

Game Design Document

“Legion Defence”

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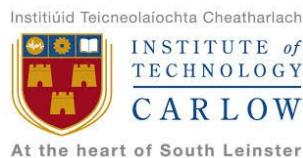


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1. Overview

1.1. The Elevator Pitch / High Concept

Legion Defence is a two-dimensional tower defence game that incorporates moba elements.

1.2. Theme, Setting and Genre

The game will have a fantasy setting. It is a tower defence game with a controllable hero.

1.3. Core aesthetics

1. Fantasy (*play a role you can't in real life*)
 - Take up the mantle of hero and save the Legion Defence.
2. Challenge (*overcoming obstacles*)
 - Defeat wave after wave of enemies and take on strategically engaging boss fights.

1.4. Look and feel

The game will have a slightly cartoonish feel similar to Binding of Isaac or Kingdom Rush and will reflect it's fantasy setting.

1.5. View

The game will have an angled camera similar to that of League of Legends. It will be pannable and lockable to the hero character.

1.6. Game flow summary

The player controls a hero character who has an array of skills, one of which being the ability to build various towers on the landscape. The player spends gold, gained from enemies, to build towers and purchase their respective upgrades. Each level is comprised of several waves, which get increasingly difficult. The player must use clever strategy to defeat each wave and win the level to proceed. Each level is plotted as a journey across an overworld map that will lead the player on their adventure.

1.6.1. Experience duration

Each level will take between 5 and 15 minutes, though some harder or end-game levels may go on longer.

1.7. Target Audience

Legion Defence will appeal to male gamers of ages 15 - 25 who typically play MOBA and RTS titles. In particular, fans of myth or fantasy themed media will be immediately attracted to Legion Defence's setting and aesthetic.

1.8. Key Features

- Wave based levels with unrestricted tower placement options.
- Hero character directly controlled by the player
- Simple and vibrant art style with a limited palette.
- Persistent blood and gore

1.9. Influences

- Kingdom Rush
 - Flash Game
 - Most well known tower defence game on the internet. A good example of a great tower defence game.
- Giants and Dwarves Tower Defence
 - Flash Game
 - Side-scrolling tower defence game with a controllable hero.
- League Of Legends
 - PC/Mac Game
 - Most well known and most played MOBA game in the world. Easy to learn and difficult to master, it is a great example of controllable champions with skills.

1.10. What sets this project apart?

Tower Defence games have been around a long time and MOBA games are only now coming into their prime. I'm surprised I couldn't find a game that combines these two genres already. I want to give the tower defence genre a new twist without rehashing an idea that's been done to death.

1.11. Targeted platform(s)

Windows.

1.12. Technical requirements(s)

The game will be programmed in C++ with help from the SFML, THOR, tinyXML2 and Boost libraries.

2. GamePlay

2.1. The First Minute (60 seconds of play)

After the title screen the player is presented with the main menu. From there, they select New Game and are shown a map with the first level highlighted. From here they can decide to look at hero upgrades, select a level to play, or return to the menu. Upon selecting the first level the map transitions to the level screen. The player's hero is alone on the landscape of the level (if they die, the game continues, but the hero is unusable for the rest of the level); the player can click on the ground to have the hero move there. With their starting gold, the player builds an archer tower and waits for the first wave of enemies.

The first wave of enemies pour into the level from one end, trying to make their way to the exit. The archer tower takes it upon itself to kill a few enemies. The gold gained allows the player to place a unit tower. The friendly units hold the enemies in place. The player hits a key for one of their abilities, *MagicMissile*, and launches a salvo of projectiles at the nearest enemy. One enemy makes it through to the end and the player loses a life. They keep building towers with the gold collected from dead enemies and defeat all the level's waves.

The player is shown a congratulatory end level screen with the option to return to the main menu or level select screens.

2.2. Game progression

2.2.1. How do I progress from level to level?

At the end of each level the player is returned to the map where the next level will be available to play. If the player loses a level, the next level will not be available.

2.2.2. How does the game increase in difficulty?

Each consecutive level features harder waves. New enemies are introduced every level. Starting gold and lives are reduced as the game progresses.

2.3. Level progression

2.4. How do I complete each level? i.e what are the objectives

Prevent enemies from reaching the level exit. Easier said than done as the game will throw various combinations of enemies at the player specifically designed to make each level challenging and strategically engaging for the player.

