

## **Updated Statement of Requirements**

### **1.1 Document Purpose**

This document outlines the functional, performance and nonfunctional requirements of the game 'Roboticon Colony of York' following the customer's criteria. This specification is intended to give detailed requirements information for the customer to establish an agreement on what is expected from the product and for the development team to take further forward into the process. Therefore it is designed to prevent the project from failing by not meeting the customers needs.

### **1.2 Project Scope**

The project utilises the team's skills to produce a colonisation game, The Roboticon Colony of York, that focuses on supply-and-demand economics and land acquisition on the University of York campus. The game will allow the player to produce, spend or auction their resources in order to beat their opponent. The player with the highest final score, determined by the resources held at the end of the game as well as other potential traits such as cumulative statistics, is pronounced the winner. The overall goal of this is to create a highly functional and enjoyable game that fulfills the customer's requirements.

Once this project is completed the game will be marketed and sold by the customer to users who wish to play the game. Ultimately the customer is who we need to convince of the validity of our game, hence we need to communicate often in order to fully understand their requirements and involve them in the decisions process. The University of York Communications Office is also interested in using the game for promotional activities such as Open Days and UCAS Days, meaning the game also needs to be of a high quality to help promote the university.

### **1.3 Document Overview**

The remainder of this requirements document will be structured into two main sections:

- An overall description of the game which includes information about the logical characteristics of the different interfaces. This is split into four subsections: Product Functions, User Characteristics and Assumptions and Dependencies.
- A specific requirements section including the functional requirements of our game as well as any design constraints and nonfunctional requirements. This section is split into Software Product Features Requirements, Performance Requirements and Nonfunctional Requirements.

This structure follows the IEEE Software Requirements Specification [1], which lays out the functional and nonfunctional requirements and includes a set of use cases that describe user interactions that the software must provide. Use cases can be found on the website [2].

## **2.0 Overall Description**

### **2.1.1 System Interfaces**

The player will interact with the game using a system of GUIs. This will be set up in a clear and well organised form so that the user can understand and get full use from the game. The user interface and the map need to be entertaining and engaging.

### **2.1.2 User Interfaces**

All interaction with the user is through the GUI. Menus will be interactive and easily accessible throughout the game. When the user is playing, everything they need will be clearly visible on the screen and easily accessible.

### **2.1.3 Hardware Interfaces**

To run the game you will need a PC running any operating system. A functional keyboard and mouse is required to play the game.

### **2.1.4 Software Interfaces**

The game will be capable of running on Windows.

## **2.2 Product Functions**

The tile-based colonisation game will allow users to select plots of land so that they can produce resources. The game map will be of the University of York campus and will feature key landmarks to identify the location and help to market it to the University of York Communications office.

The main function of the game is to focus on supply-and-demand economics using the resources produced by the Roboticons. To allow the players to purchase and sell resources, the game will feature a marketplace with dynamic prices that vary depending on the availability of each resource. The market will function as a place where players can purchase Roboticons, trade resources or gamble money at the 'bar' in some sort of mini game. Players can interact with each other by purchasing each others resources in an auction-style process.

### 2.3 User Characteristics

There is one main user of our software, the player of the game. Therefore the player will need to have the following characteristics:

- Ability to read and understand English.
- Be able to use the controls including a mouse and keyboard.
- Familiarity with the operation of the basic GUI components of Windows or other operating systems.

No further abilities with computer technology will be assumed. If they cannot fulfill these characteristics, the user will not be able to play the game.

### 2.4 Assumptions and Dependencies

One assumption about the game is that it will always be running on a computer with enough performance to handle the software. It is also assumed that the computer will have the correct hardware resources including a working mouse and keyboard. The game is dependent on these hardware resources and therefore will not be able to function properly without them.

### 3.0 Specific Requirements

#### 3.1 Software Product Features Requirements

The key product features of the game are the in-game economy and the market. Other features also include the purchasing and customising of the Roboticons, choosing a land tile and gambling.

Any changes to a requirement from the previous requirements statement are indicated in bold with the table cell coloured blue; requirements that have been removed in accordance with the new specification are coloured red. Every other requirement that is uncoloured remains the same. The original set of requirements can be found on the website [3].

