Book of specification

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1 Introduction

This specification book will provide an overview of our second-semester project, Robin Hood: New Generation. The team, Goal Diggers will create this game in C sharp primarily on Unity, with the assistance of other tools.

1.1 Origin and idea of the project

Robin Hood: New generation will be a platform game. Players will be able to control a character who will be able to steal from houses in order to collect money that will be donated to charity at the end of the level without being apprehended by the police.

However, in order to spice up the game and make it more interesting, we have decided that throughout the game, Robin will face various obstacles that will slow him down during his harvest.

Once the single-player mode is finished, the group plans to offer a multiplayer experience centered on many of our levels. This entails incorporating a wide range of gameplay options, such as new enemies and a constantly changing environment.

Once that initial experience is complete, we hope to develop a co-op story mode with house setup editing, in-engine cinematics, and artificial intelligence.

All of these tasks, as well as the main artistic tasks for creating a cartoonish-style environment supported by a musical environment, are detailed in this book of specifications. Each task is assigned to a group member who has a backup.

Everyone will learn how to code in order to create a Unity game. All team members will have the opportunity to learn about game design, creating a musical environment, and creating 2D assets.

Finally, this book of specification contains a detailed description, approach, and schedule for all of these tasks, as well as the deadlines for each of the presentations.

2 Presentation of the game

2.1 Robin Hood : New Generation

2.1.1 Concept

The goal of the game is for Robin, the main player, to bring some funds back to hospitals and charity to help lower class citizens. During his journey, he will also try to obtain as many points as possible in a limited amount of time.

In order to earn points, the player will have to roam through the house and get specific items without getting caught by the cops from the moment they arrive, and without falling into one of the traps that are set to protect the places he will steal from. Thus, the player will have to be careful and watch where he steps, at the risk of losing all his life points and ending up in jail.

2.1.2 Levels

This illustrates a basic level play out: our character will be placed in front of an entrance (door, back door, window) through which he will break into the house. There will be multiple floors, the number and size of which will be determined by the player when he selects the difficulty of the game. From the moment they enter, the player will have a limited amount of time to collect the most valuable objects he can find along the way, and when that time is up, a door and a cop will appear at random on one floor.

To win the level, the player must reach the door as quickly as possible without being caught by the cop. If the player is caught, he is imprisoned and charity receives nothing; if he wins, all of the money goes to charity and the player receives a number of stars based on how many resources he was able to obtain from the house in comparison to the actual number of pieces available.

2.1.3 Game design

The user can choose between a male and female modern-dressed Robin Hood, as well as a cop, from our cast of two characters.

The absence of walls in the house will allow the player to view every room and floor while zooming in on the main character. The house will initially be completely dark except for a small light around the player. We will be able to view the stairs that connect each floor as well as the challenges the player must overcome in order to gather as many items as they can. Since it is dark, the various important assets will be glowing for the simple mode but not the hard one. When the police arrive, the entire house will be illuminated in easy mode, allowing the player to see where the door is and where the cops are located.

2.2 Layout of the game

Fig 1 : Overview of the street

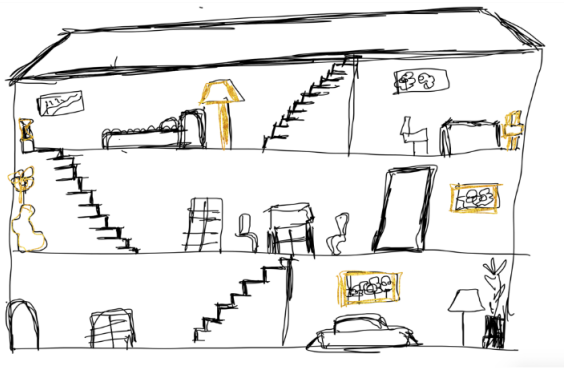

Fig 2: Overview from the inside of the house

3 Production of the game

3.1 Tasks distribution

Task	Hana	Andilath	Jessica
UI	Main		Substitute
UX	Substitute		Main
Character actions	Main	Substitute	
Multiplayer	Substitute		Main
AI	Main		Substitute
Tutorial	Main	Substitute	
Level design	Substitute	Main	
Level implementation	Substitute		Main
Object implementation	Main	Substitute	
Particle effects		Substitute	Main
2D Modeling		Main	Substitute
2D Animation	Substitute		Main
Music		Main	Substitute
Sound effects		Main	Substitute
Writing (storyline)		Main	Substitute
Website	Substitute	Main	