2.5. Objectives/Victory Conditions

Every level must be completed for the game to consider itself finished. In each level, the player starts with set number lives and loses one for each enemy that makes it

through the level; if the hero dies, the player may not use him for the remainder of that level. The player may return to any unlocked level as many times as they like.

3. Mechanics

3.1. Movement

The player right clicks on the ground to move to that location. Their hero character will path across the level to that location, avoiding any rivers, cliffs, towers or otherwise impassable terrain on the way. They will take the most direct route to the location. A unit's movement speed determines how fast it moves.

3.2. Actions

The player can press a corresponding button to use a skill or activate tower placement. They can click to place valid towers and to move or attack. They can also select towers with a click and click on an upgrade to buy it.

3.3. Combat

Every unit in the game has a number of combat stats in with varying values: health, armour, magic resistance, attack damage, attack speed. Ranged units will also have a attack range stat.

When a unit has no health left it is considered dead. Armour and magic resistance negate a portion of physical or magical damage respectively. When two melee unit's make contact they will begin dealing their attack damage to each other, factoring in attack speed and resistances. Multiple attackers can gang up on a single defending unit; in this case, all attackers are dealing damage to the lone defender, but the defender is retaliating only to whoever attacked it first. Some units or abilities may deal splash or area-of-effect(AoE) damage, which can hit many enemies at once.

The player can right click on an enemy to start attacking it and may press any of their skill hotkeys to use that skill on the enemy.

3.4. Economy

The game awards gold for killing enemies; more difficult enemies drop more gold. Gold is not kept after a level but is used during the level to place and upgrade towers.

4. Game World

4.1. Game geography

Areas, including the general description and physical characteristics as well as how it relates to the rest of the world (what levels use it, how it connects to other areas)

4.2. Game World Elements

4.3. Friendly units

Name	Health	Armour	Magic Resist	Damage Type	Attack Range	Attack Damage	Attacks Per Second	Movement Speed
Skeleton	100	LIGHT	LIGHT	PHYSICAL	60	10	3	40

Spawned by Unit Towers and Raise Dead ability. Can take an Orc in a fight but not a Frog.

Armour/MagicResist key : NONE = 0%, LIGHT = 25%, MEDIUM = 50%, HEAVY = 75% damage taken

4.4. Enemies

Name	Gold Value	Health	Armour	Magic Resist	Damage Type	Attack Range	Attack Damage	Attacks Per Second	Movement Speed
Orc	5	100	LIGHT	NONE	PHYSICAL	60	10	1	30
Most common enemy. Dangerous in large numbers.									
Fast Orc	5	100	NONE	NONE	PHYSICAL	60	7	2	60
Faster, stronger version of Orc. Tends to clear our defending units ahead of main Orc packs.									
Frog	6	40	NONE	MEDIUM	PHYSICAL	80	20	2	20
Strong skirmisher. Low health but longer attack range makes them perfect for dispatching defending units.									
Boar	7	500	MEDIUM	LIGHT	PHYSICAL	80	60	0.25	35
Tanky unit. Slow but very strong attack. Very dangerous in groups.									
Boss	666	2000	HEAVY	HEAVY	MAGICAL	60	5	10	20
Very fast attack and high resistances. Magical attacks bypass armour. Extremely dangerous.									

4.5. Towers

4.5.1. Archer Tower

Fires 1 arrow per second at a single enemy within 200 units, dealing 5 physical damage on impact. Archer Towers cost 100 gold to place.

4.5.2. MageTower

Fires projectiles at up to 3 enemies at a time. Has range of 200 units and fires 0.6 times a second. Projectiles do 6 magic damage on impact and home in on their targets. Mage Towers cost 120 gold to place.

4.5.3. Unit Producing Towers

Creates a friendly unit every four seconds. Created units go to the nearest point on the level path. A tower can have up to 3 alive units in the game at a time. Unit Towers cost 80 gold to place.

