

McWizzard

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Contents

Section Participation	6
Game Goals	8
Game's "high concept"	8
Who, What, How?	9
Story Overview.....	9
Licensor Points and Concerns.....	9
Game Controls.....	11
Technological Requirements	12
Engine Decisions	12
Pathfinding Decisions.....	12
Mobile Design	12
Colour Pallet.....	13
Colour Blindness.....	13
Deuteranopia.....	13
Protanopia.....	14
Tritanopia	14
Grayscale	14
Front End of the Game	14
Made in Unity Screen.....	14
Studio Logo Screen	16
App Icon.....	16
Title/Start Screen	18
Portrait Design	18
Landscape Design.....	19
Save/load file.....	19
Data that will be saved	20
Player Options	20

Portrait Design	21
Landscape Design.....	22
Colour Contrast	22
Game Flowchart.....	23
Loading Screen	24
Portrait Design	24
Landscape Design.....	24
Game Camera(s)	24
HUD System	26
Portrait Design	26
Landscape Design.....	27
Icon Design	27
General HUD Design	27
Player Character.....	28
Player Metrics	28
Player Skills.....	29
Power-ups/state modifiers-List power-ups and state modifiers.....	30
Health	30
Alternate States	31
Lives	31
Death	32
Checkpoint System	32
Scoring	33
Gaining Points	34
Losing Points	34
Leaderboard setup.....	35
Collectibles/Object Sets	38
Game Progression Outline.....	38

World Overview/Level Select/Navigation Screen	39
Portrait Design	40
Landscape Design.....	40
Colour Contrast	41
Universal Game Mechanics.....	41
Game Levels	43
Levels overview.....	43
Diagrams Overview and Level Constraints	43
Map Designs	44
General Enemy Rules.....	47
General enemy description.....	49
Enemy Sprites:.....	50
Level-Specific Enemies	51
Bosses	51
Monetization	51
Cutscenes	53
Music and SFX	53
Why Is Audio Important	53
The music and the reason for its inclusion	53
The sound effects to be included and their reason.....	53
Other Screens	54
References	55
Appendix	60
Meeting Minutes	60
Testing Plan	63
External Test Results	65
Test One: Movement testing 1 – Following finger.....	65
Test Two: Icon.....	67
Test Tree: Full movement and enemy avoidance	68

Test Action Response	68
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Section Participation

Name	Section Name
Sam	Game Cameras Game Controls Game Levels Player Options Music and SFX Player Metrics Scoring Leaderboard setup General Enemy Rules Level-Specific Enemies Save/Load file Testing Testing results Universal Game Mechanics Game Progression Outline
Cass	Universal Game Mechanics Game goals Who what how Player Skills Technological requirements Power-ups/state modifiers-List power-ups and state modifiers Rewards and Economy Collectables/Objective Sets

Tobi	Colour Choices Front End of Game Meeting Minutes Cutscenes Story Overview Loading Screen Game Hight concept HUD system Player Character Bosses World Overview/Level Select/Navigation Screen Title/Start screen Attract mode description Game flowchart Other screens Testing Universal Game Mechanics Sprites + Art
Ammar	Monetization Checkpoint System Licensors point of concern Lives Player inventory tools Death Alternative States

	Health
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Game Goals

- Unique spells to collect
- Involving and exciting story
- Fun and challenging Stealth Gameplay
- Interesting mix of Classic Gameplay and Mobile Portability
- Interactive Spellcasting element

Game's "high concept"

McWizzard is a top-down stealth mobile game where the player is a wizard who is trying to rid a castle of a dragon. The wizard must navigate through the castle and collect spell scrolls while avoiding the other monstrous castle residence. By collecting scrolls, the wizard gains the ability to cast spells on themselves, making moving around undetected easier. After collecting enough spell scrolls the wizard can enter the bosses room and defeat it.

Who, What, How?

- **Who**
 - This game is for people who want to be able to take games with them when out and about, and is intended to be suitable for a majority of people. Intended ESRB rating is Everyone 10+ (ESRB, 2025), and a PEGI 7+
- **What**
 - The game is about a wizard sneaking into a castle, gathering power to defeat a dragon. The player must avoid an assortment of enemies, gathering spell scrolls throughout the level. To aid them in this, they can gain access to powerful abilities. Once they have gathered enough scrolls and made their way to the level exit, the player wins.
- **How**
 - The game is a fantasy-themed stealth game, focused around avoiding enemies whilst collecting important items.
 - The player has a collection of powerful spells available to them to allow them to avoid detection, such as an invisibility spell or a spell to teleport short distances.
 - The player casts their spells via a touch-screen interface, drawing the associated symbol to cast it.
 - This game is purely intended for mobile audiences, and contains features created with that specific platform in mind.
 - The game should be functional on any modern smartphone.

Story Overview

A dragon has invaded the local castle and refuses leave. Michal Wizard is hired by the princess to defeat the dragon. He ventures into the castle to collect spell scrolls and gain enough power to cast his most powerful spell and kill the dragon all while avoiding the monsters that have moved in after everyone left.

The story of McWizzard is conveyed through a short initial cutscene, the gameplay and a level ending cutscene.

Licensors Points and Concerns

Licensors focus on three main goals: protecting their intellectual property (IP), maximizing revenue, and enhancing brand value. To effectively safeguard their IP, McWizzard should adopt strict contractual oversight, which includes requiring licensor approval for character

designs and mechanics. This is important because unclear agreements can lead to creative disputes (Personalized Game Design Study. 2024).

To address revenue goals, McWizzard can explore hybrid monetization models, such as offering in-app purchases and subscriptions. This approach helps balance profitability with player satisfaction (Goncharova, 2017). Collaborations, like themed live-ops events connected to licensor IPs, can also enhance brand visibility. Research indicates that interactive media significantly increases brand loyalty compared to traditional advertising methods (Queen Mary University of London, 2022). By authentically incorporating IP and diversifying revenue streams, McWizzard can meet licensor expectations and ensure compliance with global regulations, including transparent pricing for virtual items.

It's equally important for McWizzard to maintain creative control and minimize legal risks. Licensors typically seek approval workflows to guarantee that narrative and aesthetic elements stay consistent implementing ethical design practices, such as parental controls and opt-in microtransactions, can help mitigate regulatory risks (Wang, J. 2023).

Mobile games like McWizzard 2D top-down wizard adventure with quests must navigate ethical challenges tied to monetization and narrative design. A key concern is predatory monetization, such as loot boxes or paywalls for critical upgrades. Research shows these mechanics exploit psychological vulnerabilities, especially in younger players, by creating addictive reward loops (Hyrnsalmi et al., 2020). For example, time-limited purchases or randomized loot drops. McWizzard will not require microtransactions to progress to assure the player base does not have a difficult time playing the game and making the players feel coerced into spending, risking criticism for unfair design. Scholars also warn that such systems can normalize compulsive behaviours, linking excessive in-game spending to mental health risks like anxiety (Luiz *et al.* (2023). So, the game will be designed in a fair play environment, meaning that the players can have a fair experience when playing with no hidden paywalls. The player will progress by completing the level and moving on in the game.

Game Controls

Controls is an integral part when creating a game being one of the main three C's following camera and controls (Rogers, S. 2014). Game controls themselves have a universal application to multiple game styles. Overall, the Controls are the most important C for video games as there does not specifically need to be a character or camera movement (Rogers, S. 2014).

Additionally, controls are themselves a core mechanic as they are one of the main things that allow the player to interact and play with them. Furthermore, controls are the tools that allow the player to utilize other core mechanics such as movement (Adams, E., and Dormans, J. 2012).

A tap is a quick press that can be used to use an ability or cause the player to perform a certain action (Rogers, S. 2024). This can also be used to tell the avatar where to move by using the area in the world where the player tapped to be the location where the avatar will move.

An alternative version of this would be for the character to follow the position of the players' figure. An example of this can be observed in the game Doodle Jump where the mechanics to control the avatar was based on the lateral position of the person's finger (Cairns et al., 2014). When testing this type of control, it was found to have the best results for the levels of control it gave the player and, subsequently, the levels of immersion (Cairns et al., 2014). Furthermore, during the testing of this control method, it was noted that the participants also dragged their fingers up and down to simulate vertical movement, showing that such a control type can be utilized for a 2D vector/top-down view as well as the 1D linear method that was tested.

A final format of movement that could be tested and utilised within the game is a movement based on a swipe. A swipe is a method of indicating direction using lines (Rogers, S. 2024). Swiping is a mechanic more suitable for swinging a sword or drawing a line. It can still be outlasted in different ways, just as a movement mechanic, due to its ability to dictate direction. Overall, when looking at how the control scheme works is not the only consideration that is important as consideration of how the game will be played should also be considered (Ruggers, S. 2024).

Shape tracing is a type of control mechanic that is popular when looking at games that use casting spells and involves the user using their fingers to trace a certain shape or symbol (Rogers, S. 2024). However, the main concern is to ensure that the code used to analyze the shapes or symbols does not mistake them for smaller ones. This is one of the methods

that will be tested for use for the ability use/spell use section, which will allow the user to cast three different spells.

Technological Requirements

Engine Decisions

This game is being created using a Game Engine. The options the team had to choose between for this included: Godot Engine, Unity Engine & Unreal Engine. Godot is an open-source engine with specific design towards the creation of 2D games (Linietsky. Manzur., no date), Unity is a closed source engine containing both 2d and 3d options, with options for mobile games included (Unity Technologies, 2024), and Unreal is a closed source engine focused on 3D games (Epic Games Inc, no date)

The game will be developed in the Unity Game Engine, Version 2022.3.28f1 (Unity Technologies, 2024). The choice to use unity was due to the game's two dimensional nature, alongside its inbuilt capacity to build for mobile platforms. The specific version of unity chosen is due to limited options available within the university environment in which a large portion of work is expected to be undertaken.

Pathfinding Decisions

This game requires Pathfinding implementation, both for the AI enemies and for the players move-to-point navigation system, to compute the best route between two points. This approach requires the game world to be converted into a graph, on which an algorithm such as A* can be used. Millington (2019, p. 237-253) uses the term "World Representations" to describe the process by which the games environment is translated to a graph suitable for a pathfinding algorithm. This game will be using a Navmesh system for world representation – this is for a multitude of reasons, with the main one being ease of use. This system is included with the chosen game engine, Unity.

Mobile Design

Resolution

According to Parvadiya (2024), the most common Android screen resolution is 360x800. This is the resolution all screens are presented and created in throughout this document.

Screen orientation

Radek (2024) states that most mobile games are played in landscape. This is because landscape allows for more data to be portrayed to the user and simultaneous use of functions is easier. However, the Game Accessibility Guidelines (no date) indicate that one should design a mobile game for both landscape and portrait as some mounted devices may have a fixed orientation. As widespread accessibility is good to increase downloads and player interest this game will be designed to work in both portrait and landscape orientations.

Colour Pallet

According to Rosalind Gilbert's Medieval Women (no date) red dye from madder was more expensive than blue (woad) as the plant red was made from was only harvestable once a year and woad was harvestable at multiple points. She also states that poorer classes tended to wear greys, browns and muted blues.

Jenny Dean (2011) states that during the Anglo-Saxon period reds and purples were mostly used in small amounts for headbands, embroidery and accessories. This would indicate that these dyes were less common and therefore more expensive. Whereas yellows, blues, greens and browns were found in larger fabrics so were more common.

