

USER REQUIREMENTS

| ID | DESCRIPTION | PRIORITY |
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| UR_FIRETRUCKS_UNIQUE_SPEC | Each Fire Engine must have a unique spec | SHALL |
| UR_FIRETRUCKS_REFILL | Fire Engines need to return to the Fire Station to refill | SHALL |
| UR_FIRETRUCK_REPAIR | Fire Engines need to return to the Fire Station to repair | SHALL |
| UR_ET_UNIQUE_SPEC | Each ET fortress must have a unique spec | SHALL |
| UR_ET_IMPROVEMENT | Over time the ET fortresses improve and they become harder to flood | SHALL |
| UR_FIRETRUCK_MIN_START | The game should start with four Fire Engines with different specs that are all playable in the game until they are destroyed. | SHALL |
| UR_ET_MIN_START | There should be at least six different ET fortresses based (possibly loosely) on real locations in York | SHALL |
| UR_WIN_CONDITION | The game is won when all ET fortresses have been flooded | SHALL |
| UR_LOSS_CONDITION | The game is lost when all Fire Engines have been destroyed | SHALL |
| UR_ET_DESTROYS_STATION | After a fixed amount of time following the first attack to an ET fortress, ETs figure out where the Fire Engines are coming from and destroy the Fire Station. From that point onwards, your Fire Engines cannot be repaired or refilled | SHALL |
| UR_MINIGAME | There should be an embedded mini-game, completely different in style from the main game, but aligned to the theme of the main game | SHOULD |
| UR_DIFFICULTY_LEVEL | The game has different difficulty levels for different types of audiences | MAY |
| UR_CONTROLLER | The game could have controller compatibility | MAY |
| UR_HIGHSCORE | The game should have a record of high scores | MAY |
| UR_MOBILE | The game may be cross-platform transferable | MAY |
| UR_INSTRUCTIONS | The game should have a function at the beginning of the game to explain how it works | SHOULD |
| UR_GAME_TIMER | The game's length should be decided keeping in mind the target audience i.e. open days attendees, and is based on the timer that is triggered following the first attack to an ET | SHALL |
| UR_INTUITIVE | The game should cater to different levels of ability and be unambiguous and intuitive to complete. | SHALL |
| UR_COLOUR_ACCESSIBILITY | The game may have a feature for different colours schemes for enhanced accessibility e.g. high contrast colours | MAY |
| UR_PATROLS | The user shall meet patrols when moving around the map. | SHALL |
| UR_FORTRESS_ATTACK | The user shall be attacked by the fortresses when the fire engine is inside the fortresses' range. they're in range. | SHALL |
| UR_LEVEL_SAVINGS | The game's progresses shall support facilities that allow players to save the state of the game at any point and resume a saved game later | SHALL |
| UR_POWERUPS | During the gameplay, there shall be five special power ups that Fire Engines can obtain on the journey | SHALL |
| UR_DIFFICULTY | The game shall support for different levels of difficulty in the game (e.g. easy, normal, hard) | SHALL |

| SYSTEM REQUIREMENTS | | |
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| FUNCTIONAL REQUIREMENTS | | |
| ID | DESCRIPTION | USER REQUIREMENTS |
| SFR_ALLOWED_TO_REPAIR | Health Point drop by more than 1 shall lead to Fire-engines able to repair | UR_FIRETRUCK_REFILL |
| SFR_ALLOWED_TO_REFILL | Water Tank points dropping by 1 shall lead to Fire-Engines able to refill | UR_FIRETRUCK_REPAIR |
| SFR_REFILL_FIRETRUCK | Fire engine refills once the minigame is complete. | UR_FIRETRUCK_REFILL |
| SFR_REFILL_CONSTANT | Once the fire engine enters inside the fire station's range, refill rate shall be constant | UR_FIRETRUCK_REFILL |
| SFR_REPAIR_OVER_TIME | Fire engine repair over time | UR_FIRETRUCK_REPAIR |
| SFR_REPAIR_CONSTANT | Once the fire engine enters inside the fire station's range, the repair rate shall be constant | UR_FIRETRUCK_REPAIR |
| SFR_CANCEL_REPAIR | The repairing can be stopped at any point during the process | UR_FIRETRUCK_REPAIR |
| SFR_MOVE_WHILE_EMPTY | The fire engines shall be able to move even with empty water tank | UR_FIRETRUCK_REFILL |
| SFR_MOVE_WHILE_DAMAGED | The fire engines shall be able to move with HP < 100%. | UR_FIRETRUCK_REPAIR |
| SFR_ET_IMPROVE_CONSTANT | The ET fortresses shall improve by a constant amount of HP and damage. | UR_ET_IMPROVEMENT |
| SFR_ET_IMPROVE_ | The ET fortresses shall increase in HP and damage dealt over time. | UR_ET_IMPROVEMENT |
| SFR_HEALTH_BAR | The health bar of the fire engine that is being used should be visible at all times. It should be visual rather than jargon to be understandable to all audiences. | UR_FIRETRUCKS_REPAIR |
| SFR_WATER_SUPPLY_BAR | The amount of water currently contained in the tank of the fire engine that is being used should be visible at all times. Again, similar to the health bar should be visual and avoid jargon. | UR_FIRETRUCKS_REFILL |
| SFR_ET_LOCATIONS_NOT_CHANGEABLE | The locations of the fortresses cannot be changed by the user | UR_ET_MIN_START |
| SFR_FIRETRUCKS_STATS | The user will have four unique fire trucks during the game to switch between. | UR_FIRETRUCKS_MIN_START |
| SFR_FIRETRUCKS_SELECTION | The user will have four trucks (lives) to complete the game | UR_FIRETRUCKS_MIN_START |
| SFR_DESTROYED_TRUCKS | The user cannot repair trucks that have already been completely destroyed | UR_LOSS_CONDITION |
| SFR_MINIGAME | The minigame should start when the truck is in the fire station, lacking water The user cannot progress until they have won the minigame. | UR_MINIGAME |
| SFR_TIME_TO_DEFEAT_ET | The ET fortresses should take increasingly more time to flood and defeat. The order with which the player will encounter ETs of different | UR_ET_IMPROVEMENT |

