Project planning document

## Introduction

The topic of the proposed project is to create a competitive multiplayer mobile game that relies on real world fitness activity to gain an advantage within the game world. The idea is based around the success of mobile fitness applications that have been able to take advantage of improvements and wide scale adoption of health tracking technology and the success of so called freemium games, these are games that are free to play but offer a large in game advantage to players that are willing to spend money on their account. With the switch to in game rewards being given for fitness activity instead of financial. Implications of the project are two-fold; the project has the scope to be able to both fill a gap in the market as currently no other application works in the same way, and to act as a research tool to test whether an application with this kind of incentive could be used to encourage users to undertake more fitness based activities.

## Aims and objectives

### Project aim

To create a mobile based multiplayer game that gives the player character an in-game advantage determined by fitness data captured through their mobile device.

### Project objectives

To fully justify the project, research must be conducted into the state of the current art, a gap in the market must be clearly defined to proceed with project development. A clear competition analysis will be complete by **ADD DATE HERE.**

If the project is deemed justified research will be conducted in several areas, these being;

* The psychology behind fitness, specifically the reasons behind why some individuals take part in exercise and why others do not, what methods can be used to encourage a user who do not regularly exercise to do so
* The reasons why the most popular mobile fitness applications are at the top of the market, what makes them successful, what do they do that others do not
* Analysis of competition in games and fitness and whether common aspects of the two can be used to improve the proposed application
* The reasons behind the success of certain types of computer games, specifically what makes them successful, what genre they fall into and would they work as a mobile application
* Analysis of multiplayer games and what makes certain types successful and others not.
* The reasons behind why the most popular mobile games are popular, with considerations made to the genre, accessibility and overall aesthetic design of the game.
* Programming tools and game engines must be researched to determine the most appropriate for the development of the application
* Open source API’s should be researched to determine which are the most popular and prevalent and to determine which API or API’s will be most suitable for the development of the project

The findings from the gathered research must then be used as a tool to help develop the application, the research portfolio must be completed by **ADD DATE HERE**.

To finalise the project direction a prototype of the application must be created quickly to allow for any changes in project goals, the most likely change in project goal would be a shift into a project focused fully on the research aspect of whether an application of this mature would be more likely to motivate a user to take part in regular fitness activities. With this in mind a prototype should be developed by **ADD DATE HERE**.

Based on the prototype created usability testing should be undertaken, feedback from this usability testing should be used to improve upon the prototype of the application, this process should occur multiple times over the course of the applications development with the first round of usability being completed by **ADD DATE HERE**.

A mobile application must be created that fills the following criteria;

* The application must be a game based around the findings of previously conducted research
* The application must offer an in-game reward for the user completing real world fitness activities
* The application should be developed to run on a mobile operating system to allow for ease of access and play
* The application must make use of fitness data taken from sensors on the user’s mobile device or through the use of open source API’s in order to determine the correct level of in game reward that should be given to the player
* The system should be designed to operate online; this is to allow for easier interaction between the active player base.
* The application should be designed to be played competitively, this is to increase player engagement and to get the most physical benefit from the application
* The application must have undergone a series of user ability tests, feedback from these tests should improve upon the original design

Should these requirements be met the application will be considered complete as far as the scope of this project is concerned, development on the application should be completed by ADD DATE HERE.

## Milestones, main tasks and deliverables

## Project scope

The scope of the project is to create a mobile game that makes use of fitness data gathered from health tracking hardware and software located on the user’s mobile device to grant an advantage to the users in game account. The application will be designed operate in a multiplayer setting, with actions of the player potentially having repercussions on other users operating on the game server, this step is designed to improve the social interaction of the game and add an element of competition with the overall goal being a general improvement in engagement of the game.

### Out of scope

Whilst the main goal of the proposed application is wide consumer adoption this is an unlikely outcome when considered in the scope of the project. It is unlikely the application will be made available across multiple platforms although this can be determined by development choice, and it is also an unfeasible goal to state the application will be made available on various application stores such as though available on Android and IOS, this is due to a lack of knowledge on the rules surrounding submission to these application repos and the lack of time available within the project scope to gain the knowledge.

High quality art work is also considered out of scope for this project, unless suitable open source or free use textures and sprites are found online, the lack of experience in this area would require too much time to bring up to a suitable standard.

## Milestones & Main tasks

The following objects represent milestones and main tasks in the final year project, milestones are considered as such in the Gantt chart below with main tasks being made up of several sub tasks in the Gantt chart.

### Project Milestones

* Review point 1 & Review point 2 completion
* Completed final year project report
* Application prototype
* Completed application

### Project main tasks

* Project Planning Document
* Competition analysis
* Research portfolio
* Usability testing

## Sources of information, resources required

### Resources

### Sources of information

Sources of information and resources required:

a. List of resources (e.g. software, hardware, companies, people) that can be used to meet the scope of the project.

b. List of sources of information required to conduct the project.

