Technical Design Document

Low Level Programming

1. Overview

1.1. Feature list

- Adaptation from Race to Mars TableTop game
- Turn by turn play
- 4 classes(1 per player)
- PC release(developed for Windows 10)
- Range of difficulty depending on how players setup the board
- 4 player cooperative multiplayer
- ***Audio and Sound effects?***
- Scoring system based off players actions and objectives completed
- Comprehensive, readable User interface
- Easily navigable menus
- Interactable card decks
- Elements of chance/randomness with dice rolls’

1.2. Technical/hardware implementation

1.2.1 Game Engine

The Race to Mars, video game adaptation is to be developed and implemented using the Awesome Sauce Game Engine(ASGE). ASGE is a minimall C++ game engine based around simplicity and accessibility for learning students of C++. At current, ASGE only supports 2D however a list of features for the Engine are as follows:

- Sprite handling
- Audio system
- Comprehensive C++ framework
- Scene management

1.2.2 Release platforms

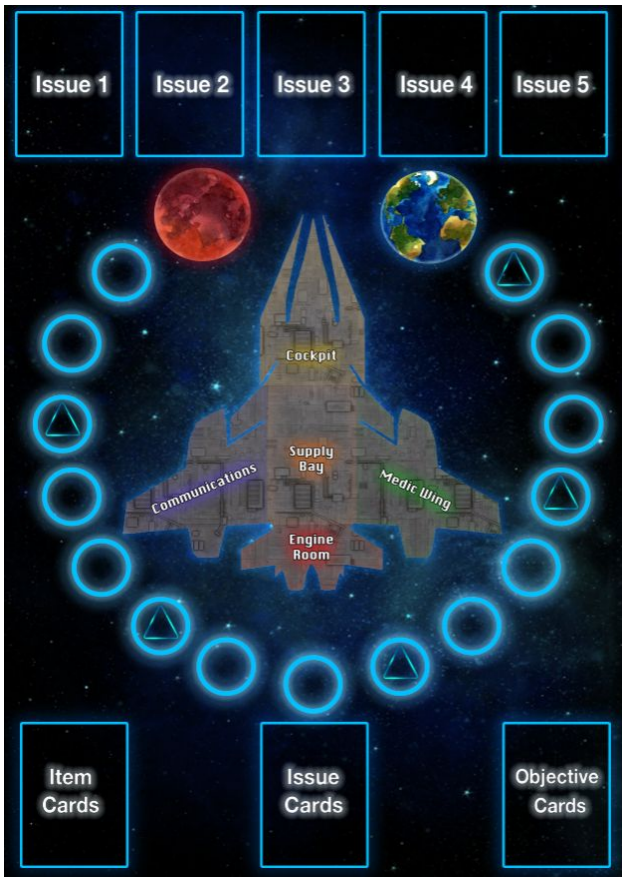
The Race to Mars, video game adaptation is currently being developed solely for Windows 10 for a PC only release, however utilization of CLion software used to code and develop the game, means that potential for a port to both Linux and Apple Mac is available.

