Initial Plan

Project 218 – Contextually Aware Travel Application

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CM2303 – Large One Term Individual Project – 40 Credits

Project Description

Travel and tourism is a growing market. Outbound travel from the United Kingdom had increased by a total of 3.5% from 2012 to 2013, and inbound travel to the United Kingdom has increased by 5.6% over the same period (Rhodes, 2015).

For my project, I plan to create an android mobile phone application which serves as a context aware travel application. The application accesses contextual information from the user's mobile phone device, primarily GPS location, and providing information to the user about the user's location, such as local activities, local currency, exchange rates, local language, translations, and maps. The user should then be able to make judgements of the area they are in with minimal interaction with the application. The basic concept behind the application is more geared towards finding activities to do or information about the area on a whim, rather than structuring and pre planning the trip beforehand.

In my preliminary research into the market for similar applications, the most similar application I could find was Travel Guide, which uses GPS co-ordinates to guide users through a city based off of their current location, and provides an audio tour to the user as they walk around the city. The downfall of this application is that it tends to focus too much on providing tours around the city, whereas my application seeks to be more lightweight. The concept of Travel Guide was to have the user follow the tour on the phone, whereas my application seeks to provide suggestions for activities to do, rather than actually being the activity itself.

Project Aims and Objectives

The first aim of the application is that it needs to be able to gather contextual information from the device, and store them in a usable manner for the gathering of information.

- **GPS Co-Ordinates**
    - The application will need access to GPS co-ordinates to discover the user's location, to discover local information about the area.
- **Time Information**
    - The application will need access to time information to be able to cater the information to activities the user will more likely wish to do, e.g. a user is less likely to want information about the local beaches in the evening, than in the morning/afternoon.
- **User Preferences**
    - This is a secondary goal for contextual information that will only be done if time permits. The application will need a way to store user preferences. Users are likely to have different preferences on activities they would like to do. By storing user preferences, information displayed could be catered more towards the user's tastes, e.g. a user might not be interested in visiting art museums, so remove these results, or supress them further down in the results.
- **Weather Information**
    - This is a secondary goal for contextual information that I will only attempt to implement if time permits. The application will take weather information and use it to tailor the information on local activities based on the predicted weather, e.g. no user would want information on the local beach when it's raining.

The second aim of the project is to use the contextual information stored to be able to retrieve information in a reasonable time, and using a reasonable amount of mobile phone network data.

- **Information Searching**

    - The application will need a way of taking the stored contextual information, and using it to search the internet to find relevant information about the local location. It is likely that due to the fact that the application will be on android, that Google will be used for the majority of the data retrieval.
- **Search Time**
    - The application will need to be able to return data reasonably quickly, as users are impatient when it comes to load times. The load time will consist of retrieving search results, and the algorithm for ranking the results of the search. As the retrieval of results is bound by the speed of data network, the only room for improvement will be the algorithm itself.
- **Network Usage**
    - As this is a mobile application, and will require access to the internet, it will be bound by the user's network limits. As not everyone has unlimited data packages with their mobile phone contracts, I will need to ensure that the data requirements for the application remain reasonable.

The third aim of the project will be to implement an effective user interface to improve the ease of use of the application

- **Minimal User Interaction**
    - The broad aim of this application is to provide a contextually aware travel application that requires minimal user interaction, i.e. the user should be able to receive the information they require with as little button presses as possible as the application itself should be doing the work for them. To achieve this, the user interface will need to be as efficient as possible.
- **Ease of Use**
    - The application's user interface will need to be as intuitive as possible, as the application's goal is to allow the user to get the information they require in the fewest possible clicks. If the application's user interface is not intuitive, users may get frustrated trying to find the information they

require, and it may also result in unwarranted clicking, rendering the goal of minimal human interaction unachieved.

- **Clear Structure**
    - The application’s user interface will need to be clearly structured and organised, so that users can easily find what they wish to view on the screen, and the controls to change what they are viewing.

