

USER REQUIREMENTS		
ID	Description	Notes
UR_start_screen	User shall select four options from the welcome screen (Start, Options, Credits, Quit) (M).	
UR_select_level	User shall choose a level to play. (M)	
UR_pause	User shall pause the game and bring up a menu with options (S)	
UR_minigame	User shall successfully destroy an ET fortress by completing the minigame which involves dropping bombs in order to destroy alien opponents (M)	
UR_four_trucks	User shall select and instruct 4 fire trucks	
UR_six_ETs	User shall fight against a total of 6 ET fortresses	
UR_patrols	User shall move around the map avoiding ET patrols	
UR_seeHUD	User shall see a HUD showing health and water	
UR_end_game_screen	User shall be notified when they win/lose a level, i.e. when the fortress is completely flooded, all firetrucks are destroyed/fire station is destroyed(M)	
UR_station_refill	User should be able to refill and repair Fire Trucks at the Fire Station	ADDED
UR_refill_warning	User shall know when they are close to needing to refill or repair. (S)	
UR_strategy	User shall strategise how to manage and deploy their fire engines.(M)	
UR_attack_notification	User shall be notified when the fire station is about to be destroyed. (M)	
UR_interest	User shall be drawn in by the game, and not be bored. (M)	
UR_fresh_health	User shall be able to start each level with full health (C)	
UR_ease	User shall be able to understand the game - be able to finish without being confused by mechanics. (M)	
UR_music	Play music in the menu state. (C)	
UR_collisions	The user shall not be able to pass through buildings and other objects, other than other firetrucks. Fire Trucks can pass through fire trucks	
UR_difficulty	The game shall have various difficulty settings that change aspects of the game.	ADDED
UR_save_load_quit	User shall be able to save their game at any point and exit the game. The state shall be preserved and can be loaded back at any point.	ADDED

FUNCTIONAL REQUIREMENTS		
ID	Description and User Requirement it Links to	User Requirement Satisfied
FR_display_timer	System shall display a timer - countdown until aliens destroy the fire station. Show when timer is over.	UR_attack_notification
FR_auto_save	Between levels user's progress is recorded and data shall be saved locally on system.	UR_save_load_quit
FR_pause_inlevel	System shall be paused during play. This stops all movement of patrols and the timer. Menu pops up with options.	UR_pause
FR_save_quit	System shall be able to save user progress at the end of the level. We do not save their current state half-way through the level. If they quit the level half way through, they reset themselves upon that level upon revisiting.	UR_save_load_quit
FR_auto_repair	Between levels damaged fire engines health are restored back to full automatically	UR_fresh_health
FR_truck_movement	The trucks should move across the screen when commanded by the user	UR_four_trucks
FR_unique_engines	Fire engines have unique spec - Volume of water, speed, range, delivery rate, max health.	UR_strategy
FR_unique_enemy	Enemies will have unique spec - defensive weapons, weapon damage, volume of water needed to flood.	UR_strategy
FR_level_gimmicks	Levels shall be different to each other and intriguing	UR_interest
FR_engine_fire	The user should be able to fire water at enemy patrols and fortresses.	UR_four_trucks
FR_fortress_recover	Fortresses should be able to recover health over time whilst not being attacked.	UR_six_ETs
FR_enemies_die	Enemies shall evaporate (disappear) when they come in contact with water and their health is zero.	UR_six_ETs, UR_patrols
FR_engine_destroyed	System shall notify the user when their fire engine is destroyed	UR_seeHUD
FR_no_refill	Once the Fire Station has been destroyed, the user is no longer able to refill or repair their firetrucks.	UR_station_refill
FR_6_levels	The game shall include 6 levels of increasing difficulty	UR_select_level