Research papers

Books

Web resources

Phone with fitness sensors (or something to gather fitness data or a fitness tracking app with API)

Some development package Unity (for development)

Test group (not sure how big this needs to be)

Server to run the game online

Development machine

## Project risks

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Risk ID | Risk event description and impact area | Impact rating | Probability rating | Risk score | Risk response description | Trigger |
| Loose team member | A team member has decided to no longer attend the course | High | Low | 2 | Review the time schedule and adjust work load to rebalance and ensure all work can still be completed on time | Member of the group |
| Expected team member absence | A team member has to be absent for a period of time, but has made all group members aware of said absence and an estimated time until return | High | Low | 2 | Plan ahead if absent member can still complete their set work this is preferable, if not rebalance the schedule and workload of all group members | Member of the group |
| Unexpected team member absence | A team member is absent but has given no reason or forewarning of this absence | High | Low | 2 | Find out reason for absence and work from there, balance time schedule and workload for the whole group to keep on track | Member of the group |
| Software failure | Software such as Win A&D does not function on one or more group members personal computers | Low | Low | 4 | Attempt to reinstall faulty software, should this fail to fix the problem work on working computers such as other group members or the PC’s available on campus | Software error |
| Hardware failure | One or more group members personal computers are effected by hardware failures stopping work being completed | Low | Low | 4 | Repair broken hardware, whilst this is going on work on computers provided by the university | Hardware error |
| Networking failure | Networking failure means work cannot be uploaded to the NOW dropbox | High | Low | 2 | Move to a location that has an active network connection, if this is a problem with the universities network hand in a hard copy of the coursework and contact the university directly for instructions on how to proceed | Hardware error |
| Printing restrictions | Group members do not have access to a printer or printing credit in order to hand in a hard copy of the completed coursework | High | Low | 2 | Every group members contributes to the cost of printing the coursework | Group member/ hardware error |
| Travel restrictions | One or more group members are unable to travel to meeting points or get to the ERD desk to hand in a hard copy of the coursework | Low | Low | 4 | Post minutes of meeting online and communicate via the web in order to keep those who cannot attend in the loop, if one group member is not able to travel to hand in a hard copy of the coursework then another group member should make the journey. If all group member are unable to travel to hand in the coursework, the module leader should be emailed with an explanation of the groups problem | Group member |
| Miss deadline (group imposed) | A group set deadline is missed, throwing time management out of order | Low | High | 3 | Rework the schedule so the incomplete work will still be finished on time for the final hand in | Group error |
| Miss deadline (module leader imposed) | A specific hand in deadline is missed for example handing in a copy of the CMAP | High | Low | 2 | Hand in complete coursework as soon as possible, follow time schedule closely in order to reduce the risk of this | Group error |
| Team member conflict | Team members find it difficult or refuse to work together on the project | High | Low | 2 | Use group mediation with a neutral member to try and work out any differences, split as much of the work up so contact time between disputing members is reduced | Group member |
| Scheduling conflict | Group members are unable to attend a meeting at the same time as others | Low | High | 3 | Meet as planned taking adequate notes, get any work expected by those who could not attend beforehand, then fill in those who are absent with the minutes of the meeting | Group error |
| Lack of SA&D experience | Group members having little experience or knowledge of system analysis and design so find it very difficult to grasp the concepts and complete the coursework. | High | High | 1 | Attend all labs, seminars and lectures, working as a group go through all work that is set in these. Read course text book to supplement knowledge and come together as a group to help those who are struggling | Group member |
| Team members expectations differ | The expectations of group members differs for example some group members may be working for a higher grade whereas others are just happy to pass. | Low | High | 3 | Get those group members who do not want a high grade to work on the initial stage of a task, then those who want the higher grades can add more to the work to increase the grade | Group member |
| Loss of data | Specific pieces of work are lost caused by errors from group members of the hardware used to complete the work | High | Low | 2 | Create regular backups of any work that is worked on in multiple locations, for example on a PC, memory stick or online cloud service | Hardware error |
| IT resources unavailable | Group members may be unable to attain a certain program needed to complete a piece of coursework | Low | High | 3 | Purchase and install this software on the group member’s personal computer or work on campus where this software will be available. | Software |

Development time too long

Not enough testing

Not having a wide enough test group

The game is not engaging enough

## Professional, social, ethical and legal issues

Evaluation of professional, social, ethical and legal issues – of relevance to the project: a. Discussion of the impact of all four areas of PSEL relevant to your project. Explain why some areas have high or low impact and how you intend to address the impact in each area. Areas that can be covered are quite broad, such as any area of computing related legislation (Computer Misuse Act, Data Protection Act, Freedom of Information); areas that impact on society (home, education, workplace); the misuse of the project results for criminal activities, welfare and surveillance; or consideration of area related to the project accessibility and possible intellectual property may be arise from your work.

Is it ethical to make people compete physically?

Legal implications of storing user data (Data Protection Act 1998) EU ruling “right to be forgotten”

Legal issues of using code found online, must make sure to credit to any open source code used

Do we need more games on the market? (professional)

If we become more health-literate thanks to our smartphones, smart watches and fitness gadgets, what does that mean for healthcare providers?

<http://blog.leweb.co/2014/06/stuart-dredge-digital-fitness-will-boom-dont-forget-ethics/#.WAIYY-CAOko>

## Gantt chart

Gantt Chart - a graphical representation of what tasks are to be undertaken and when: a. Duration of tasks against the progression of time. b. Project milestones (including main deliverables), effort and timescale for the project.