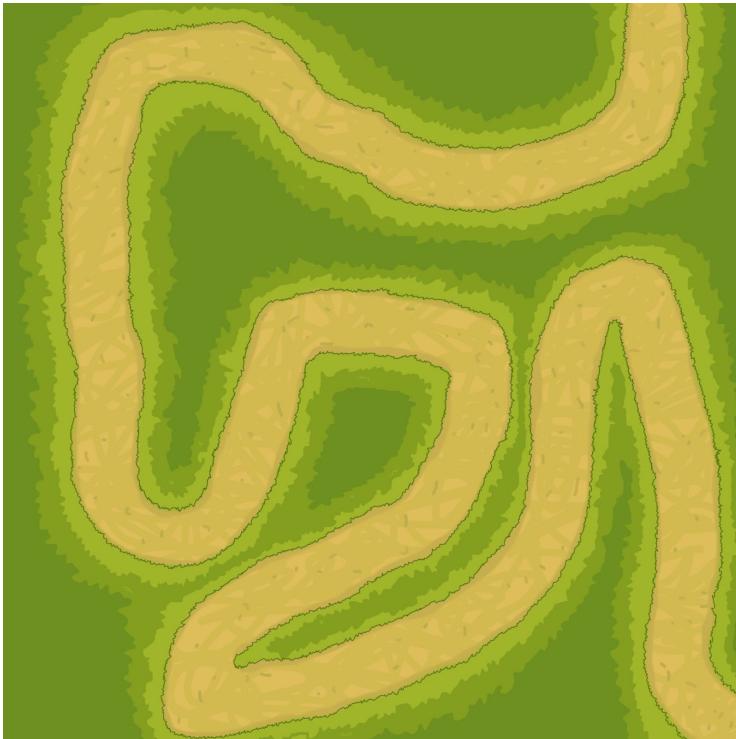
4.6. Spells/Abilities/Skills

NAME	EFFECT
Heal	Heals the user for 100 health.
Magic Missile	Launches 5 magic projectiles that home in on the nearest enemy.
Raise Dead	Spawns 3 friendly units around the user.

5. Levels

5.1. Level description

Level One (path is north to south)	10 Lives	120 Starting Gold
		<p><u>Wave One:</u> Orc x1</p> <p><u>Wave Two:</u> 5s delay Orc x2 Fast Orc x2</p> <p><u>Wave Three:</u> 10s delay Orc x10 Fat Orc x3</p> <p><u>Wave Four:</u> 30s delay Orc x15 Frog x3</p> <p><u>Wave Five:</u> 30s delay Orc x5 Frog x10 Fast Orc x6</p>
Level Two (path is north to south)	5 Lives	50 Starting Gold



Wave One:
Boar x1

Wave Two: 10s delay
Orc x5

Wave Three: 15s delay
Frog x10
Fast Orc x4

Wave Four: 45s delay
Orc x15

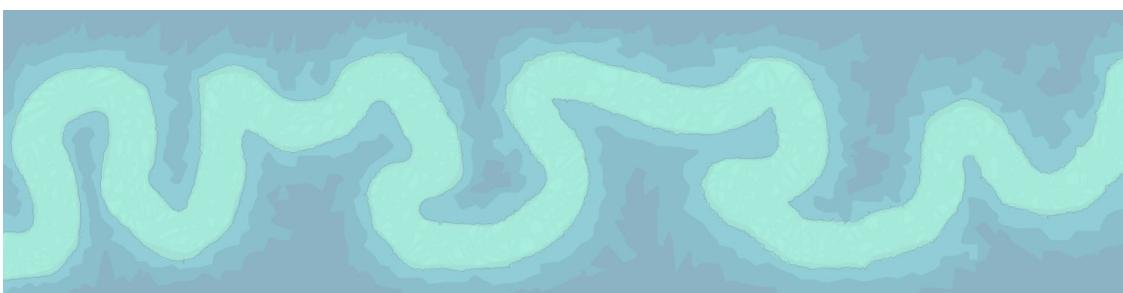
Wave Five: 20s delay
Boar x5
Orc x15
Frog x5

Wave Six: 20s delay
Boar x5

Level Three (path is west to east)

1 Life

No Starting Gold



Wave One:
Boss x1

Wave Two: 15s delay
Boar x3

Wave Three: 30s delay
Frog x5
Boar x2

Wave Four: 20s delay
Frog x10

Wave Six: 15s delay
Frog x12
Orc x6
Boar x1

Wave Seven: 4s delay
Orc x4

Wave Eight: 4s delay
Orc x4

Wave Nine: 10s delay
Boar x5

Orc x4 <u>Wave Five:</u> 8s delay Frog x7 Fast Orc x12	Orc x12 <u>Wave Ten:</u> 20s delay Frog x8 <u>Wave Eleven:</u> 20s delay Boar x10
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6. Interface