3.1.1 Description of the tasks

- UI:
UI focuses on the visuals of the game.

We intend to use UI in order to implement screens, buttons , toggles , icons and other visual aspects of the game .

Furthermore, layouts, colors , animations will be done using UI designing.

- UX:
UX is a map of unique environment and structures . It would help us to improve the game's user interface, boosting players' engagement with the game. This includes the entire interaction of all graphic elements onscreen, controls, and interfaces (including the tutorial).

- Character actions and movements:
We chose vector position translation to control the player. Rather than changing the player's coordinates, we apply a force to make it move (x,y). This implementation was chosen over the others because collisions will be frequent in our game, and we needed a way to avoid jerkiness and bugs. (Physics-based movement cannot teleport through a collider because the block will counter us even if we apply a very strong force, but with vector 3 translations we can simply clip through.)
Another advantage of physics-based movement is that it is more fluid and easier to synchronize with the other players.
3 main actions will be implemented in our game :

-Pick and drop
-Jump
-Boost (forward force applied to the player)

- Multiplayer:
We intend to make a multiplayer game, a game in which more than one person can play the same game together. More specifically, though, they will be playing in the same exact game area but will have to compete against each other to amass the best artefacts they can get, before having to race against each other to reach the door first.

The different players are all in the same match, server, or level experiencing everything in real-time at the same moment.

Firstly, we will be making the servers. Those servers run automatically, making no one, in particular, the host. These dedicated servers are kind of like rented rooms. Although you don't have to pay anything, they host your heated multiplayer matches for you, taking out a significant pain in the neck for some host-based gaming.

- AI:
We believe that AI is one of the strongest foundations for all games. It makes a game complex and interesting to play.

AI is playable both with it and against it. The most common role for AI in our game will be to control non-player characters (NPCs).

We will use AI to give seemingly intelligent life to countless game characters. Further, we will be using AI for:
- picking up objects
- time limit
- police(the enemy)

We feel that AI is intelligent to help us train and complete our environment.

- Tutorial:
We want to help new players when they play for the first time.
Therefore we will create a step-by-step scripted level that guides them through the different situations they will encounter in future games.

- Level design:
Level Design would be used to incorporate the game's story, theme, and plot. It would also allow us to sketch out the game structure and a rough game level diagram. Furthermore , it will allow us to adequately connect our game and give it the final touch.

- Level implementation:
Level Implementation in our game merely focuses on 2 things , the internal state of the player and the normal state (the assets catch up).

- Object implementation:
We will have to associate to each game asset its 2D model, some characteristics and properties. Indeed, items properties change when they are modified or used by the players. Also, some items could be updated as the players goes through the game.

- Particle Effects:
Particle effects are nice details that we can add for a more enjoyable experience. They will be made principally for instances like glowing objects.

- 2D modeling:
The 2D modeling will allow us to move up, down, left and right through the screen. Also, we will design all the objects that we will use for the game.

- 2D animation:

Characters in motion and some objects during their use behave in a certain way, and the 2D animation will allow us to create those moves properly and in a more realistic and artistic way.

- Music:
Music is a huge task in this project because we aim to provide at least two original compositions to fit with the menu and in-game ambiance. It will require first the creation of sheets written by the team (mainly Andilath on this task) and then a work with music software to produce a good-sounding music that feels like professional work, and chilling moment.