Work Plan

Week	Goals
1	Discover aims and objectives Complete initial plan Begin background research
2	Complete background research for project. Finalise development strategy Complete introduction of report. Complete research write-up.
3	Begin specification and design of system.
4	Complete specification and design of system. Begin implementation of contextual information gathering.
5	Continue implementation of contextual information gathering. Begin implementation of searching using contextual information. First review meeting.
6	Continue previous week's implementation. Begin work on UI.
7	Continue previous week's implementation.
8	Complete implementation
9	Write up of test cases. Lab testing of application. Wild testing of application.
Easter	Application debugging and additional testing. Evaluate system for final report. Begin write-up for final report.

10	Record demo video of application in wild. Continue final report. Second review meeting.
11	Finish final report.
12	Final report hand in.

A Gantt chart of my work plan is included after the discussion of how I will evaluate my system and how I will deal with potential issues to the project.

To effectively evaluate my system, I will have to compare it against my aims and objectives. Due to the nature of the aims and objectives for this project, they will require their own individual evaluations, as some aspects are less easily evaluated than others. Here is how I plan to evaluate each objective:

- **Contextual information gathering**
    - This could easily be evaluated just by checking the application completes each sub objective of the goal, e.g. does it gather GPS co-ordinates, time information, etc. Due to the fact that these would essentially be yes/no answers, there would be no need for extensive evaluation to analyse the results gathered.
- **Information retrieval**
    - This is trickier to evaluate, as people may have varying opinions on what would be considered suitable run time and suitable network usage. The best way to evaluate this would be to compare results with similar applications to see how my application compares. As this may not be sufficient grounds for evaluation, I would also run some user tests on the application to garner opinion on the running time of the search function.
- **Effective User Interface**
    - This will be the hardest aspect of the application to evaluate, as users will have varying opinions on what makes an interface good, what makes one bad, etc. The way I would evaluate this would be to run extensive user testing on the application, and take the consensus of

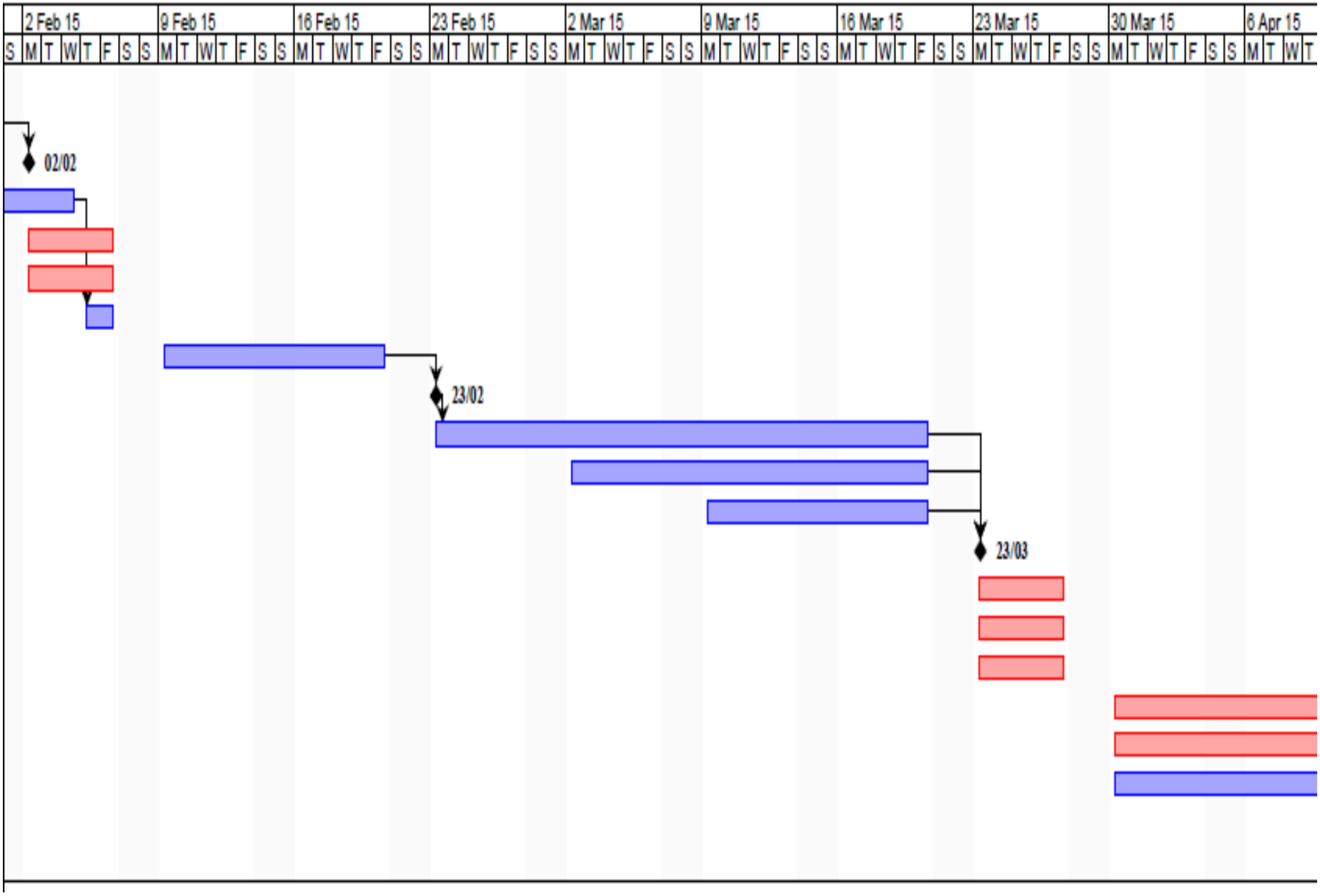
feedback from the testers, i.e. ignore conflicting feedback and focus on the feedback that the testers tend to agree on.