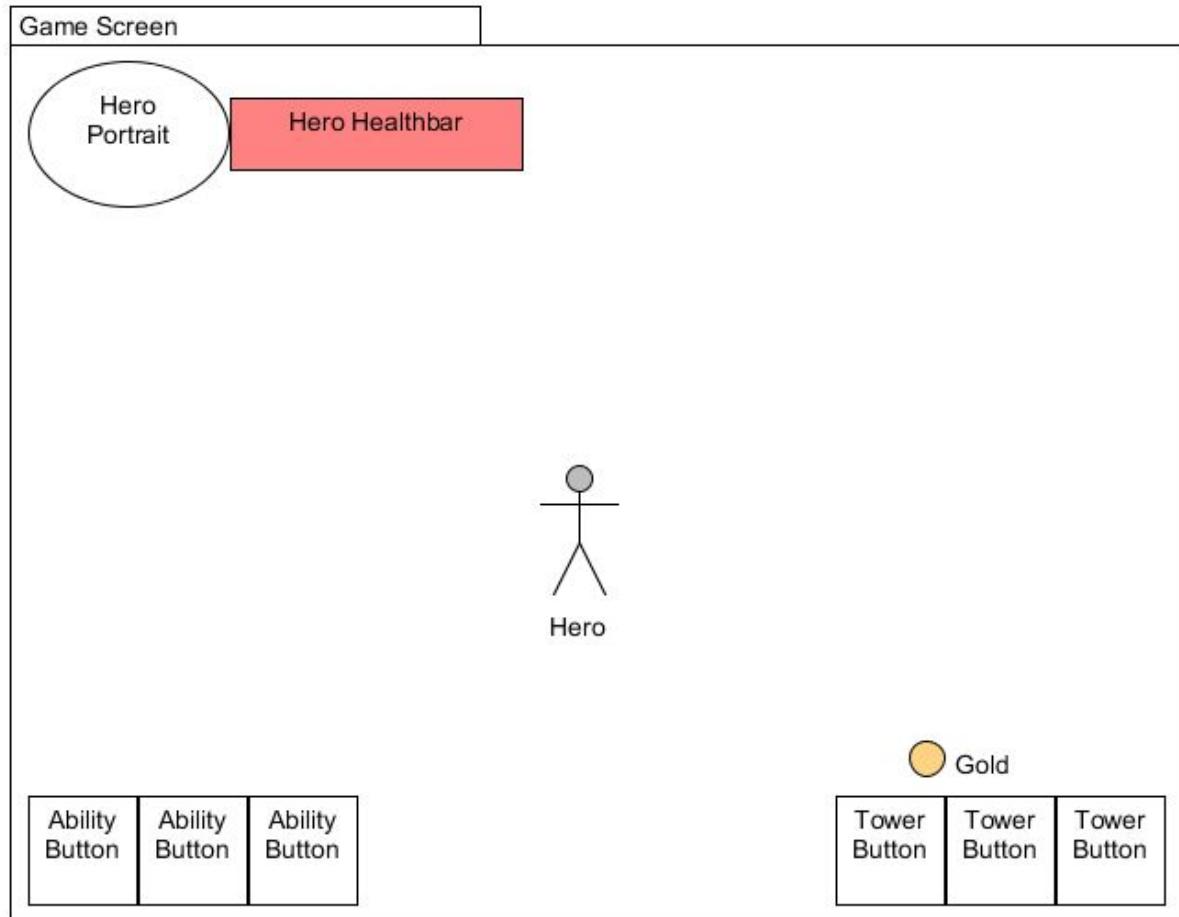
6.1. Controls

Game is completely playable with just a mouse. Clicking on the terrain moves the player. Clicking on a button activates that tower or ability.