2. High Level Diagrams of Software Design

2.1. Layout Diagrams

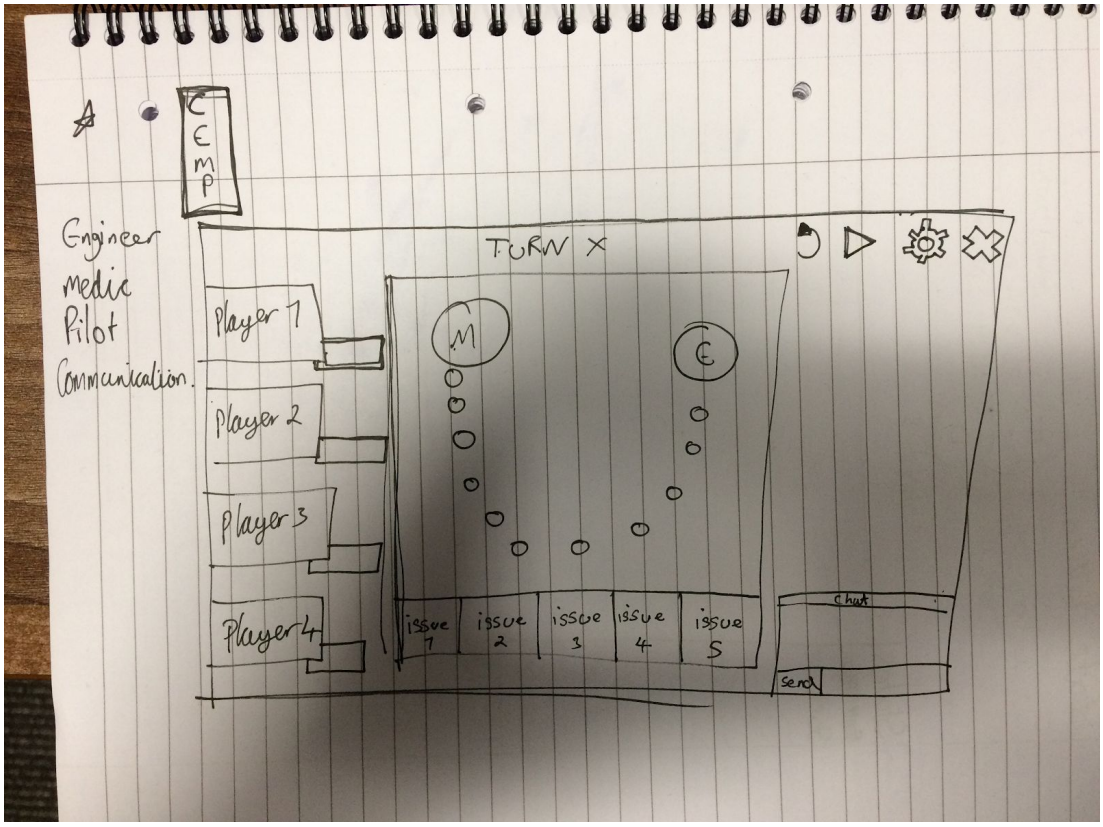
2.1.1 Tabletop board layout

Due to the game being an adaptation of a previously developed Tabletop game, much of the GUI will be lifted from the Tabletop game itself.



2.1.2 GUI Board Adaptation

Below, a Rough sketch of the GUI adaptation of the existing Race to Mars Game board. Many elements are kept the same, such as the issue card places and the Earth to Mars travel. These choices were made to keep the game feeling familiar to those used to the Race to Mars tabletop game. However the player boxes on the left of the screen will contain the player class, Room location, and Action points for the current turn, as well as the players individual rank throughout the game. The Chat box was also added in the bottom of the board so players could communicate with one another.



2.2. Technology/Software Diagrams

2.2.1 Technology/Software Diagram

The Technology diagram is used to show the various technology and software used to develop and implement the game, all shown in figure 2, below.