- Sound Effects:
Create original sounds effects that will be associated to items and objects to make the game even more lively, realistic and to give feedback to players, to immerse them in the game and provide an entertaining experience.

- Website:
We aim to build a website using bootstrap CSS platform. It allows easier designing of our webpage; GitHub pages provide a reliable hosting solution for the project's website. We will include on it pages concerning features, schedule, the team, and a download page with all our documents. The development will be quite fast because of the use of bootstrap's default theme.

- LATEX:
Write the Book of Specifications and the reports, in the most efficient manner possible. They have to be and look pleasant.

3.2 Schedule

Task	By First Defense	By Second Defense	By Last Defense
UI	35%	80%	100%
UX	35%	75%	100%
Character actions	20%	90%	100%
Multiplayer	30%	70%	100%
AI	20%	70%	100%
Tutorial	30%	60%	100%
Level design	15%	60%	100%
Level implementation	20%	40%	100%
Object implementation	20%	45%	100%
Particle effects	5%	30%	100%
2D Modeling	40%	80%	100%
2D Animation	40%	80%	100%
Music	10%	50%	100%
Sound effects	10%	70%	100%
Writing (storyline)	50%	80%	100%
Website	40%	80%	100%

3.3 Genre

Robin Hood : New Generation is a RPG game.

RPG is a game in which players take on the roles of fictional characters, players are accountable for physically acting out these roles within a narrative, either through literal acting or through a structured decision-making process regarding character development. Many games have a formal system of rules and guidelines that decide whether the actions are a success or fail.

Role-playing games have a wide range of varieties. The original form, sometimes referred to as a tabletop role-playing game (TRPG), is conducted through discussion, whereas in live action role-playing (LARP), players physically perform the actions of their characters. [In both of these forms, an arranger known as a game master (GM) usually decides on the rules and setting to be used, while also acting as the referee.

RobinHood : New Generation is an example of LARP.

There are several types of RPGs available in electronic media, including multiplayer text-based Multi-User Dungeons (MUDs) and their graphics-based successors, massively multiplayer online role-playing games (MMORPGs). This also includes single player role-playing video games in which players control a character, or team of characters, who undertake(s) quests and may include player abilities that advance using statistical mechanics are also examples of role-playing games. These electronic games may share settings and rules with tabletop RPGs, but they place a greater emphasis on character advancement rather than collaborative storytelling.

Tabletop role-playing games are regarded as a form of interactive and collaborative storytelling . Events, characters, and narrative structure all contribute to the sense of a narrative experience, and the game does not need to have a clearly defined storyline. The key distinction between role-playing games and traditional fiction is interactivity. Whereas a television viewer is a passive observer, a role-playing game player makes decisions that affect the story. Such role-playing games carry on an older tradition of storytelling games in which a small group of friends works together to create a story.

While traditional children's make-believe games comprise simple forms of role-playing, role-playing games add a level of expertise and persistence to this basic idea with advancements such as game facilitators and interaction rules. In a role-playing game, players create specific characters and an ongoing plot. Suspension of disbelief is aided in games by a consistent set of rules and a more or less realistic campaign setting. The level of realism in games varies from just enough internal consistency to set up a credible story or challenge to full-fledged simulations of real-world processes.

Tabletop role-playing games may also be used in therapy settings to help individuals develop behavioral, social, and even language skills. Beneficiaries commonly include young people with learning difficulties such as Autism spectrum disorders, attention-deficit hyperactive disorder (ADHD), and dyslexia.

3.4 Inspiration and ideas

3.4.1 Robin Hood : Builders of Sherwood

Robin Hood: The Legend of Sherwood is a 2002 stealth-based real-time tactics video game developed by Spellbound Entertainment.