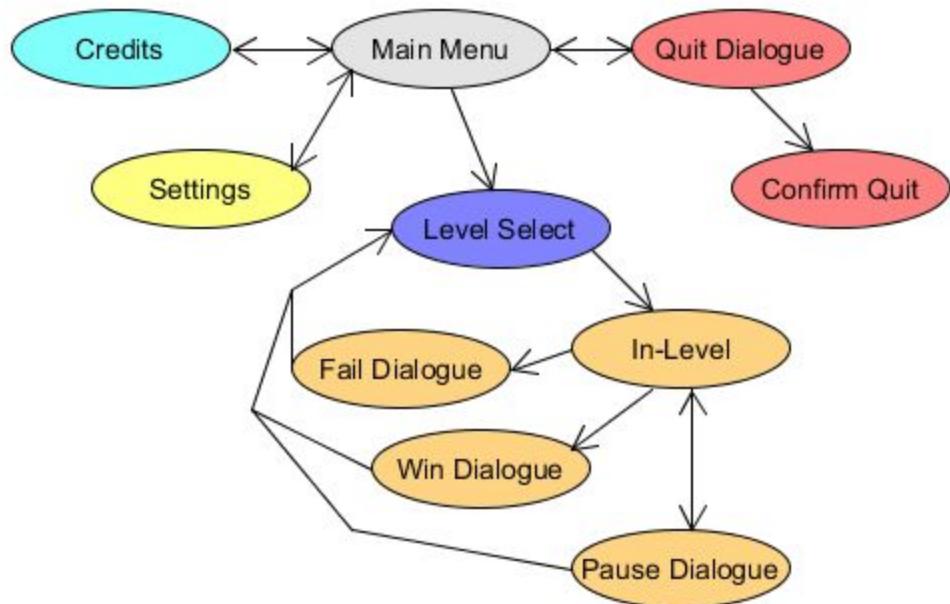
Hotkeys are assigned to ability and tower buttons:

Ability	Hotkey	Tower	Hotkey
Magic Missile	Q	Archer	T
Raise Dead	W	Mage	Y
Heal	E	Unit	U

6.2. HUD



6.3. Screenflow



7. AI

7.1. Opponent AI

Enemy units will use flocking and seek algorithms. Each unit will use the following weights:

Unit Name	Cohesion	Separation	Seek Enemy	Follow Path
Skeleton	0.1	2	2	0.5
Orc	0.01	0.8	0.4	1.2
Fast Orc	0.4	1.5	1	2
Frog	0.3	0.9	1	1.2
Boar	0	0.5	0	2
Boss	0	0	0	1

8. Game Art & Audio

8.1. Audio

8.1.1. Background music

Scene	Music
Main Menu	Rise of Spirit - Alexandre Zhelanov
Settings	Snowfall - Joseph Gilbert
Level Select	Spiritwatcher - Matthew Pablo
Level One	
Level Two	
Level Three	Vilified - Matthew Pablo
Credits	Soliloquy - Matthew Pablo

8.1.2. Audio effects

Sounds effects taken from

<http://opengameart.org/content/fantasy-sound-effects-library>

8.2. Art assets

8.2.1. Characters/ animation frames

Hero (<http://opengameart.org/content/knight-of-finlandia>)

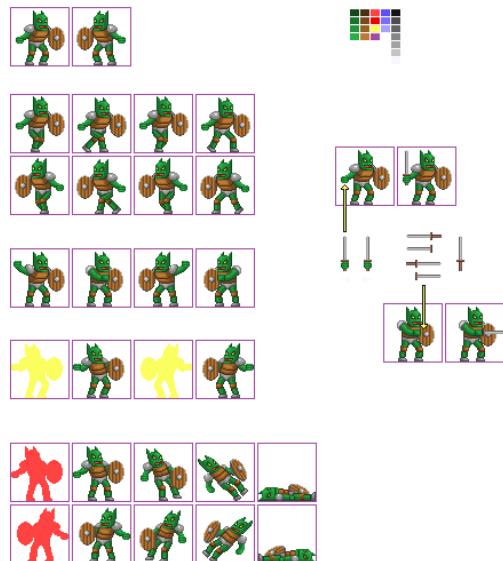


Skeleton

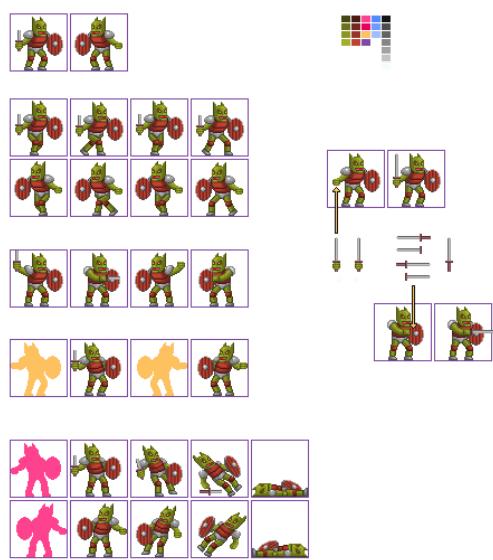
(Modified)(<http://opengameart.org/content/tower-defense-prototyping-assets-4-monsters-some-tiles-a-background-image>)