The main usage of colour in the assets are blues and greens in more muted tones based on the research on medieval dyes.



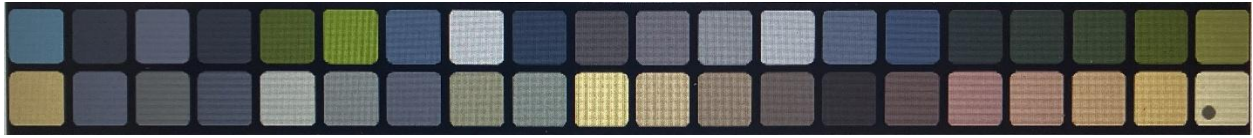
Colour Blindness

All assets have been put through deuteranopia, protanopia, tritanopia and grayscale colour filters to ensure all important information can be seen so matter the level of colorblindness someone may experience. All assets are also distinct from each other in all filters so that enemies and the player character will not be confused.

Deuteranopia



Protanopia



Tritanopia



Grayscale



Front End of the Game

Made in Unity Screen

According to the Unity documentation (2025) while on the personal plan, you are unable to disable the splash screen, unable to remove the Unity logo and unable to make the screen transparent. As this team is working with the personal plan the inclusion of the Unity splash screen is needed.

Portrait Design



Landscape Design

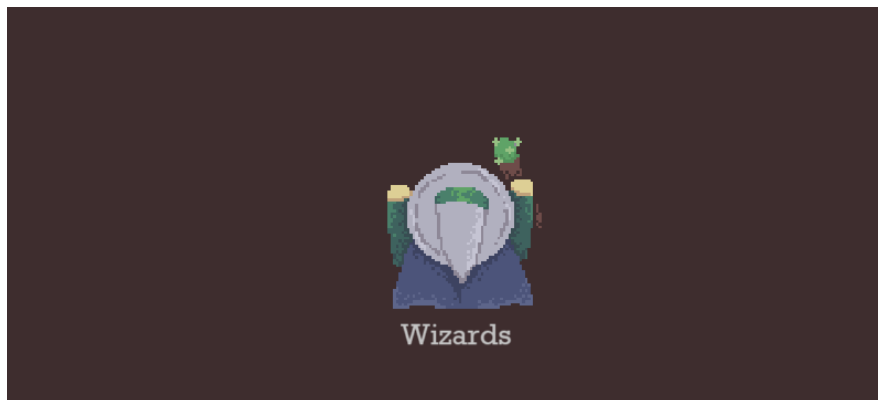


Studio Logo Screen

Portrait Design



Landscape Design



App Icon

Icon choices for testing:



According to Android Studios (2024) the google play app icon specified attributes are:

- Final size: 512px x 512px
- Format: 32-bit PNG
- Color space: sRGB
- Max file size: 1024KB
- Shape: Full square
- Shadow: None

Rogers (2014) states that a mobile app icon should be clear with an iconic design that includes no text or numbers.

By using oranges and reds in the background it contrasts the greens and greys of the main image allowing the attention to be drawn to it. The green is also a split complementary colour to the main orange in the background ensuring a coherent look and feel in the image.

By using a blue for the background, the icon looks brighter while still having visible contrast with the main image. The blue is Analogous with the blues and greens of the main image

The colours are bright to grab people's attention and make them interested in the game. Due to the size of the icon being quite small on a mobile screen there is no text on the icon as it could easily become illegible on smaller screens.

The final app icon will be decided through testing.

Title/Start Screen

Portrait Design



Landscape Design



Options:

Start- Moves the player to the level selection screen

Settings- Moves to the settings screen where the player can change the settings of the game

Credits- Moves to a credits screen

Save/load file

Serialisation, the act of converting data from random access data to a linear stream of data storable on disk (Glazer & Madhav, 2016, p 81), is a key component to saving and loading data in unity (Essam, M., 2024). This feature will allow the game data, such as player progression, to be stored in the given format and between playing seasons.

Two main methods can save data within Unity: PlayerPrefs and a custom save script (Essam, M., 2024). PlayerPrefs allow for saving simplistic data such as user settings and preferences and basic game data due to limitations in using primitive data types and limited storage capacity (Essam, M., 2024). Additionally, PlayerPrefs come with performance overhead issues due to its reliance on disk I/O operation, resulting in performance overhead.

Custom save scripts have multiple formats: JSON, XML and binary serialisation (Essam, M., 2024). JSON offers a high-performance data serialisation that is mainly used to transmit data over the internet. XML is a type of data serialisation that can be utilised on legacy and current systems due to its versatile applications. Binary serialisation is an

efficient way to save game data and the user's settings and preferences with the fastest read-write speeds out of the two other options (Essam, M., 2024).

McWizzard will use a custom save file system using a binary save format due to its suitability for saving game data and its performance. However, if this cannot be implemented within a suitable timeframe, PlayerPrefs will be used instead because it is easier to implement.

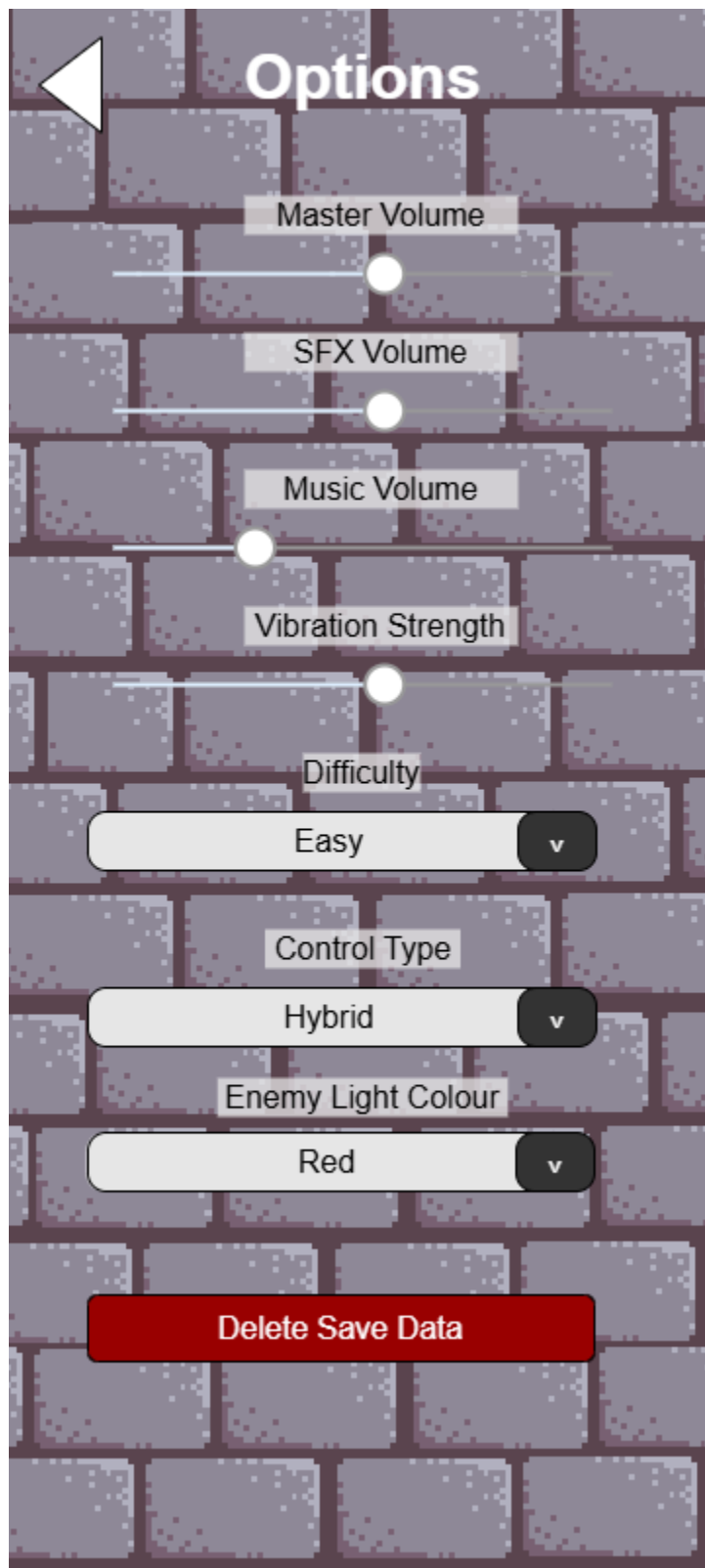
Data that will be saved

- The players score.
- The completion state of each level.
- The number of lives the player has.
- The current level the player is on.
- The options set by the player.
- The cosmetics the player has unlocked.
- The number of scrolls the player has.
- The location of the player.
- The level state (enemy location and scrolls collected).

Player Options

The player options screen allows the player to customise and change the game volume levels and vibration strength using a slide bar, difficulty, controls, and enemy light colour via a drop-down menu. The player can also delete the saved data via a button that prompts the user with a warning and asks them to confirm their choice.

Portrait Design



Landscape Design



Colour Contrast

The colours for the text and background of each option and the delete button have been designed based on the Web Content Accessibility Guidelines (WCAG) and evaluated using the contrast tool available from [Coolers](#).

Text color

#000000

Background color

#D1CFD3

Contrast

13.58

Super
★★★★★

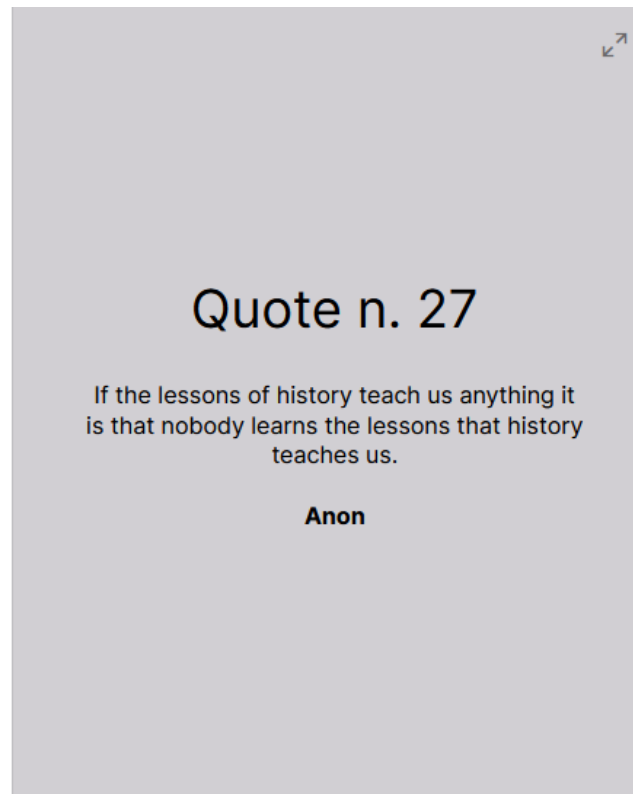
Small text

★★★

Large text

★★★

Great contrast for all text sizes.



