03/04/17	<ul style="list-style-type: none"> • Continuation of evaluation and the project conclusion. • Description of the outcome of the tests and whether they have been successful. • Evaluate success of the project, and whether the initial aims of the project have been met. 	
EASTER			
12	01/05/17	<ul style="list-style-type: none"> • Proof read report • Ensure all test results are explained, and the report is finished with all the documentation included. • Plan how to present the project for the Project Viva 	<i>Milestone: Final Report due 5th May 2017</i>

Gantt Chart

The Gantt chart below shows the workflow graphically, and how long each task will take. The milestones for the project are represented by the blue diamonds.



Risk Plan

I have created a Risk Plan, due to uncertainties that could happen during the project.

Possible Risk	Risk Level (Low, Medium, High)	Likelihood of Event (Certainty, Likely, Somewhat Likely, Unlikely)	Contingency Plan
Illness	Low	Somewhat Likely	Ensure I have provided myself with enough time to finish all the tasks, if a few days are missed due to illness.
Difficulty finding users to help with the user testing	High	Somewhat Likely	Start looking for users early in the project, and offer incentives for people willing to offer their time.
No Wi-Fi Available when attempting to undertake user tests	High	Likely	If unable to meet in a spot which has Wi-Fi, ensure that I bring a hotspot device to provide an internet connection.
Users cannot meet in the specified week planned for user testing	Medium	Somewhat Likely	If some users cannot meet in the specified time, ensure I have enough time to meet in the following week, and begin the following week's tasks earlier.

Bibliography

Nielson, J., 1994. *10 Usability Heuristics for User Interface Design*. [Online] Available at: <http://www.designprinciplesftw.com/collections/10-usability-heuristics-for-user-interface-design>
[Accessed 27 01 2017].