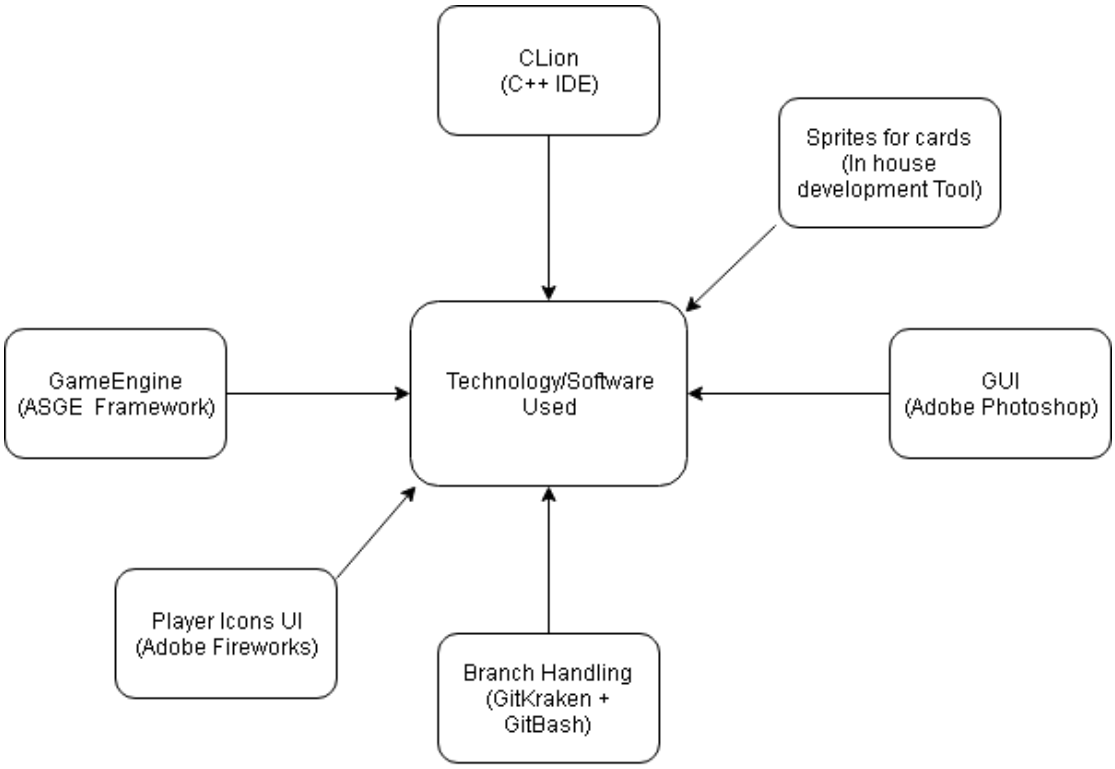
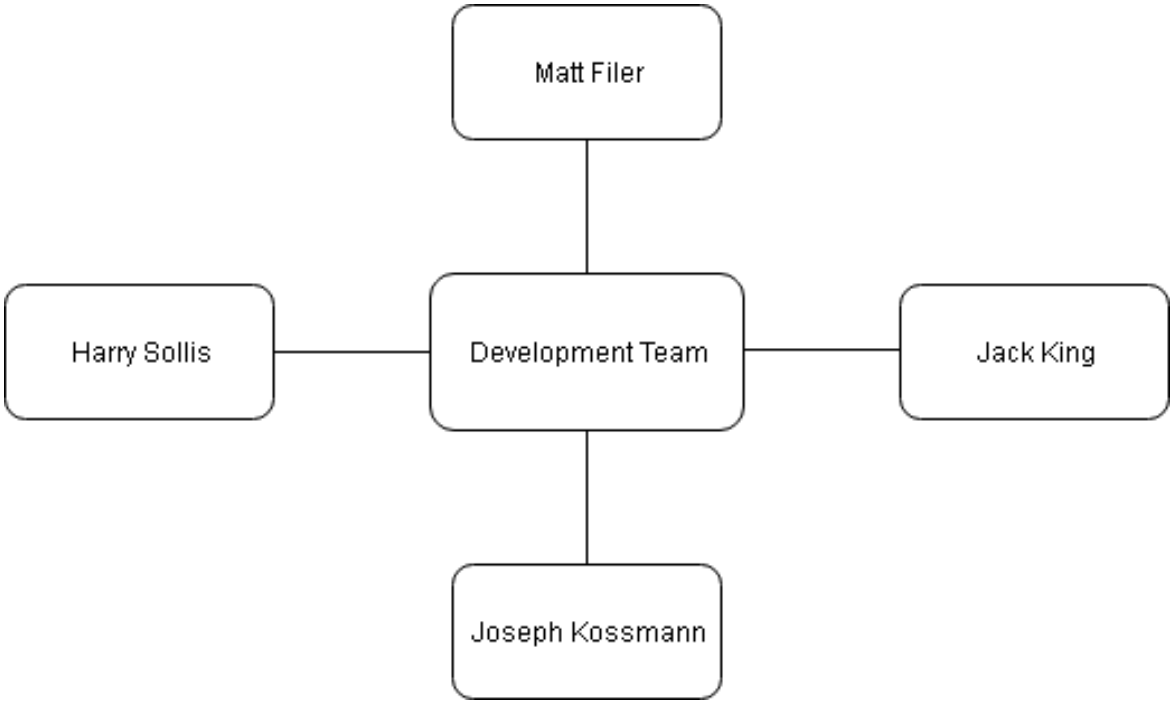


Figure 2 Tech Diagram

2.2.2 Design Diagram

This design diagram is to represent the full team involved in the development of Race to Mars.



2.2.3 Implementation Diagram

The implementation diagram is a visual representation of the flow between different stages of the development of Race to Mars. It roughly details what week of the development cycle, each piece of will be developed during.