Text color

#FFFFFF

Background color

#990000

Contrast

8.92

Very good

★★★★★

Small text

★★★

Large text

★★★

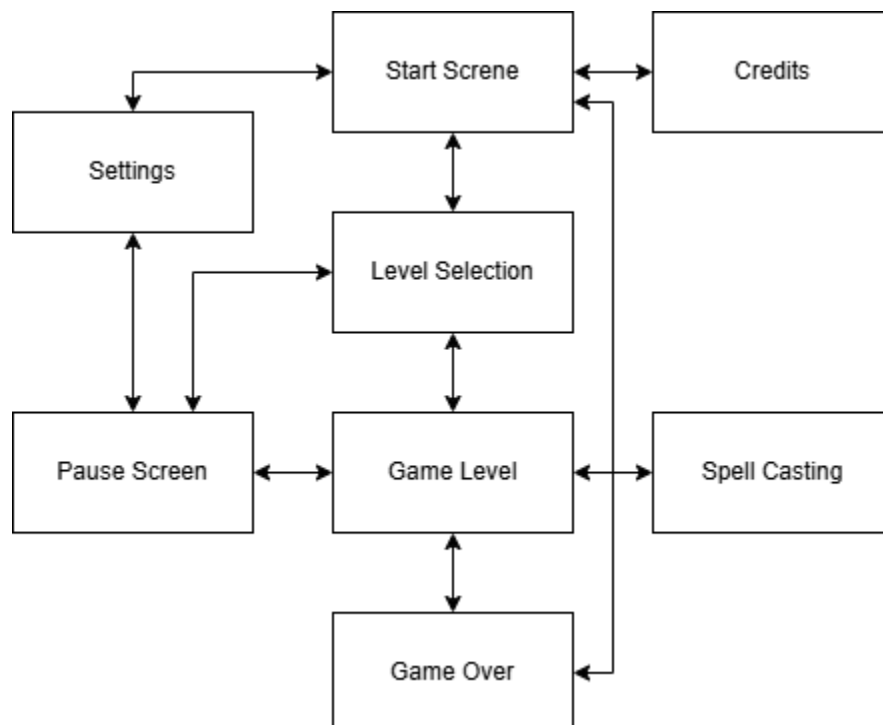
Good contrast for small text (below 18pt) and great contrast for large text (above 18pt or bold above 14pt).
[Click to enhance](#)

Quote n. 27

If the lessons of history teach us anything it is that nobody learns the lessons that history teaches us.

Anon

Game Flowchart



Loading Screen

Portrait Design



Landscape Design



Game Camera(s)

The Game Camera is the Second C mentioned by Scott Rogers, and ensuring it is done correctly is an important step to ensuring players enjoy the game (Rogers, S, 2014, pp. 93...

131). McWizzard will use a top-down fixed follow camera centered on the player and follow the player as they manoeuvre through the level.

Cinemachine will be used to achieve this due to its simplicity: to enable the camera to follow the player, only a follow target must be assigned to it (Cameron, S.H. & Falzon E., 2024). Furthermore, the camera will be designed to work in both landscape and portrait views, allowing for better versatility and allowing the player to choose how they want to play.

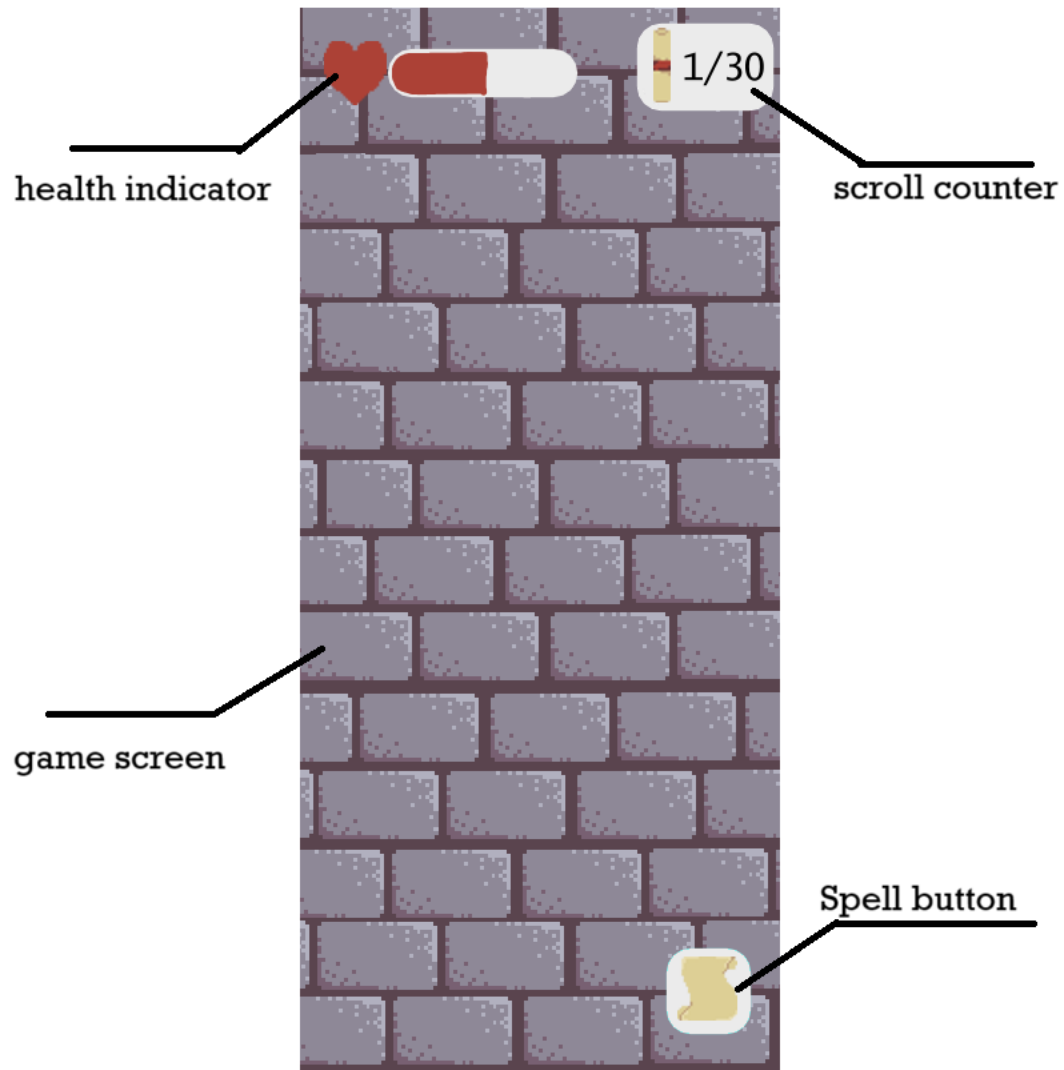
McWizzard Will also have a Cinematic camera at the start of each level that will pan over the level and then pan and zoom into the player. This is done to allow the player to know the general layout of the map and where they will need to go to complete the level.

One issue that can present with the use of the top-down camera is the inability to get a good look at the character during gameplay (Rogers, S. 2014, p148). Character is the first C of the three Cs mentioned by Scott Rogers (2014, p93); therefore, assuring the player character is properly represented is important. Therefore, to fix the issues the top-down camera has on the character, it is important to ensure that McWizzard's main character appears on other screens across the game and that the main character has a distinctive silhouette from the other characters in the game (Rogers, S 2014, p95).

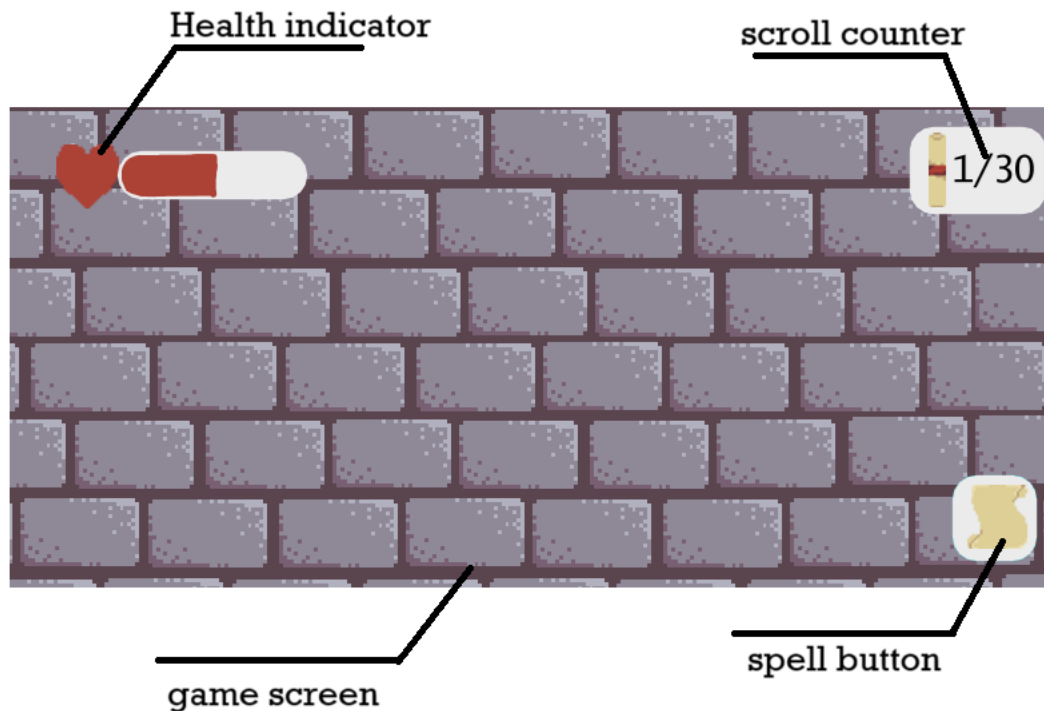
Another issue is the difference in how the landscape and portrait camera is handled due to their different perspectives. During initial third-party testing, it was noted that rotating the phone from portrait to landscape results in the landscape view being overly zoomed out in comparison. Therefore, to ensure a more equal zoom level between landscape and portrait, checks need to be made to detect when the view is changed so the orthographic size of the camera can be changed.

HUD System

Portrait Design



Landscape Design



Icon Design

Rogers (2014) encourages the rule 'keep your symbols simple' when designing HUD icons. When designing symbols, it is also important to look at other games and see what the most common symbolic representation for each attribute is to keep familiarity with players.

A red heart is commonly used in games to indicate health; this can be seen in Minecraft (2011). This icon is regularly used to indicate health, as familiarity with it will allow players to understand its meaning more easily.

The spell button icon is an open spell scroll. This matches the screen that comes up after pressing the button.

The scroll icon is the same as the dropped scrolls that can be found around the levels. This allows the player to easily make the connection of what the counter indicates.

The scroll and spell icons are distinct to avoid confusion.

General HUD Design

According to Rogers (2014) the upper left side of the screen is normally used for important information, traditionally health or score. In this game that area is used to display the health information.

Player Character



Michal Wizard is a wizard who is hired by the princess to kill the dragon living in the nearby castle.

He has access to 3 different spells: Invisibility, Movement Speed Increase, Teleportation.

Player Metrics

Metric Title	Metric
Movement Speed	5.6m/s
Rotation Speed	10
Health	100
Lives	3
Light intensity ~ “Vision Cone”	2.5
Light Radius ~ “Vision Cone”	Inner: 1 Outer: 10
Inner/Outer spot angle ~ “Vision Cone”	80/120
Fall off strength ~ “Vision Cone”	0.65

Player Skills

The player has three main skills available to them: Invisibility, Speed Increase and Teleportation. Each of these have cooldown periods associated with them, which is a period after casting that the same spell cannot be recast.

The details of the spells are as follows:

Invisibility: Whilst this spell is in effect, the player cannot be seen by enemies. The player's avatar will become translucent to represent this and be given a soft glow. This glow will flash within the last 3 seconds of its effect. This spell lasts for 10 seconds and has a cooldown of 30 seconds. This glow will allow the character to be seen as easily to the player when invisible as when visible.