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| | difficulties, however, is random i.e. it is based on the player's movements. | |
| SFR_ETS_DESTROY_STATION | The ETs cannot be stopped from destroying the Fire Station | UR_ET_DESTROY_STATION |
| SFR_IMPLEMENT_PATROLS | Patrols should attack as they move around on a set path. | UR_PATROLS |
| SFR_FORTRESS_AIM | The fortress projectiles must aim towards its target. | UR_FORTRESS_ATTACK |
| SFR_POWERUPS | Random powerup icons are dropped at random time intervals throughout the gameplay after defeating ET patrols | UR_POWERUPS |
| SFR_DIFFICULTY | Inside the Main Menu screen, the player shall be prompted with a difficulty selection option | UR_DIFFICULTY |

| NON-FUNCTIONAL REQUIREMENTS | | | |
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| ID | DESCRIPTION | USER REQUIREMENTS | FIT CRITERIA |
| SNFR_INSTRUCTIONS | Before the beginning of the game, the user should have the choice to read the game instructions | UR_INSTRUCTIONS | Instructions should cover all features of the game and how they work |
| SNFR_TARGET_AUDIENCE | The bullets patterns should present different levels of difficulties e.g. bullets shot in a straight line, bullets shot in a circular pattern, combination of both, etc. Moreover, the movements of the fire truck should be basic and easy to learn, without hidden commands or functionalities | UR_TARGET_AUDIENCE | Game should be based on easy-to-understand rules, fast-paced and with relatively wide range of bullets' patterns difficulties |
| SNFR_JARGON | All user-facing messages shall be in plain English and will not use technical video-games jargon | UR_TARGET_AUDIENCE | N.A. |
| SNFR_HIGHSCORES | The game should support the High Scores feature | UR_HIGHSCORE | The game should have a local record of the top high scores |
| SNFR_ACCESSIBILITY | The game may have a way to modify the colour pallet to enhance accessibility | UR_COLOUR_ACCESSIBILITY | N.A. |
| SNFR_MOBILE | The game (style, movement, map visualisation) should be designed with the aim of developing a mobile version | UR_MOBILE | N.A. |

| CONSTRAINT REQUIREMENTS | | | | |
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| ID | DESCRIPTION | RISKS | ALTERNATIVES | ENVIROMENTAL ASSUMPTIONS |
| SCR_RUNNABLE | Game shall be runnable on every computer i.e. low-end computer | User's computer not able to support game | N.A. | User's computer can run the game |

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| SCR_CONTROLLER | The game should be playable both with keyboards and controller | User does not have controller | Use keyboard instead | User possesses a keyboard |
| SCR_NO_BUDGET | The project's budget is 0 | Some technologies, software, libraries might have a price to be accessed and used | Ask for University's financial support or change the technology used | All technology used is free and accessible |
| SCR_CLIENT_MEETING | The team should not assume that the client is available every week for meeting, and time between meeting request and date of meeting might vary | Client is never available for meeting and/or client response time is delayed | We can contact the client by email to specify certain functions the game should include. | Client will be available at least once a week to ask questions about the game |
| SCR_GROUP_MEETINGS | The team should be able to regularly meet up to agree on design decisions and collate work done. | Group members are not able to attend. | Set up a voice chat channel to allow for all members to discuss development when they are free for a voice chat. | Each group member has a viable way to voice chat. |