Orc (<http://opengameart.org/content/knight-of-finlandia>)

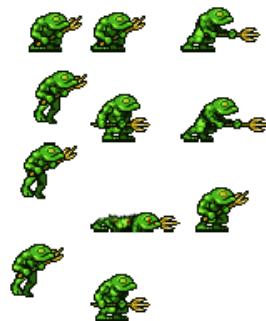


Fast Orc



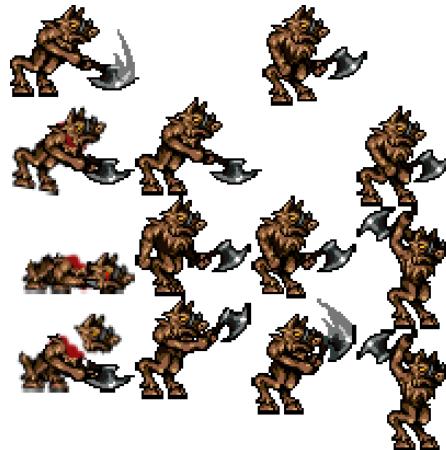
Frog (Modified)

(<http://opengameart.org/content/tower-defense-prototyping-assets-4-monsters-so-me-tiles-a-background-image>)



Boar (Modified)

(<http://opengameart.org/content/tower-defense-prototyping-assets-4-monsters-so-me-tiles-a-background-image>)



Boss (<http://opengameart.org/content/3-form-rpg-boss-harlequin-epicycle>)



8.2.2. Visual effects

Particles:

Blood particle

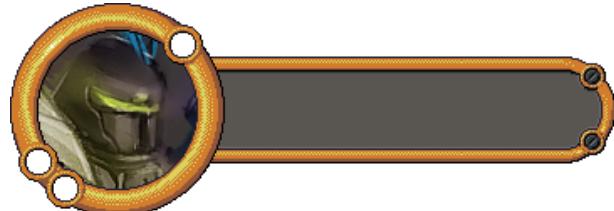
Heal Particle



8.2.3. HUD graphics, typeface

Player portrait (Modified)

(opengameart.org/content/golden-ui-bigger-than-ever-edition)



[Healthbar](#)



[Lives](#)



[Money/Gold](#)



Ability Buttons

(Modified) (<http://opengameart.org/content/painterly-spell-icons-part-1>)