To have the player not been seen by the enemies, the player's game object will be moved to a different layer in unity, one used specifically for this purpose that will be ignored by the enemies searching algorithm.

Move Speed Increase: This spell increases the player's move speed by 50% of its base. This spell lasts for 20 seconds and has a cooldown of 20 seconds.

Teleportation: When the spell is cast. The player moves immediately to space 5 units (in which a unit is the forward-back size of the player's sprite) in front of them. In the cast this space is occupied, they will move to the first free space back towards the player. (Note, the outside of the map is considered occupied space.)

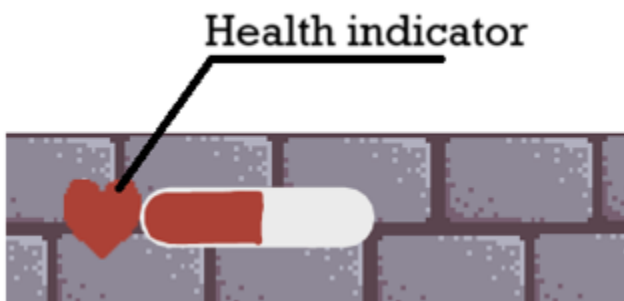
Player Inventory Tools (equipment, spells, buffs, and etc.)

In McWizzard, there will not be much of an inventory system. Spells are not collected in the game, and there will be a counter for the spells already on the screen. Also, it would just be full of scrolls that cannot be used anyway.

Power-ups/state modifiers-List power-ups and state modifiers.

Power-Up:	Mechanical Effects:	Visual Effects:
Invisibility	During the progress of this power-up, the enemies are incapable of seeing or targeting the player.	The player becomes translucent, with a soft white glow. This glow flashes during the last 3 seconds of its duration
Speed Up	During the process of this power-up, the player moves twice as fast as usual	There are no visual effects for this powerup

Health



Health System in McWizzard:

The player's health is represented by a health bar displayed in the bottom-left corner of the screen. When the player takes damage from enemies or bosses, the health bar will gradually decay, reducing the player's current health. Additionally, if the player avoids damage for a period, the health bar will automatically regenerate over time until fully restored this is done in increments throughout the game level.

Lives System Integration:

Health is tied to a limited Lives system, with a maximum of 3 lives per level. If the player's health reaches zero, they lose one life and respawn at the last checkpoint. Losing all lives forces the player to restart the level or checkpoint. Upon successfully completing a level, all lives are replenished to the maximum count, which is visibly tracked in the HUD

menu(Rogers, 2024, pp. 191-193), also keeping the Ui tidy and flexible as a mobile screen is not all the same size. Therefore, a flexible design will be used for the health/lives in the game. While keeping the icons simplistic so users know which icon is for health, what lives specifically, and how much space they take up on the screen.

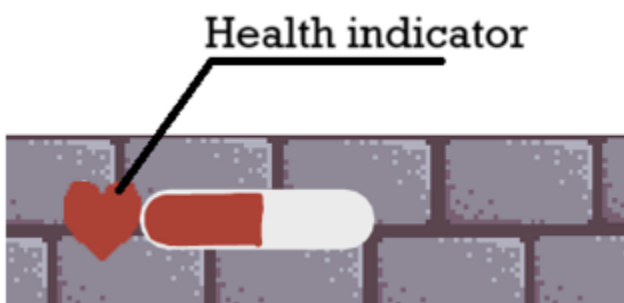
Alternate States

There is one main Alternative state in McWizzard, which is the hold-person effect. The wizard uses this effect as its main attack, causing the player to be unable to move for 1.5 seconds. Once the 1.5-second timer runs out, the player will be impervious to this effect for 5 seconds.

Lives

Life systems in video games, particularly mobile titles, often use mechanics like limited lives or energy bars to shape player behaviour. These systems balance challenge and monetization, as seen in free-to-play mobile games, where players must wait for lives to regenerate or pay to continue, encouraging players to spend money to avoid losing progress. For example, Candy Crush Saga restricts gameplay after repeated failures, creating tension between frustration and engagement (Högberg et al., 2019). While these systems can sustain short-term engagement, they risk disrupting immersion by prioritizing transactional interactions over narrative or mechanical depth (Qin, Rau and Salvendy, 2010).

When starting the game, the player will start with 1 live and it will look like this:



At the start of the game, the player begins with a full health bar, typically set at 100 health. This number represents the total amount health points a player has. As the player

encounters enemy NPCs or bosses and takes different attacks from either the enemy or bosses it will the players overall health.

If the cumulative damage causes the health points to drop to zero, the player dies and must restart the game from the very beginning. Upon restarting, the health bar is reset to its full capacity of 100 health points, allowing the player to begin the game level again.

Death

In McWizzard, the death system is designed to balance challenge with accessibility, adhering to mobile gaming conventions. Players begin each level with 3 lives, which are lost if their health fully goes to low or under 0 health due to enemy or boss damage. Upon death, players restart at the last checkpoint reached, minimizing progress loss and reducing frustration a critical feature for mobile audiences with limited playtime (Rogers, 2024). Lives replenish after completing a level, encouraging persistence without punishing failure excessively.

When the player has been killed or eliminated by either a boss or an enemy, there will be a short screen change in the game to say, "player eliminated." Then, the player will have some choices to either retry, go back to the main menu, or quit the game. Each click does its corresponding thing. You do not really want to die, as it makes your mission in the game harder. You will have to retry gaining all the spells again, which can be difficult.

Checkpoint System

Checkpoint systems in mobile games serve as critical tools for enhancing user engagement, cognitive efficiency, and educational outcomes. By allowing players to save progress at strategic intervals, checkpoints reduce extraneous cognitive load, enabling learners to focus on problem-solving rather than repetitive tasks (Kumar, 2008; Chang et al., 2017).

Checkpoint System in McWizzard

Checkpoints play a vital role in balancing gameplay and enhancing user experience. Below are key reasons for their inclusion:

Players' Feedback: This means providing clear visual or auditory cues (e.g., a "Checkpoint Reached!" message, icons, or sound effects) to signal progress and reduce confusion.

Player Retention: Players may want short gaming sessions; checkpoints reduce

frustration by letting them resume gameplay seamlessly.

Game Pacing: Well-placed checkpoints maintain engagement by minimizing repetitive tasks and ensuring smooth progression.

Challenge Management: Checkpoints act as a difficulty-balancing tool, rewarding players for overcoming tough milestones.

How Checkpoints Function in McWizzard

The system adapts based on these factors:

Placement of Checkpoints: Locations vary per level to align with pacing goals (e.g., after boss fights).

Saving Progression: This includes storing health status, collected items, and inventory data, ensuring players restart with their saved state.

Returning Checkpoints: Allows players to reload from a checkpoint if they exit the game or lose progress (e.g., recovering items after a failed boss battle).

Players' Feedback Integration: Uses indicators like glowing markers, on-screen alerts, or unique sound effects to highlight checkpoint zones.

Example In-Game Implementation:

- A player entering a checkpoint zone hears a noise and sees a floating object this will be the area the player will walk into before starting the boss fight.
- If defeated by a boss, they respawn at the last checkpoint with stored health/items, avoiding full-level replays.

Scoring

Scoring is a useful system that can inform the user of their performance (Rogers, K. 2017). Score and leaderboards may not be as important as they were compared to when arcade games were popular. However, with new methods of sharing high scores via Steam, Xbox Live, and Google Play, scores have increased in popularity (Rogers, K. 2017).

For McWizzard, scores will be awarded for multiple actions, such as collecting items, not being detected, or defeating all the enemies. Furthermore, it is in the game's interest to punish or reward someone more for a specific playstyle, so the scoring system will reflect this decision.

Gaining Points

- Collecting scrolls.
- Bonus points for completing the mission without being detected. The amount awarded equals the points earned if all enemies are defeated in the level.
- Bonus points for not taking any damage.
- Bonus points based on how long the player took to complete the level with faster completion times, resulting in a higher score.
- Bonus points are earned for collecting every pickup at the level.
- Completing the level.
- Finding secret collectables in hidden areas of the map or dangerous locations.
- Defeating enemies results in a small gain of points.
- Defeating the final boss at the end of the game results in a significant multiplier/number of points being applied to the player's score.

Losing Points

- Dying causes the player to lose all the points earned in that level and incur an additional penalty.
- Losing the game entirely reduces the player score by half.

Leaderboard setup

The leaderboard is a table-like design that displays how well everyone performed when attempting to complete the game. The user can click each heading to change how the leaderboard is ordered and toggle between descending and ascending.

- The person's name entered after losing or winning the game.
- The player's total number of points before completing the game or losing.
- The number of levels the player has completed.

Leaderboard

Name	Score ▼	Levels completed
------	---------	------------------

Jim	2000	4
-----	------	---

Dave	1875	4
------	------	---

Gabe	1620	4
------	------	---

Bat	1350	3
-----	------	---

Bob	1200	3
-----	------	---

Rob	1025	3
-----	------	---

Ron	985	2
-----	-----	---

Tim	900	2
-----	-----	---

:(	500	1
----	-----	---

Ted	400	2
-----	-----	---

Rick	250	1
------	-----	---

Bill	100	1
------	-----	---

Leaderboard										
Name	Jim	Dave	Gabe	Bat	Bob	Rob	Ron	Tim	:(	Ted
Score	200	1875	1620	1350	1200	1025	985	900	500	400
Levels completed	4	4	4	3	3	3	2	2	1	2

Collectibles/Object Sets

The game contains a single type of collectible – However they are highly numerous and integral to the progression of the game. The spell scrolls (pictured below) are scattered throughout the level, to be collected by the player. In each level, the player must collect a certain amount of these scrolls to be able to win.



Game Progression Outline

The overall progression through the game and the story behind the progression stays the same as Michal Wizard's task of clearing castle after castle of the dragon that inhabits it. There is not a large difference between each level except for the actual level layout itself and the number of scrolls required to complete it. The only difference between levels is seen in the first three levels, where each enemy is introduced one at a time, giving the player a chance to learn its behaviours. After the third level, everything stays the same, regarding the story, enemies, and progression, with the main two factors that change being the level layout and the number of scrolls required to complete the level.