#### 3.1.1 Functional requirements

ID	Requirement	Description
F1	Multiplayer	The game needs to support at least <b>two human players</b> . There is no requirement to support networked play but there is a risk that if we implement this it will be very time consuming. Use case 1 can be found on the website [2] and demonstrates how the game is played.
F2	Plots of Land	The game <b>must</b> incorporate plots of land, or tiles, which are uniform of size. These plots of land can have terrain features and can include buildings. Plots of land can have different characteristics in terms of the resources present. Land tiles are free to obtain and limited to one per player per turn; demonstrated in use case 3 on the website [2].
F3	<b>Two resource types</b>	The game <b>must</b> feature <b>two resource types</b> that are spread across tiles. These are <b>Energy and Ore</b> . The user can produce and collect these resources, with the winner being the player with the most amount of resources held at the end. Resources can be generated by placing Roboticons on land tiles.
F4	A market players can interact with	The game <b>must have a</b> marketplace where players can purchase and trade resources. Use case 2 can be found on the website [2] and shows how users can interact with the market.
F5	Gambling in the market	The market <b>should</b> feature a 'bar' where players can gamble money by playing a game. Use case 4 demonstrates how the player can choose to gamble money in the market.
F6	Trade	Players should be able to trade <b>only with the market</b> . Use case 2 from the website [2] demonstrates how the user interacts with the market.

F7	Dynamic Prices	The market focuses around supply-and-demand economics as such prices should be dynamic depending on the supply and demand for that product. See Use Case 2 on the website [2].
F8	Customisable 'Roboticons'	Players can purchase Robotic Assistants, known as Roboticons. The player chooses whether this Roboticon produces either <b>Energy or Ore</b> .
F9	Game Phases	The game is split into phases in which the player can acquire tiles and trade resources.
F10	Set amount of starting money	Players begin the game with the same set amount of money. This will be determined by play testing.
F11	End game occurs when all tiles are taken	The game ends when no more plots of land can be acquired.
F12	Dynamic storyline/narrative	The game should feature a dynamic storyline that relates to the <b>colleges of the University of York</b> and makes the game more enjoyable. This is dynamic and changes throughout the game depending on the user's choices.
F13	At least three visibly identifiable landmarks	The customer requires that the game includes at least three visibly identifiable landmarks for marketing purposes.
F14	Achievements	The game should include achievements that the player can collect that are related to the storyline.
F15	Winner of the game.	The winner is determined by the player with the most resources.

### 3.1.2 Performance Requirements

ID	Performance Requirement	Description
P1	The game client must start within 10 seconds	When loading the game client the user should be presented with the starting scene within 10 seconds.
P2	Multiplayer connections achieved (if valid) or failed within 30 seconds	The user must connect to a multiplayer game within 30 seconds if the session is valid, otherwise the user should be notified that the attempt failed.
P3	Map generation should be completed within 20 seconds	The host of a multiplayer session should generate the game map within 20 seconds.

### 3.1.3 Nonfunctional Requirements

ID	Nonfunctional Requirement	Description
N1	Timed game phases	Phases two and three every round are time constrained. Exact timings will be determined by play testing.
N2	Tile information	Players should be able to view information about the land tile by clicking on the tile.
N3	Using the market	The market should be easily accessible. It should incorporate a clear menu for buying Roboticons, trading and gambling.
N4	The game should be enjoyable to play	The game should be fun and enjoyable to play.
N5	Game should be portable	The game should be usable in different environments and produced for several computing platforms.

## **Bibliography**

- [1] IEEE, "IEEE Recommended Practice for Software Requirements Specifications," 20 October 1998. [Online]. Available: <http://ieeexplore.ieee.org/servlet/opac?punumber=5841>. [Accessed 25 October 2016].
- [2] SEPR, "Use Cases," 4 November 2016. [Online]. Available: <https://seprated.github.io/Assessment1/UseCases.pdf>. [Accessed 16 January 2017].
- [3] SEPR, "Requirements," 4 November 2016. [Online]. Available: <https://seprated.github.io/Assessment1/Req1.pdf>. [Accessed 16 January 2017].