Magic Missile



Raise Dead



Heal

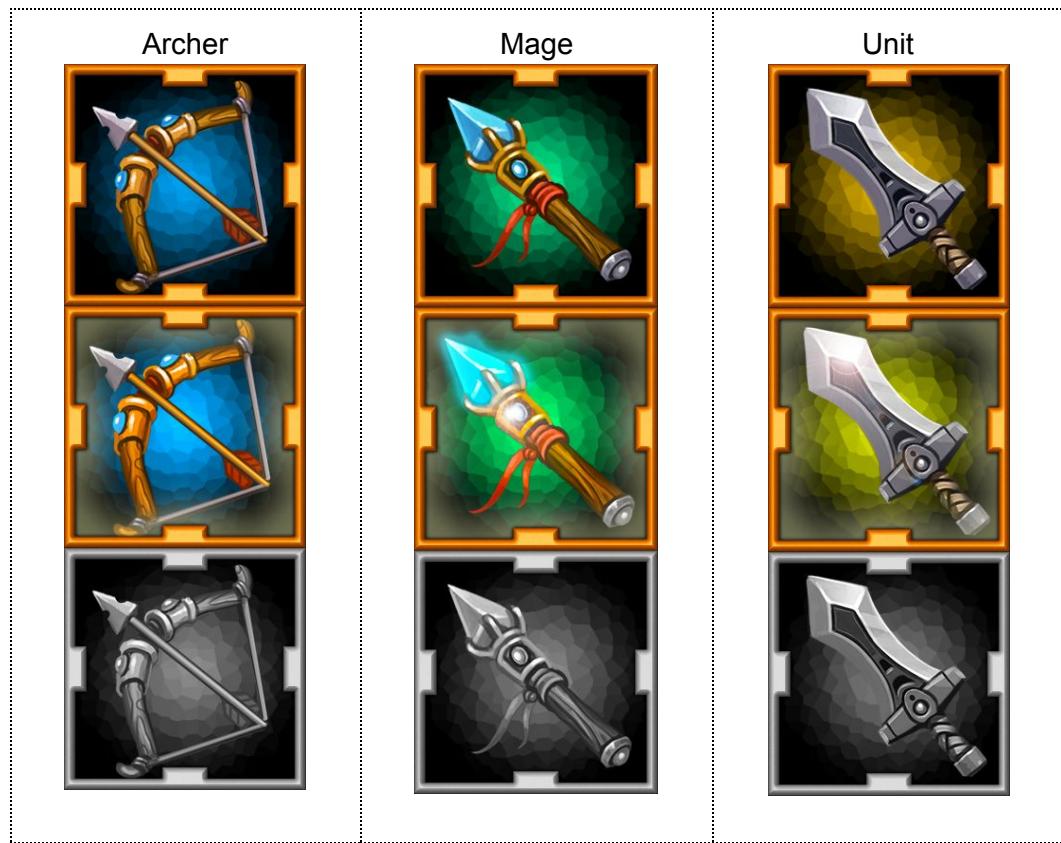


Ability button overlays (cooldown timer and active overlay)



Tower Buttons

(Modified) (<http://opengameart.org/content/fantasy-icon-pack-by-ravenmore-0>)



Towers

(Modified)

(Archer & Unit:

<http://opengameart.org/content/medieval-wooden-guard-tower-isometric-25d>)

(Mage:

<http://opengameart.org/content/isometric-sprite-electriclightning-tower-platform-building>)

Archer	Mage	Unit
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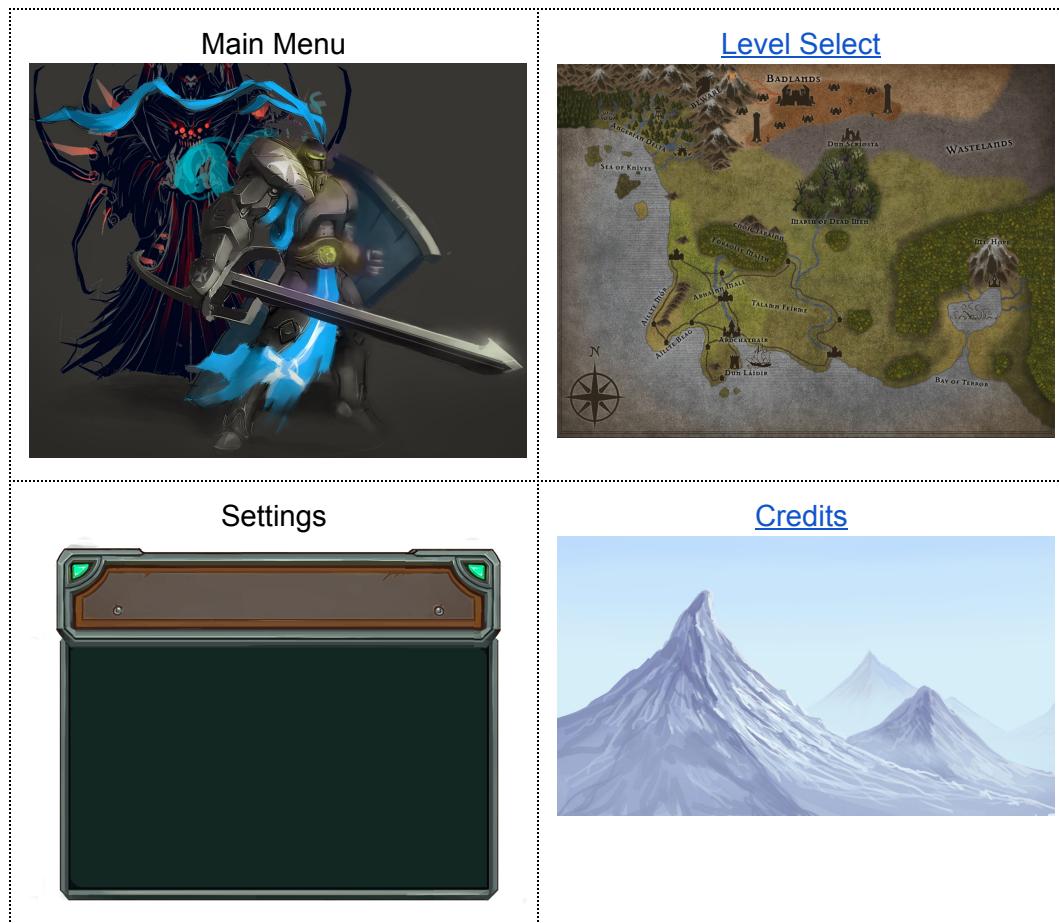