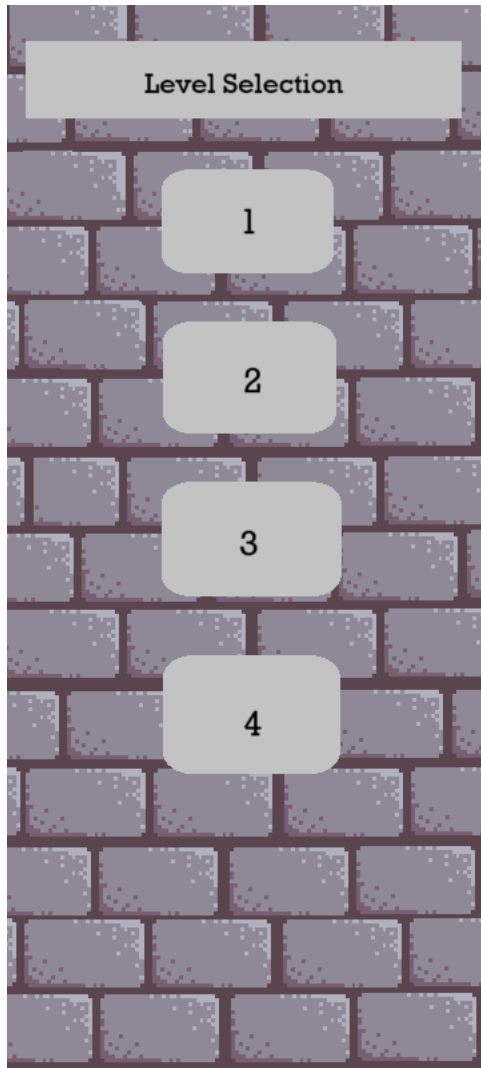
Game Section	Story	Progression	Enemies	Economy	Abilities
Level One	A dragon has invaded the local castle and refuses to leave. The princess hires Michal, the Wizard, to defeat the dragon.	The player completes the level, achieving a score for the level, and unlocks the next level.	Ghost	3 Lives 50 Scrolls to collect	Invisibility Speed boost Teleportation
Level Two	A dragon has invaded the local castle and refuses to leave. The princess hires Michal, the Wizard, to defeat the dragon.	The player completes the level, achieving a score for the level, and unlocks the next level.	Ghost Ranger	3 Lives 50 Scrolls to collect	Invisibility Speed boost Teleportation
Level Three	A dragon has invaded the local castle and refuses to leave. The	The player completes the level, achieving a score for the level, and unlocks	Ghost Ranger	3 Lives 75 Scrolls	Invisibility Speed boost

	princess hires Michal, the Wizard, to defeat the dragon.	the next level.	Evil Wizard	to collect	Teleportation
Level Four	A dragon has invaded the local castle and refuses to leave. The princess hires Michal, the Wizard, to defeat the dragon.	The player completes the level, achieving a score for the level, and unlocks the next level.	Ghost Ranger Evil Wizard	3 Lives 145 Scrolls to collect	Invisibility Speed boost Teleportation
Further levels	A dragon has invaded the local castle and refuses to leave. The princess hires Michal, the Wizard, to defeat the dragon.	The player completes the level, achieving a score for the level, and unlocks the next level.	Ghost Ranger Evil Wizard	3 Lives X Scrolls to collect	Invisibility Speed boost Teleportation

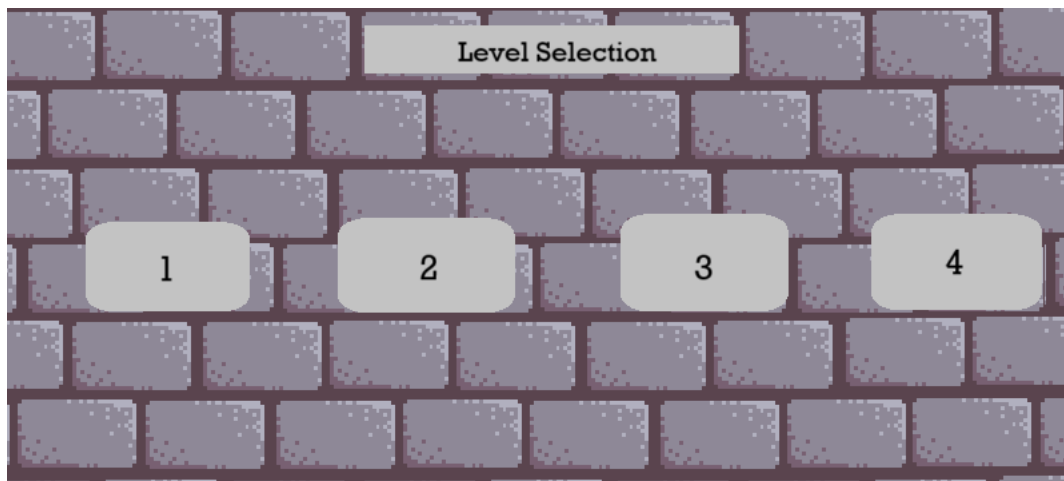
World Overview/Level Select/Navigation Screen

The level selection screen will contain a button that navigates to each level. They will appear once the level before has been cleared.

Portrait Design



Landscape Design



Colour Contrast

Text color

#000000

Background color

#C3C3C3

Contrast

11.91

Very good

★★★★★

Small text ★★★

Large text ★★★

Good contrast for small text (below 18pt) and great contrast for large text (above 18pt or bold above 14pt). [Click to enhance](#)

Universal Game Mechanics

Universal game mechanics can be divided into five types: physics, internal Economy, progression, tactical manoeuvring, and social interactions (Adams and Dormans, 2012). Furthermore, each mechanic can be broken down into two overarching types: core mechanics, which are crucial to the completion of the game, and non-core mechanics, which are not needed to complete the game but add more gameplay elements interactions (Adams and Dormans 2012).

Core and non-core mechanics can be separated into subcategories. Primary subcategories are mechanics that are always available to the player and assist them in completing their current goal or task (Sicart 2008). Additionally, Secondary mechanisms can also help the player complete their goal but are not always available and are built on top of connecting primary mechanics (Sicart 2008). Finally, there is the non-categorized

type, which is related to the average player's action rather than the intended uses for the game.

Name	Description	Adams and Doremans mechanic type	Core/Non-Core
Movement	The Player will need to be able to manoeuvre through the level to collect scrolls and avoid enemies.	Tactical maneuvering	Core (Primary)
Enemy movement.	The enemy will need to be able to move around the level during both their patrolling and chasing states.	Tactical maneuvering	Core (Secondary)
Spell Casting.	The Spell casting feature will utilize drawing mechanics. The player will draw specific shapes, which the system will recognize and use to cast the given spell.	Tactical maneuvering	Non-core (Secondary)
Collecting Scrolls	The player can walk over scrolls, which will cause the scroll to be deleted in the world and the scroll count to increase by one.	Economy/Progression	Core (Primary)
Enemy Sight Detection	The enemy will have a sight cone in which it can detect the player and then start chasing the player as soon as it enters the sight cone.	Physics	Core (Primary)
Lighting/vision cone	Both the player and enemies will have a light cone/vision cone that they will produce to indicate the direction they are facing and what they can see.	Physics	Non-core (Secondary)
Level completion	Once the player has collected the required number of scrolls, they will be able to enter the boss room, causing a cutscene and completing the level.	Progression	Core (Primary)
Collision	In order to ensure the player cannot escape the confines of the level and to implement the player being attacked, collision will be	Physics	Core (Primary)

	implemented to detect when the player collides with a wall or enemy/enemy attack.		
Spell effects.	Actual spell	Physics	No-core (Primary)
Enemy Attacking.	Once the enemy has detected the player, they will change them and start attacking them.	Physics	Core (Secondary)
Status effect	The player can cast spells, which causes them to gain different status effects, such as invisibility, Speed boost and teleportation. The Wizard enemy type can cause the Hold Person a negative status effect on the player, causing them to be unable to move.	Physics	Non-core (Secondary)

Game Levels

Levels overview

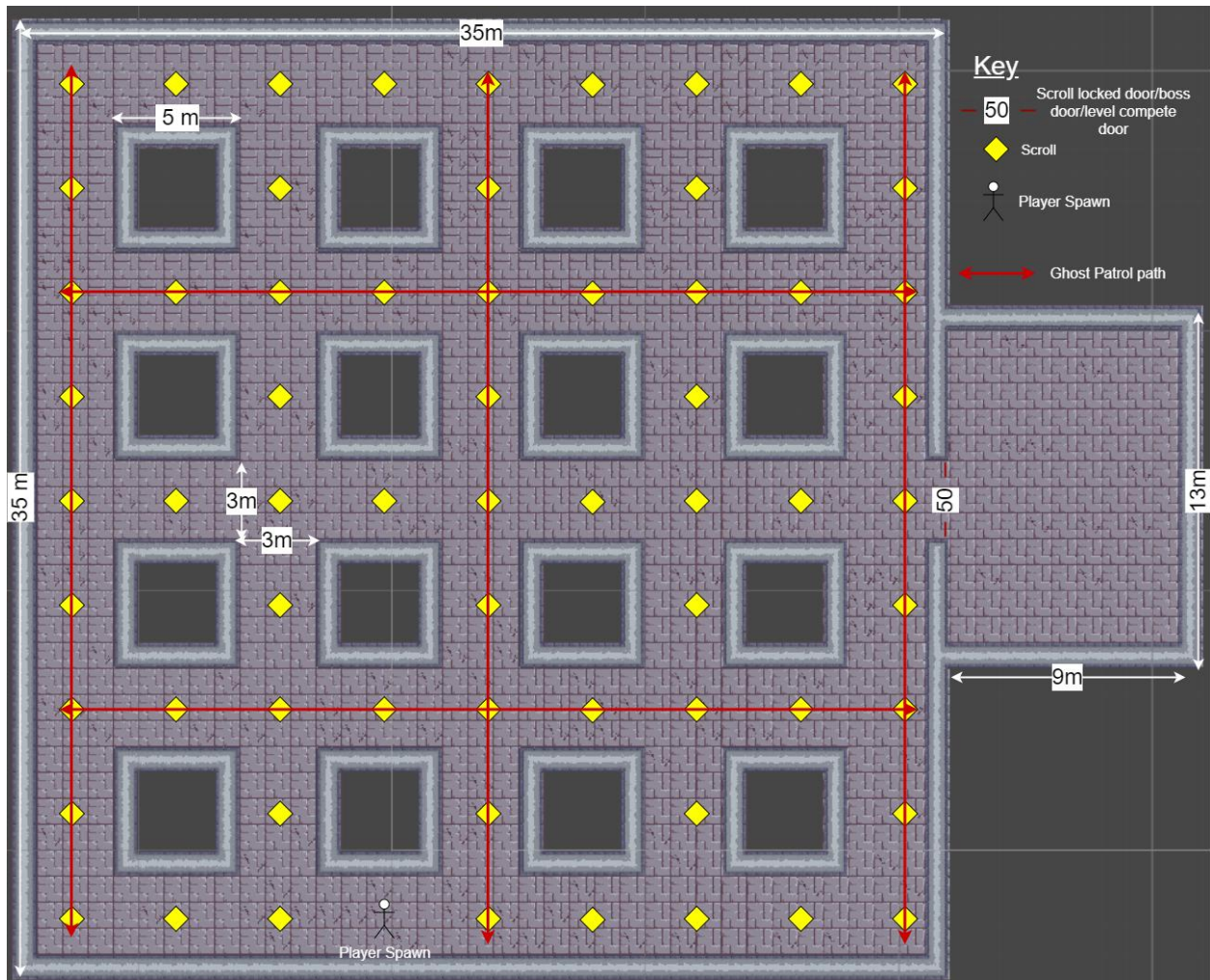
Each level in McWizzard is designed to follow the same story overview of the main protagonist needing to kill the dragon that remains in the story by collecting enough scrolls to defeat the dragon. The main difference between each level is the map, each having a unique design, enemy layout, and the number of scrolls required to defeat the dragon. The only differences in the levels are the first three, which increase the different types of enemies, starting with the ghost end and ending with the wizard.

Diagrams Overview and Level Constraints

- One meter is equivalent to one tile.
- Each map is designed with each passageway being at least three meters or tiles wide.
- Each patrol path is diagrammed with a coloured arrow, with the colour signifying the enemy type and the arrow Starpoint signifying the enemy's spawn point.
- There are two patrol routes: one where the enemy will follow the same path they walked back and the other where the enemy will follow the path in a circle ending at another star point with no backtracking. This is signified by the looping patrol route having the arrow overlap with the start point of the patrol path.