FR_end_game	User wins if they deplete the health of the enemy bases and complete the final level. User loses if all their fire engines are destroyed (all health levels are zero in a level).	UR_ease
FR_new_level	The system shall take the user back to the level select screen when they have completed a level.	UR_end_game_screen
FR_open_minigame	When player makes ET fortress' health points drop to zero, the system shall start the minigame	UR_minigame
FR_minigame_opponents	The minigame should contain a number of enemies of different colours and sizes	UR_minigame
FR_minigame_bomb	When the bomb explodes close to an enemy, the enemy should be damaged	UR_minigame
FR_play_music	The system should play the music when the game enters the menu state.	UR_music
FR_deny_collisions	The system shall stop the user from moving through obstacles other than fire trucks.	UR_collisions
FR_game_states	What is displayed on the screen and what the user can interact with is controlled by a game stack. The top of the stack is the current game state that the user is interacting with.	UR_start_screen, UR_save_load_quit, UR_select_level, UR_pause, UR_minigame
FR_security	System should be able to store saved progress accurately.	UR_save_load_quit
FR_precision	Fire trucks positions after being moved should have a small error margin.	UR_four_trucks
FR_patrols_areas	Enemy patrols should move around the map inside designated patrol areas	UR_patrols
FR_patrols_attack	Enemy patrols should attack the Fire Engine when in range	UR_patrols
FR_move_towards_station	Aliens should move towards the Fire Station after a certain amount of time.	UR_patrols
FR_fortresses_attack	Fortresses should attack the Fire Engine when in range	UR_six_ETs
FR_powerup	Powerups should spawn randomly on accessible areas of the map and can be picked up by the player to grant a benefit.	UR_interest
FR_save_game	The user should be able to save their game at any point and the state is preserved. The user can save up to 3 states.	UR_save_load_quit
FR_load_game	The user should be able to load their game at any point with the state of the game remaining unaltered. They can choose which state is loaded.	UR_save_load_quit
FR_select_difficulty	The user should be able to select a difficulty from the three options on the level select screen.	UR_difficulty
FR_change_difficulty	Depending on which difficulty was selected the game should become easier or harder	UR_difficulty

NON-FUNCTIONAL REQUIREMENTS			
ID	Description	User Requirement Satisfied	Fit Criteria
NFR_user_instructions	Instructions for the game should be available to the user.	UR_ease	
NFR_readability	Users shall be able to read any text easily	UR_ease	Text legible from 5 metres away
NFR_menu_understandable	Users shall be able to navigate the menu without any prior experience	UR_ease, UR_startscreen	Buttons on the menu should operate in < 0.5 seconds. User taken to the next screen.
NFR_save	System shall clearly outline to the user all the possible methods of saving. And also let the user know how saving works with the game.	UR_save_load_quit	In the user manual and also clear labelled 'save' buttons when it is possible to save.
NFR_artwork	Colour scheme and artwork should be fun and engaging. It shouldn't hinder the users understanding of the game	UR_interest	
NFR_user_interactions	User interactions with the game should be instant. No delay.	UR_four_trucks	User actions displayed within
NFR_error_prone	System shall not be broken by glitches	UR_ease	9/10 runs of the game should be free of glitches.
NFR_main_focus	Mini game shouldn't distract the user from the main objective of the game.	UR_minigame	Should take less than 5 minutes
NFR_ingame_warning	Warnings directed towards the user should be easy to understand and read.	UR_attack_notification UR_refill_warning	Text legible from 5 metres away.
NFR_buttons	All buttons should be labelled and have a known purpose to the user and be easily accessible.	UR_ease	Labels should be legible from 5 metres away.
NFR_timer	User should be made aware when they have limited time left in the game.	UR_attack_notification	Accuracy of timer should be +/- 0.25 seconds
NFR_operators	System shall be operable by users with any level of gaming experience.	UR_ease	Clearly labelled with text legible from 5 metres away. Not technical language.
NFR_audit	System shall keep saved files	UR_save_load_quit	Keep these files for a day at least.
NFR_resume_time	System should load a saved game.	UR_save_load_quit	Acceptable time of 5 seconds
NFR_saved_content	Saved content will be data about the level that a particular user has	UR_save_load_quit	-

	reached. Saved content will not include where the user is up to in a particular level.		
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