There are possible issues that might hinder the progress of the project:

- I have little experience in the field of mobile application programming, therefore there is a possibility I may have underestimated the amount of time needed to complete certain tasks.
    - To compensate for this I allowed enough time in the final weeks of the project, so that should one aspect of the project fall behind, there will be additional time at the end of the project to catch up.
- Hardware failure on my computer could result in a loss of work/productivity.
    - To mitigate this issue, I will back up my work regularly on cloud storage, as well as on a memory stick, so that if hardware failure should occur, I will have sufficient copies of my work so minimal work will be lost. I also have a spare computer which I would be able to work on, as well as the school's computers to work on, should my computer break.
- There is also the possibility that unforeseeable issues might arise, such as illnesses or family emergencies.
    - Similarly to the first issue, to attempt to mitigate the impact of this issue, I have allotted sufficient time in the final weeks of the project to catch up in areas I have fallen behind.

Here is the Gantt chart for my work plan. It was impossible to fit onto a single page and maintain readability, so I have included an image of the intact Gantt chart in my submission as well.

	Name	Duration	Start	Finish	Predecessors
1	Discover Aims And Objectives	2 days	28/01/15 08:00	27/01/15 17:00	
2	Complete Initial Plan	3 days	28/01/15 08:00	30/01/15 17:00	1
3	Hand in Initial Plan	0 days	02/02/15 08:00	02/02/15 08:00	2
4	Background Research	8 days	28/01/15 08:00	04/02/15 17:00	
5	Finalise Development Strategy	5 days	02/02/15 08:00	06/02/15 17:00	
6	Report Introduction	5 days	02/02/15 08:00	06/02/15 17:00	
7	Research Write Up	2 days	05/02/15 08:00	06/02/15 17:00	4
8	Specification And Design Of System	10 days	09/02/15 08:00	20/02/15 17:00	
9	Design Complete	0 days	23/02/15 08:00	23/02/15 08:00	8
10	Implementation Of Contextual Information Gathering	20 days	23/02/15 08:00	20/03/15 17:00	9
11	Implementation Of Search Using Contextual Information	15 days	02/03/15 08:00	20/03/15 17:00	
12	Implementation Of UI	10 days	09/03/15 08:00	20/03/15 17:00	
13	Complete Implementation	0 days	23/03/15 09:00	23/03/15 09:00	12;11;10
14	Write Up Of Test Cases	5 days	23/03/15 08:00	27/03/15 17:00	
15	Lab Testing	5 days	23/03/15 08:00	27/03/15 17:00	
16	Wild Testing	5 days	23/03/15 08:00	27/03/15 17:00	
17	Application Debugging And Additional Testing	15 days	30/03/15 07:00	17/04/15 17:00	
18	Evaluate System For Final Report	15 days	30/03/15 08:00	17/04/15 17:00	
19	Final Report Write Up	25 days	30/03/15 08:00	01/05/15 17:00	
20	Record Demo Of Application	5 days	20/04/15 08:00	24/04/15 17:00	
21	Final Report Hand In	0 days	05/05/15 08:00	05/05/15 08:00	19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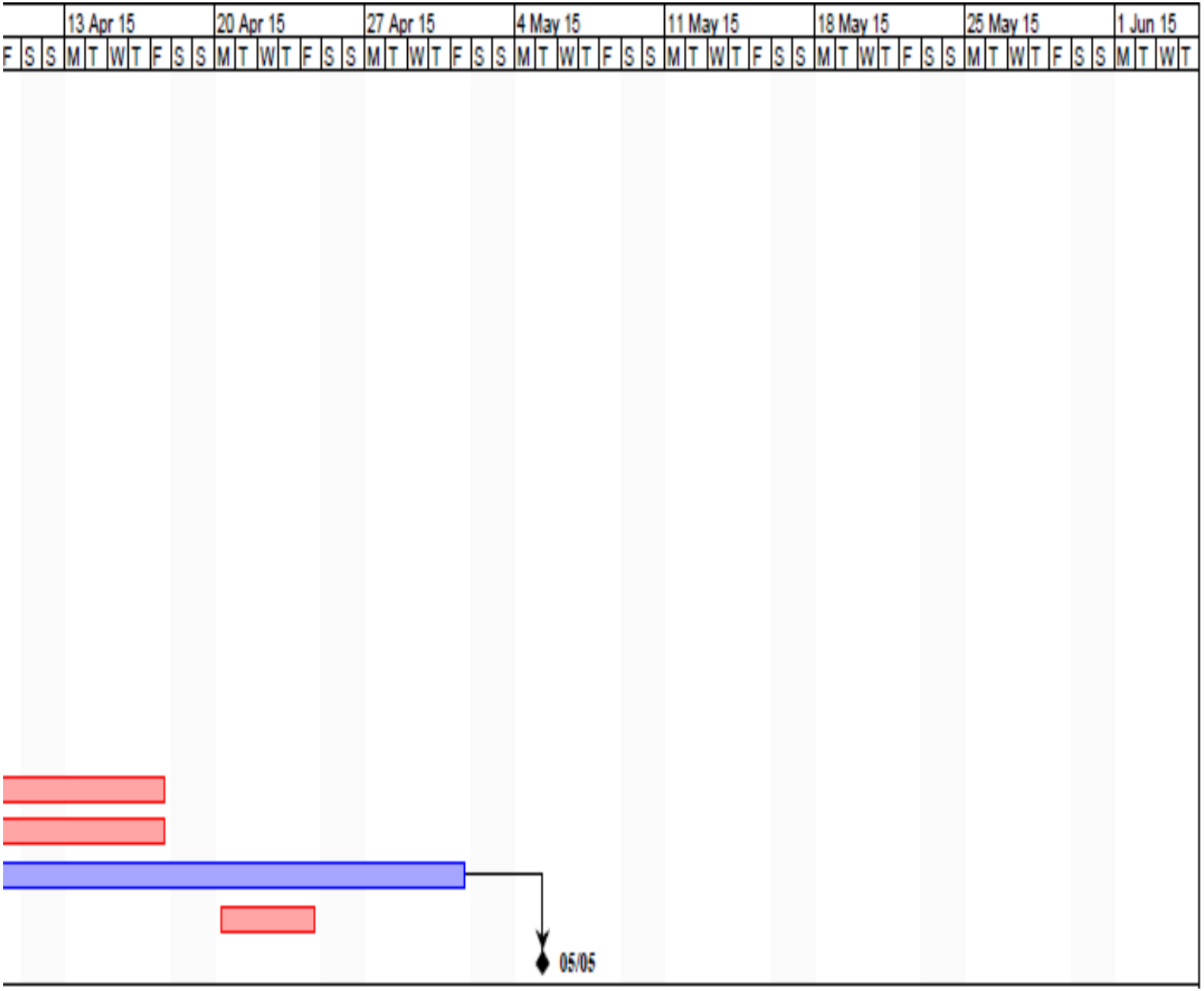
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