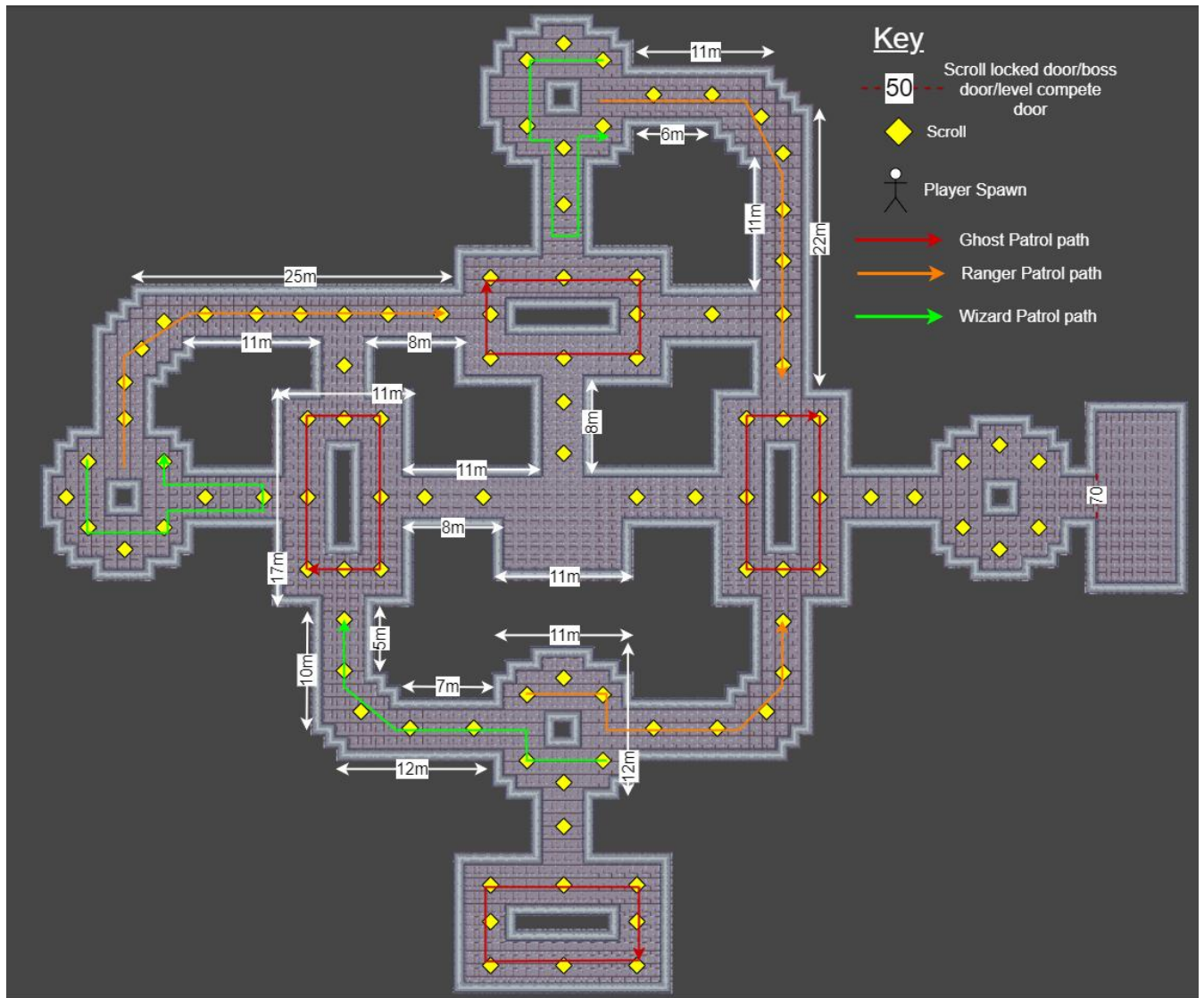
Map Designs

Level one

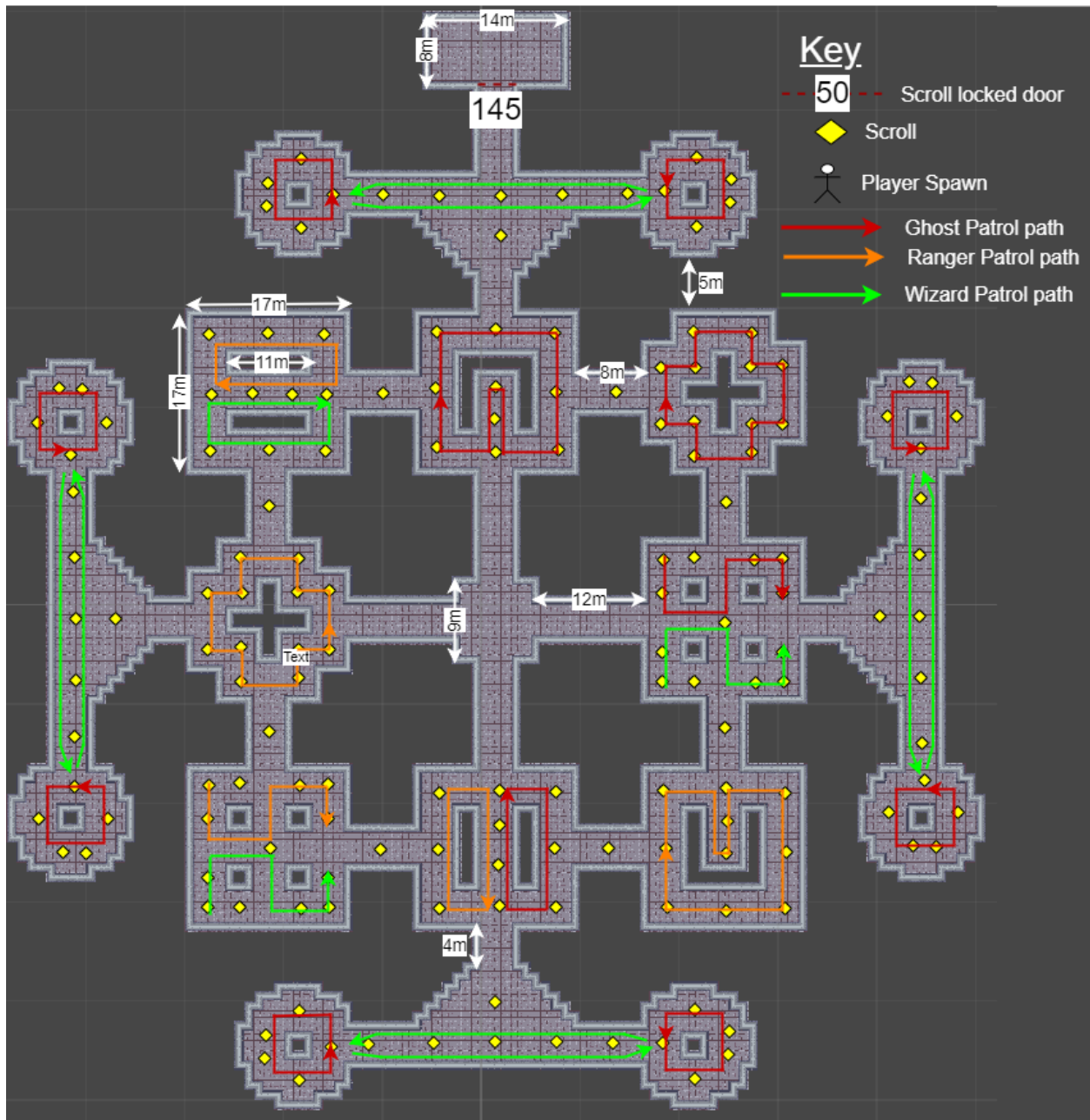


- 50 Scroll locked door/boss door/level complete door
- Scroll
- Player Spawn
- Ghost Patrol path
- Ranger Patrol path

Level Three



Level four



General Enemy Rules

The enemies in McWizzard will be the main factor that affects the game's difficulty and, therefore, the player's experience. Csikszentmihalyi's theory on flow and optimal experience states that the balance of difficulty can determine how much fun someone has (Kristensen & Burelli, 2024). Overall, if the game is too hard, players will become frustrated and quit, whilst if it is too easy, they will grow bored and quit. Overall, this shows the

importance of managing the player's difficulty and the rate at which it increases (Aponte et al., 2011)

When examining enemy movement, it is important to understand that the agent does not know in advance where they will need to go or the path they will need to take to get there (Millington, I. 2019, p. 195). Therefore, the agent needs to be able to calculate a sensible route based on the walkable areas to be calculated during runtime. The algorithm used to solve this issue is pathfinding.

The A* algorithm is the most popular form of pathfinding implemented in video games due to its simplicity and efficiency (Millington, I. 2019, p. 196). Whilst A* is the most popular algorithm, it is not the only one Dijkstra is a method used to find the shortest route to any location from its source location (Millington, I. 2019, p. 203) and can also be altered to generate only the path that is needed.

However, the main problem with Dijkstras is that it searches the entire graph without considering the shortest path, making it wasteful for point-to-point pathfinding (Millington, I. 2019, p. 213). This results in an insufficient algorithm for a game agent compared to A*, which is a point-to-point algorithm (Millington, I. 2019, p. 215).

Enemy Type	Description	Chase type (Rogers, 2014, p. 309).	Attack type	Attack Damage
Ghost	The ghost is a fast-moving enemy that will chase the player and attack at close range.	Chaser: Pursues the player once they have been detected until meeting them.	Melee	20
Ranger	The ranger is a ranged attack that will shoot three projectiles in rapid succession before having a 1-second cooldown between each three-shot volley.	Shooter: Pursues the player once they have been detected but will keep their distance to make ranged attacks	Ranged Projectile.	15 per arrow
Mage	The mage is a superior enemy that debuff the player by holding them in place for 1.5 seconds. Once the mage is in	Shooter: Pursues the player once they have been detected but will keep their	Telegraphie hit scan causing a 2-second	0

	range, they will make a telegraphed attack to inform the user so that they have a chance to avoid the attack (Rogers, 2014, p. 324).	distance to make ranged attacks	paralyzing effect that alerts nearby enemies.	
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Another alternative to A* is Jump point search (JPS), a highly optimized pathfinding algorithm that is much faster than A*, with JPS+ being 116 times faster than A* (Rabin & Silva, 2015). JPS achieves this by reducing the number of nodes it must evaluate using jump points (Rabin & Silva, 2015). However, the main problem with this algorithm is that the grid used to calculate the shortest path must be static during runtime, meaning no new geometry can be added or removed (Rabin & Silva, 2015).

Overall, McWizzards AI will use the A* pathfinding algorithm due to its simplicity of implementation, efficiency of point-to-point technique, and ability to work on a dynamic grid/level.

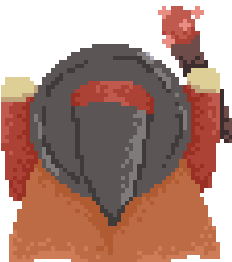
General enemy description

All enemies within the game start off in a patrolling state, moving back and forth between a predefined path with predictable movement (Rogers, 2014, p. 308). Once they detect the player, they start pursuing them until the player has escaped or died.