The game begins with Robin Hood arriving in Lincoln from the Crusades and discovering that the notorious Sheriff of Nottingham has stolen his inheritance. After completing the first and second missions, meeting Maid Marian in Nottingham Cathedral, and attempting to meet the Prince, it is revealed that King Richard has been kidnapped for a ransom by Leopold of Austria, and that the Regent Prince John is unlawfully usurping the rightful king. The player is in charge of obtaining the £100,000 ransom required to save the king.

Missions generally include ambushing convoys and infiltrating towns, usually to gather information or even liberate a notable outlaw from the sheriff's clutches. In the final mission, Robin must defeat the Prince by fighting the Sheriff.

3.4.2 ELDEN RING

Elden Ring is a 2022 action role-playing game published by Bandai Namco Entertainment and developed by FromSoftware. The game is represented in a third person perspective, with players free to roam its interactive open world. Combat with various weapons and magic spells, horseback riding, and crafting are all game elements.

Players are free to explore the Lands Between and its six major areas, which range from Limgrave, which features grassy plains and ancient ruins, to Caelid, a wasteland teeming with undead monsters. The character's mount, Torrent, serves as the primary mode of transportation in open world areas, with the ability to fast travel outside of combat. Players will encounter non-player characters (NPCs) and enemies throughout the game, including the demigods who rule each main area and serve as the game's main bosses. Elden Ring includes hidden dungeons such as catacombs, tunnels, and caves where players can fight bosses and gather useful items in addition to open world areas.

3.4.3 Subway surfers

Subway Surfers is a video game in which you run indefinitely. The game begins by tapping the touchscreen while Jake (the game's starter character) or any other character sprays graffiti on a subway and is caught in the act by an inspector and his dog, who chases the character.

While running, the player can swipe up, down, left, or right to avoid colliding with moving subways, poles, tunnel walls, and barriers. More points can be obtained by swiping quickly as the speed increases. A crash ends the game, but the player can continue running by pressing keys or watching an advertisement.

Coins, keys, score multipliers, super sneakers, jetpacks, magnets, mystery boxes, and power jumpers are among the items that the player can collect. A power jumper ignites the character by launching it into the air, a jetpack allows the character to fly, a coin magnet attracts coins on the track, super sneakers allow the character to jump higher, and a score multiplier multiplies the rate at which the score counts. Hoverboards, for example, allow the character to avoid collisions and last about 30 seconds.

3.4.4 Motor City Patrol

Motor City Patrol is a top-down driving game for the Nintendo Entertainment System that was released in 1992.

The player takes control of a police officer tasked with patrolling one of five precincts for a week at a time. As the player progresses through the week, a larger area can be patrolled, as well as a longer shift (time limit) to complete each of the mission goals.

Players can spend the entire day driving around looking for speeders, robbers, and public enemies while avoiding injuring innocent civilians. When a criminal (speeder, robber, or public enemy) appears on the precinct map, the player must either stop the vehicle or shoot the offender. When players fail a mission, receive five or more warnings, shoot a civilian, or total their vehicle, the game ends.

After completing all five precincts (each taking seven days), players begin again in precinct 1 on day 1 with all their points, merits, warnings, and car upgrades intact. The game will continue indefinitely until the player loses.

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3.5 Tools and resources

IDE FOR PROGRAMMING – RIDER

GAME ENGINE – UNITY

COMMUNICATION - Discord, WhatsApp

REPOSITORY BACKUP - GitLab

FOR 3D MODELS – BLENDER, SKETCHUP

FOR COMPLING DOCUMENTS - ONENOTE , LATEX

SOUNDS, AUDIO, MUSIC – SFX AND AUDACITY

4 Conclusion

To sum up the book of specification , we'd like to summarize and provide an overview of our project. Robin Hood: New Generation is a innovative project that requires the use of numerous skills from various domains. Robin Hood: New Generation is a 2D role-playing game. Players will be able to control a character who will be able to steal money from houses in order to donate it to charity at the end of the level while avoiding capture by the police. To accomplish this, we have developed a schedule and task distribution that will allow for significant improvements in defenses.