Projectiles:

Arrow Magic projectile

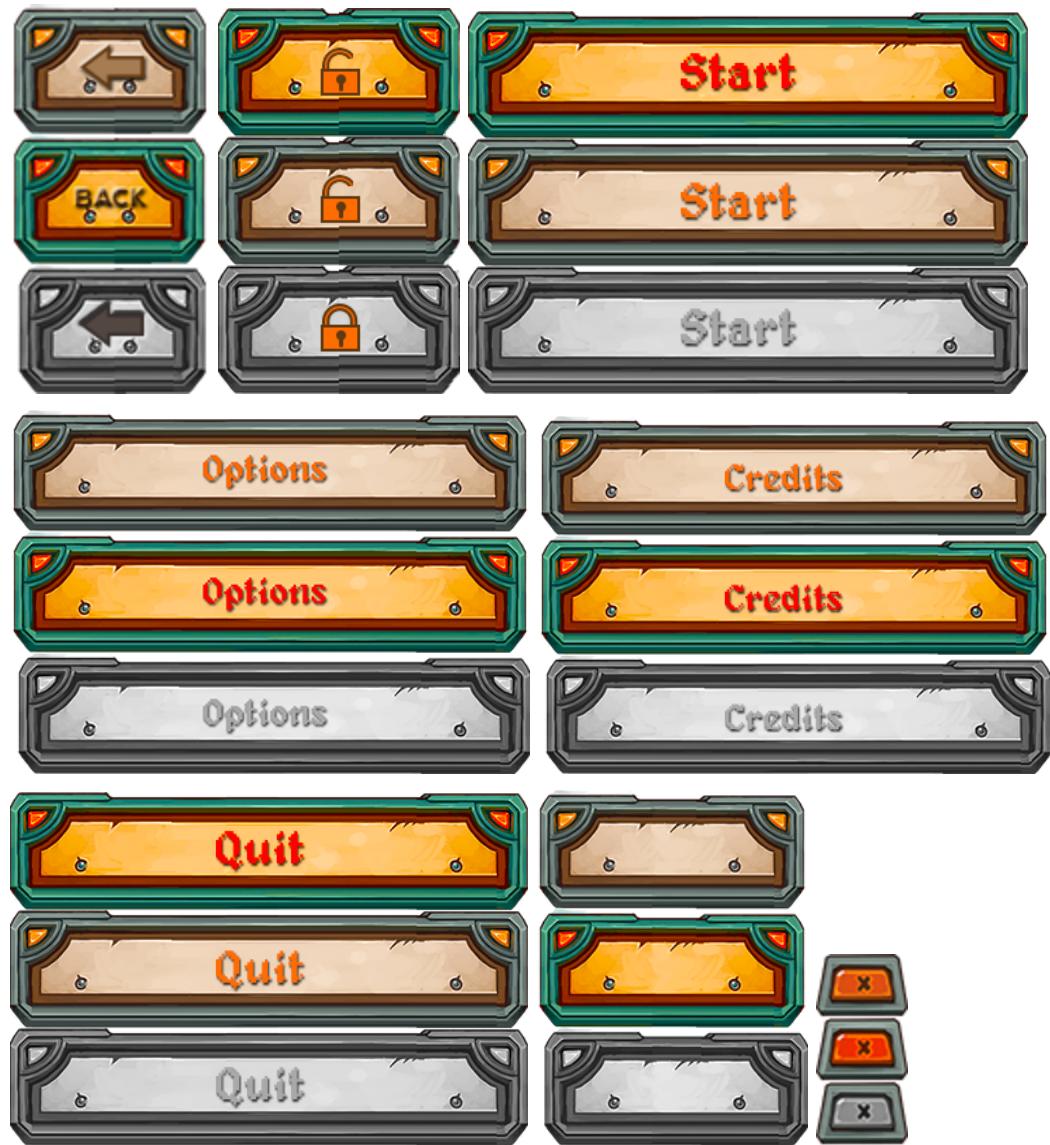
8.2.4. Controls screen/menu/dialog backgrounds/borders/typefaces

Backgrounds



Cursor

Buttons



Dialogue box



Fonts