Each enemy will have different stats. The base movement speed is the enemy's patrol speed and initial chase speed while the enemy is chasing the player. The enemy's speed will increase based on their movement speed gain until it reaches its current maximum speed, which will increase at different intervals depending on the amount of time the enemy has been chasing the player. Each enemy will also have a different max detection range and radius, which will also be reflected by the light that they produce.

Enemy	Base movement speed	Intermediate Max Chasing movement speed	Time between Intermittent chase speeds	Movement speed gain per second	Max detection range in tiles	Max detection radius
Ghost	3	4/5.5/7.5	5/10	1.5	4	360
Ranger	4	4.5/5/6.5	3.5/8	1.0	12	80
Mage	2.5	3.5/4.5/5.5	6/6	0.75	8	90

Enemy Sprites:

Enemy Name	Sprite	Further Explanation/Description
Mage		The Mage has a similar look to the player character's Wizard however, the colour pallet uses contrasting reds and oranges to give a very distinct look to avoid confusing the player. The hat is also in a much darker shade so that even with limited or no colour vision the sprites will be visibly different.
Ghost		
Ranger		The Ranger uses similar colours to the Wizard however its base is with greens, not blues. It also has a distinct shape that differentiates it from the player character.

Level-Specific Enemies

To assure simplicity, McWizzard will not have level-specific enemies. However, to ensure that the game's difficulty curve is not too steep and, therefore, causes players to get frustrated, the enemies will be implemented over three levels. The first level will have the Ghost, the second the Ghosts and the Ranger, and finally, the third level will implement the Mage.

Bosses

At the end of each level, you must enter the boss room that contains a dragon. This uses a lock and key mechanic (Adams and Dormans, 2012) to control player progression. In this game, the 'lock' is the dragon that will kill the player if they enter the room without obtaining the 'key'. The 'key' is the set number of scrolls that the player must collect. To complete the level and defeat the boss the player must obtain these scrolls and enter the boss room.

The dragon sprite is 3 times the size of the player and other enemies to indicate its danger. It is also located in a specific boss room, which is one of the largest rooms on the level.

Monetization

Monetization in mobile games is essential for sustaining development, driving innovation, and ensuring long-term user engagement. By adopting models such as freemium, where games are free to download but offer in-app purchases, developers can support continuous updates, server maintenance, and community management without placing a financial barrier on entry (Hamari, Hanner and Koivisto, 2017). Looking into academic research indicates that such strategies not only broaden the user base but also capitalize on a small percentage of highly engaged users who contribute significantly to revenue, thereby subsidizing the free-to-play experience for the majority (Rogers, 2024). This balance of accessibility and profitability is key to maintaining a competitive edge in the dynamic mobile gaming market.

McWizzard will adopt a hybrid monetization model combining free-to-play (F2P) accessibility with in-app purchases (IAPs), ads, subscriptions, and downloadable content (DLC). The goal is to balance revenue with player satisfaction, avoiding "pay-to-win" mechanics while offering value through optional purchases.

Monetization strategies:

Subscription-Based Battle Passes

In McWizzard Battle passes offer tiered rewards (e.g., exclusive skins) through recurring

subscriptions. Aligning seasons with player milestones such as reaching Level 50, keeps users engaged (Fields, 2014, p. 24). Analytics help tailor these milestones by identifying common progression bottlenecks (BBC, 2023). Csikszentmihalyi's (1990, p. 69) concept of "optimal experience" suggests passes should reward effort, not just spending.

Sponsorships & Brand Collaborations

Partnering with brands (e.g., *PUBG Mobile*'s Tesla skins) can feel organic if integrated into gameplay. However, poorly executed ads risk disrupting immersion, a key factor in maintaining spatial presence (Weibel and Wissmath, 2011, p. 5). Fields (2014, p. 21) advises using native ads that blend with the game's aesthetic to preserve player focus.

Ads: Rewarded video ads can enhance player engagement by offering in-game bonus like extra lives or power-ups. These ads are optional if the player wants to watch an advert to unlock an extra spell they can use in the game level, when the players watch an ad it will help with funding more content for the game or pushing out a newer game like this one (Rogers, 2024).

Optional:

Cosmetics: Basic skins for characters for outfits or wands.

Ethical Safeguards for monetization:

- No Pay-to-Win: All purchasable items are cosmetic or convenience-based.
- Earnable Currency: Gold can be earned via gameplay; gems as well or spells.
- Refund Policy: 24-hour refund window for accidental purchases.
- Clear Pricing: No currency obfuscation (e.g., 10 lives' = £1.00).

Player Retention Features:

- Daily Rewards: Log in daily for free gold/boosts.
- Limited-Time Events: Themed events with exclusive rewards.
- Leaderboards: Compete for top ranks to earn rare titles.

By blending ethical monetization with engaging content, McWizzard ensures players feel valued while sustaining long-term revenue which can help the growth of McWizzard player base and fund future updates / events and sequels of McWizzard.

Cutscenes

There is one scripted cutscene in the game, and it is played at the very beginning of level one. It shows a princess and the wizard talking. The princess states that her castle has been taken over by a dragon, and she asks the wizard to go and get rid of it.

Also, before each level begins the image starts as a zoomed-out look at the entire map that then zooms in on the players location. This is to allow the player to see the entire level before beginning.

Music and SFX

Why Is Audio Important

Audio within video games holds two critical factors: immersion (Rogers, K. et al., 2018) (Rogers, K. 2017) and creating awareness of actions and surroundings (Andersen, F. et al., 2021). Audio helps provide an element of presence within the game and has shown the ability to affect one's engagement (Andersen, F. et al., 2021).

Sound effects are one of the most important forms of audio in a game, impacting the players' perception of the game and boosting the enjoyment and ease of playing (Andersen, F. et al. 2021). Additionally, the absence of the ability to change the sound of different audio types can affect how an individual perceives different forms of audio, so ensuring audio levels can be changed is crucial.

The music and the reason for its inclusion

Three and five will be used for the music in McWizzard fantasy music packs three and five from Ovani Sound. The music packs feature songs with different rhythms, tempos, and tones, and their overall theme matches the fantasy Medieval setting of the game.

The sound effects to be included and their reason.

When looking at sound effects, it is essential to state what needs to be heard, Scott Rogers (2014) lists multiple different actions performed by players or enemies, which have sound effects:

- Movement

- Attacks
- Impacts
- Weapons
- Hit reasons
- Death
- Success

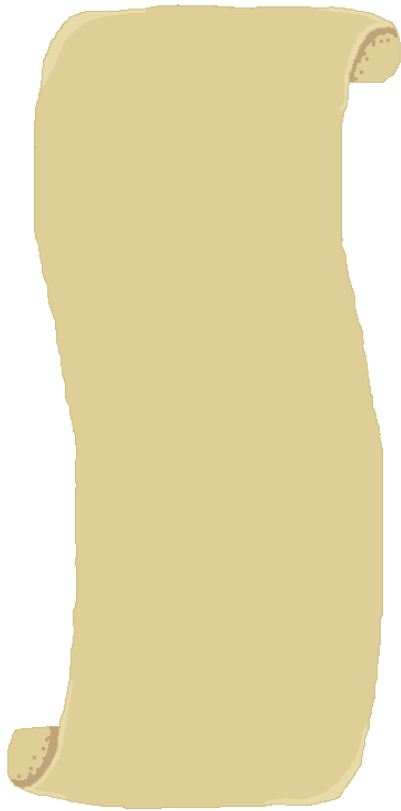
Audio being Included	Usage	Reason for its inclusion
Simple Magic Sound FX pack	Players, attacks and abilities. Enemy attacks. Attack Impacts.	This sound pack includes different audio effects for elemental spells, such as fire and water, which suit the spell caster nature of the player and certain enemies.
Medieval Sound FX Pack Vol. 2	Enemy attacks.	This audio pack contains SFX for melee weapons, such as swords and flails, which suit the type of weapons found in a medieval castle.
Fantasy Music Pack Vol. 3 Fantasy Music Pack Vol. 5	Background music	This music pack will be used for the background music as they all match with the medieval fantasy theme that McWizzards is based on.

All music audio listed above is acquired from Ovani Sound, which offers a [royalty-free license](#) for each audio pack.

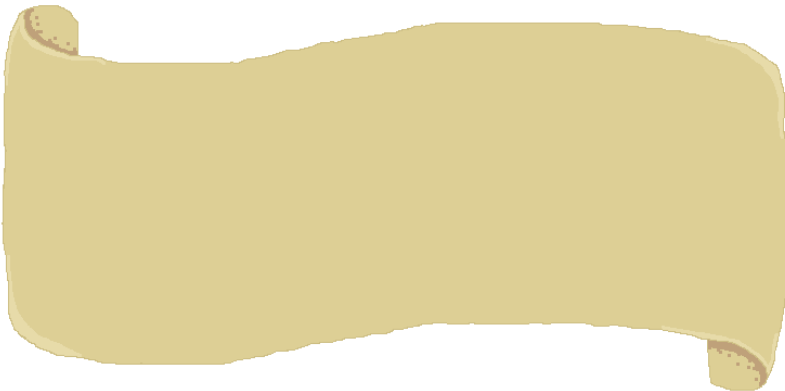
Other Screens

To cast spells the player must bring up the spell casting screen. This is so that the player cannot accidentally cast a spell when just trying to move as both mechanics utilizes the touch screen of the phone. While in this scene the game pauses and a scroll is overlayed onto the gameplay scene.

Portrait-



Landscape-



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Appendix

Meeting Minutes

Meeting: Initial Meeting 29/01/2025

Members Present: Tobi, Sam, Ammar

Main Discussion Points:

-Using word for Documentation

- Using Unity 2022.2.28f1
- Created GDD
- Setting: Medieval Castle with a Wizard and Dragon
- Themes: Hiding through Shadows, collecting spell scrolls,
- Camera: Pure Top-Down, follows the player
- Control System: Point and Click or swipe (discover through testing)
- Style: Pixel Art Sprites
- Enemies get faster the longer they chase the player
- Spell Selection Between levels?
- Draw Spells, buttons for spells?

Decisions made:

- Allocated work on GDD

Future Actions: Work on allocated sections of the GDD

Meeting: Second Meeting 05/02/2025

Members Present: Tobi, Sam, Ammar

Main Discussion Points:

What spells we can have- invisibility, movement speed, teleportation

Enemy types- criminal wizard of dark magiks, staby ghost, big dragon, ranged

Thigs that we will community test- control system, spell controls, tutorial + game learning, image size, UI, gaining items, one big boss or bosses on each level

Age range- Pegi 7 but advertised for 12 onward due to motor controls (research)

Monetization- Cosmetics?, free but with adds? Small cost for game but add free (no more than £2)?

Pickups- scrolls (haptic on gain with text?)

Events- seasonal levels?

Decisions made:

Decided on age range, decided on spells, decided on player character

Future Actions: keep working on GDD, Start working on player controls

Meeting: Online Review Meeting 06/03/2025

Members Present: Sam, Cass, Tobi

Main Discussion Points:

- talked through how spellcasting works
- talked through the mechanics and came together to write up the mechanics' section
- went through the jira board to make sure everything was assigned and any unnecessarily elements were removed
- discussed game progression
- started a game development plan and timeline
- discussed game lighting
- looked over testing plan

Decisions made:

- Game has level select screen to allow level replay
 - Created a game plan for game production and assigned sections
-

Future Actions:

Keep working on GDD

Start work on allocated development sections

Arrange meeting for before submission to ensure all work is done

Meeting: Pre- Writ submission meeting 18/03/2025

Members Present: Tobi, Cass, Amar, Sam

Main Discussion Points:

TDD- added template, worked through completable tdd sections

Talked through design decisions to ensure everyone is on the same page

Future Actions:

Make sure work is finished in time

Keep working on development tasks

Testing Plan

Control System-

Testing what control system for the player character is easiest for a player to use.

Participants will play through the testing options and give feedback on which works the best.

Types tested:

- Point and click
- Follow finger
- Hybrid

Game Orientation-

Testing what orientation, the game is easiest to be played in.

Participants will play through the testing options and give feedback on which works the best.

Types tested-

- Portrait
- Landscape

Tutorial/ learning mechanics-

Testing if a player can easily pick up the game mechanics through the tutorial and gameplay.

Participants will play through the game as it and feedback on how well they were able to learn the game. This will be an iterative form of testing where the game will be edited based off the feedback and re-tested.

Screen size-

Testing at what world view zoom works best for play to allow a player to see the enemies and map but also navigate the world easily.

Participants will play through the testing options and give feedback on which works the best.

UI-

Testing what form of UI works best with the spellcasting mechanic.

Participants will play through the testing options and give feedback on which works the best.

Types tested-

- Individual buttons
- Button to separate screen
- Separate area of the screen

App Icon-

Testing to see what app icon looks best to players and grabs their attention most.

Types tested-

- 4 different versions with different wizard placement, background complexity and background colour

External Testing

Test	Date to test by
Player Movement	17 th March 2025
Camera Movement	17 th March 2025
Enemy Patrolling	26 th March 2025
Enemy Detection	26 th March 2025
Enemy Chasing/Attacking	26 th March 2025
Level Completion	20 th March 2025
UI	
Spell Casting (Input)	
Spell Effects	
App Icon	19 th March 2025

External Test Results

Test One: Movement testing 1 – Following finger

Questions asked

1. How would you rate the responsiveness of the movement?
2. Please briefly explain your rating for the responsiveness of the movement.
3. Did the player character move in a way you expected?
4. Please explain why you found the character did not move in a way you expected.
5. How would you rate the ease of use of the movement mechanic?
6. Did you experience any issues when testing the movement mechanic?
7. Please list any issues you had with the movement mechanic.
8. How would you rate the camera?
9. Please briefly explain your rating for the camera.
10. Do you find portrait or landscape easier to use?
11. Please explain why you chose the portrait.
12. Please explain why you chose landscape.
13. Do you have any further notes to make on the current state of the movement or camera?

ID	1	2	3	4	5	6	7	8
Question 1	7	10	9	7	10	7	8	10
Question 2	Indicator lags behind finger a lot.	There was no impediment that prevented movement and the touch controls were very responsive.	The tracking of the movement was very responsive to my input	with the movement of the character I found it quite responsive to my touch and drag on the mobile screen.	There is no lag or wait time between touching the screen and movement.	The player moved to where I moved the cursor, which is to be expected	Pretty responsive, I personally didn't like the way the character rotated it felt a bit unnatural	Super responsive, almost to a fault. Moves too fast and I would say the turning circle is like.. too small?
Question 3	Yes	No	Yes	Yes	Yes	Yes	No	Yes
Question 4		The sprite rotated along an unanticipated axis.					Weird rotation, also didn't expect the click to move but I like the click to move.	
Question 5	10	10	10	8	9	8	8	10
Question 6	No	No	No	No	Yes	No	No	No
Question 7					The sprite faces the same way whatever direction, including going upside down			
Question 8	8	10	6	6	8	6	9	10
Question 9	Zoomed out a lot in landscape.	It was clear in both landscape and portrait mode and showed enough of the level so that I could navigate it easily.	The zooming of the camera in portrait mode was a bit too zoomed in	I felt when testing the game I felt that the camera in portrait mode was a bit too zoomed in to the character and it may be hard to see the enemy, while in landscape it was A bit zoomed out to much and i found a bit hard to see the character.	Good size and distance. Somehow like and dislike it at the same time	I much prefer the camera fov in portrait mode, in landscape it's zoomed out too much. Especially if there are plans to include interactive objects	Character was always in the middle of the screen and visible.	Followed the player well, didn't notice anything off or wonky
Question 10	Portrait	Landscape	Landscape	Portrait	Landscape	Portrait	Portrait	Portrait
Question 11	Zoomed out a lot in landscape.			I found portrait easier to use because the width of the screen was better for me to hold in my hands.		Better fov	More zoomed in and easier to see the player character.	Texture on floor didn't lend itself well to landscape i think, also the player seemed too small. The game felt closer and easier to see in general in portrait
Question 12		Landscape because it showed more of the level and allowed for a wider range of movement.	It felt easier to control the player and was easier to see the level		Easier to see the whole level and places to go (going over the bridge)			
Question 13		I'd say make the camera change from portrait to landscape less jarring by reducing the zoom distance.		N/A	Maybe put the camera just a smidge closer to the character		Landscape needs to be more zoomed in.	Just slower please, movement gave me whiplash

Test Two: Icon

Questions asked

1. Which icon did you prefer?
2. Is the icon clear?
3. Does the icon make you interested in the game

Id	Which Icon Did you prefer	Is The Icon Clear	Does the icon make you interested in the game
1	Fire	Yes	Yes
2	Fire	Yes	Yes
3	Fire	Yes	Yes
4	Fire	Yes	Yes
5	Fire	Yes	Yes
6	Blue	Yes	Yes
7	Blue	Yes	Yes

Test Tree: Full movement and enemy avoidance

Questions asked

1. Please rank the movement types form best to worst.
2. Please rate the responsiveness of the movement.
3. I find the difficulty of Avoiding Enemies. (Too Easy : Easy : Normal : Hard : Too Hard)
4. I find the difficulty of Escaping the enemy.
5. I find the difficulty of collecting scrolls.
6. I find the difficulty of Predicting a patrolling enemies path.
7. It is easy to know where the enemy can and can not see
8. The player stands out from the enemies
9. The Pickups stand out from the enemies
10. The player stands out from the pickups
11. I Can tell when the enemy starts to chase me
12. If you disagreed to any of the above question please give a short sentence explanation for why
13. Please list any issues you encountered
14. Any Additional Comments?

ID	1	2	3	4	5	6	7
Question 1	Hybrid;Hold To;Tap To;	Hybrid;Hold To;Tap To;	Hold To;Hybrid;Tap To;	Hybrid;Hold To;Tap To;	Hybrid;Hold To;Tap To;	Hybrid;Hold To;Tap To;	Hybrid;Hold To;Tap To;
Question 2	7	8	8	7	10	8	7
Question 3	Hard	Normal	Hard	Easy	Hard	Normal	Normal
Question 4	Hard	Normal	Normal	Easy	Hard	Hard	Easy
Question 5	Normal	Easy	Easy	Easy	Easy	Easy	Hard
Question 6	Hard	Normal	Hard	Normal	Normal	Easy	Normal
Question 7	Strongly agree	Agree	Agree	Agree	Agree	Strongly agree	Strongly agree
Question 8	Strongly agree	Agree	Strongly agree	Agree	Agree	Strongly agree	Strongly agree
Question 9	Strongly agree	Agree	Strongly agree	Strongly agree	Agree	Strongly agree	Strongly agree
Question 10	Strongly agree	Agree	Strongly agree	Strongly agree	Agree	Strongly agree	Strongly agree
Question 11	Strongly agree	Strongly agree	Strongly agree	Strongly Disagree	Strongly agree	Strongly agree	Strongly agree
Question 12				Didn't notice tracking after voice line			
Question 13		Tiny issues player got stuck on the bottom wall but gets unstuck	When tapping i got stuck on the walls multiple times	Tapping a bit slow		Escaping the enemy seem a bit too difficult and felt as if you couldn't ever escape it	Larger hit boxes on the scrolls as they were hard to collect
Question 14			Keep the voice actor				

Test Action Response

Test	Discussion of results	Alteration to be made
1	The responsive movement system's result had a high response, with an average score of 8.5, and its ease of use had an average score of 9.33. The only issue mentioned with the movement was the AI.	Fixing the known issues with the different zoom levels for landscape vs portrait.

	Overall, 75% found the player moved in a way they expected, with the other 25% mentioning that the spire does not move in a way that is expected. No notable issues arose for the testing apart from one with empty spite, but this has been disregarded due to the temporary spirit. The camera was rated with an average score of 7.88, with the main complaint being the disparity in the zoom between portrait and landscape, which was also reflected in the result of individuals favouring the landscape view.	• Implement the player sprite intended. • Test for tap movement then both tap and follow figure movement styles.
2	The responsive from the icon show that the large majority preferred the fire background with it having 71% of the votes for which icon the participants liked the most. The Blue icon followed it with 29% of the votes whilst the orange background had zero votes suggestion going forward the fire icon should be the one used. The testing also showed that the icon was clear with 100% agreeing with the question of “Is the icon clear”. Additionally, the question “Does the icon make you interested in the game” was answered as Yes by 100% of the participants.	• Use the fire background Icon for the full game.
3	The rating of the different movement system showed a high favoring of the Hybrid system with it being rate as the best movement system 86% of the time and the second best 14% of the time. This is then followed by the hold to system being first 14% of the time and second 86% of the time. Alternatively, the tap to system showed an outright disliking being ranked last for every response suggestion that the tap to system should be avoided whilst either the Hybrid or hold to system should be implemented. The responsiveness of the movement was rate highly with and average of 7.86/10 for how responsive the movement was. The difficulty of avoiding enemies was show to be two	• Further implement the Hybrid or tap to system and make it the main movement system for the game. • Edit the speed of the enemies to make the game easier. • Edit the zoom of the camera so the player can see more of the world and enemy movements. • Increase the hitbox size

	high with 42.9% of the participants finding it hard to avoid the enemies, whilst 42.9% found it to be of normal difficulty this makes the difficulty above the target threshold of the desired difficulty level which is to have a low minority of individual rate it as the game being hard aiming for a more casual level of difficulty. The difficulty of escaping enemies also showed similar results with 42.9% finding it to hard to escape the enemy overall these responses show that the enemies movement speed needs to be lowered. The difficulty of collecting scrolls met the target difficulty level with 71% of people finding it to be easy with the only suggestion being to make the hit box for collecting the scroll to be larger. Finally in difficulty section is the ability to predicted the enemies' path which was show to be slightly too hard with only 14.3% finding it easy and 57.1% finding the difficulty to be normal and the rest of the participants finding it too hard overall suggestion some change may need to be made to how obvious the patrol paths are or how much the player can see/ the zoom level of the camera on the character. As for questions from 7 to 11 all results to each question showed an agreement to the statements with only one out liar being for the question "I can tell when the enemy starts to chase me" with one person saying strongly disagree. The outlier of the question mention that is seemed like the enemies where not chasing the player fast enough. However, this outlier did find the game to be too easy suggesting they were able to escape the ghost before it caught back up the them. Alternatively, this result could suggest the ghosts' stats need to be changed slight making it chase the player for long. However, considering the nature of the result being an outlier which does not correlate with the rest of the difficulty results this should not result in any large changes to the games difficulty. Finally	for the scrolls.
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	looking at the issues the main complaints was with the tapping movement system not always being responsive and sometimes having issues with get stuck or unresponsiveness showing one of the reasons why the tap to movement system was the least popular system among the three.	