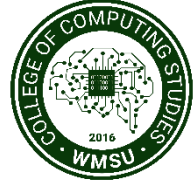




Republic of the Philippines
Western Mindanao State University
College of Computing Studies
DEPARTMENT OF COMPUTER SCIENCE
Zamboanga City



WMSU CAMPUS
EXPLORATION: A 2D TOP-DOWN MOBILE
GAME

A Thesis presented to the faculty of
Department of Computer Science
College of Computing Studies

In partial fulfillment of the requirements for the degree of
Bachelor of Science in Computer Science

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May 04, 2022

Approval Sheet

Dedication

To my mother and uncles, ***Annabelle, Rogelio, Jr. and Axiel***, I thank you for supporting me through the years of my college life. To my brothers and sisters, ***Ivan Kristoffer, Christian, Lady Chiven and Donna***, for believing in me and taught me to be responsible. To my late father, ***Santiago, Sr.***, I have finally achieved your dream and last wish as your first child to ever graduate from a university. I dedicate this work to them.

Per Aspera Ad Astra.

This thesis project is dedicated to my parents, **Joseph Faith, Sr.** and **Vivian**, who have been my biggest supporters and encouragers. I would also like to thank my brother, **Frank Reed**, for getting me a PC to work on my project, and **Eduard Alama** for lending me his computer when my own computer was not working before our final defense. Without his help, I couldn't finish my project on time. Finally, I would like to thank all my friends and family for their support and encouragement throughout this journey. Their support and willingness to help me achieve my goals have been instrumental in my success. Thank you for believing in me and for helping me to achieve my goals.

Acknowledgement

We would like to extend our sincerest gratitude to our supervisor, Ms. **Mara Marie Liao**, who believed in us and guided us with utmost effort, for sharing her knowledge in the course of our studies despite her busy schedule. Thank you for giving us the opportunity and we hope we made you proud.

We are also grateful to Ms. **Lucy Felix-Sadiwa**, who have influenced us greatly with her knowledge and perseverance in teaching us throughout our years as a Computer Science student.

We are also thankful to the faculties and staffs of College of Computing Studies for their contribution of sharpening our minds to prepare ourselves to the next path which is after we graduate.

Abstract

Freshmen have enough time to wander around their campus for the first time especially if their university is huge. The WMSU freshmen enrollment process was a bit confusing for a freshman before, but now it has been made simpler. Though that is the case, most of these freshmen do not know most of the places or buildings of the WMSU campus. During their enrollment, these freshmen might waste their time finding where to go to a particular place during their enrollment or even when their first day of class commences.

Video games have been around for almost 65 years with the purpose of either relaxation, enjoyment, challenge, or even boredom. That being said, it has been very popular among children and teenagers because of its friendly and very easy to understand. Through the years of development, video games have improved their graphic designs, gameplay, and even user control. From that point, video games have become so versatile that they can also be used as an alternative. To address this matter, the study will be developing a mobile game that lets the player complete the quests about the WMSU official freshmen enrollment process as well as simulating WMSU main campus in a 2-Dimensional Top-Down graphic mobile game.

Table of Contents

Approval Sheet.....	1
Dedication	2
Acknowledgement	3
Abstract	4
List of Figures.....	7
List of Tables.....	8
CHAPTER I INTRODUCTION	9
Project Context	9
Purpose and Description.....	11
Objectives.....	12
Scope and Limitations.....	13
Significance of the Study.....	14
CHAPTER II REVIEW OF RELATED LITERATURE	15
Related Studies	15
Synthesis.....	18
Conceptual Framework.....	19
Definition of Terms.....	20
CHAPTER III METHODOLOGY	21
Research Design	21
Respondents.....	21
Data Gathering Instruments, Techniques, and Procedures	22
Technical Tools.....	22
Software Process Model	23
Storyboard	23
Module Specification Model	25

Implementation Plan	36
Prototype	37
CHAPTER IV RESULTS AND DISCUSSION	38
Alpha Testing Result.....	38
Beta Testing Result.....	44
Pre-Testing and Post-Testing	44
Pre-Test and Post-Test (Score) Result for Requirements of Freshmen Enrolment.....	46
Pre-Test and Post-Test (Score) Result for WMSU Locations	47
Acceptance Testing	49
CHAPTER V CONCLUSION AND RECOMMENDATION.....	53
Conclusion	53
Recommendations	53
APPENDICES	54
Appendix A: Photo Documentation of Testing	55
Appendix B: Relevant Source Code	57
Appendix C: Screenshot/Picture of the System	62
Bibliography.....	66

List of Figures

Figure 1: A 2D pixelated character named Pira	17
Figure 2: Calico Desert from Stardew Valley in a Top-Down perspective	17
Figure 3: Conceptual Framework in Diagram.....	19
Figure 4: HIPO Chart.....	24
Figure 5: Sample buildings in the game	37
Figure 6: Characters for Story Mode male and female.....	37

List of Tables

Table 1: Definition of terms.....	20
Table 2: Story Mode storyboard.....	25
Table 3: Free Roam Mode storyboard	35
Table 4: Five Point Likert Scale for Alpha Testing.....	38
Table 5: Weighted Mean of Instructional Content	39
Table 6: Weighted Mean of User Friendliness	40
Table 7: Weighted Mean of Readability	41
Table 8: Weighted Mean of Technical Aspects	42
Table 9: Overall Weighted Mean of the mobile game	43
Table 10: Table of Pre-Test and Post-Test of Scores about the requirements of freshman enrollment and locations of WMSU	44
Table 11: Two Sample for Means using Excel	46
Table 12: Table for T-test result for freshmen requirement topic.....	46
Table 13: Decision table	46
Table 14:Two Sample for Means using Excel	47
Table 15: Table for T-test result for location of WMSU topic	47
Table 16: Decision table	48
Table 17: Table for Acceptance Testing of client	49

CHAPTER I

INTRODUCTION

Project Context

Exploring the Western Mindanao State University (WMSU) – main campus for the first time can be quite confusing. First time enrollees and guests will be having difficulties locating their destination if they don't have a guide or someone to guide them. This can be a hassle and time consuming if they are in a hurry or just trying to get there in time.

The researchers had given a pre survey to the students of Western Mindanao State University, and to the incoming freshmen of the University. The survey has 71% which were the incoming students of WMSU and 28.4% are old students and new students (freshmen) who have not experienced a face-to-face enrollment. The survey contained questions asking if the respondents know the following building or area inside the University. The results showed that 71% of the respondents do not know certain building, places or specific areas inside WMSU. These respondents are mostly the incoming freshmen as well as students who enrolled during the COVID-19 pandemic. That being said, the researchers will develop a mobile game that will bring aid to the students and upcoming freshmen of the Western Mindanao State University.

Through the help of a mobile game which can replicate the WMSU environment in a 2D Top-Down type of a mobile game, it can help them familiarize each place and also minimize asking random students from the campus of which it requires certain amount of energy, courage, and confidence from the minority (shy people, persons with disability). It may also boost their excitement when venturing into unfamiliar places for the first time in a fun and entertaining way. The user or player will be guided through quests and challenges to be familiar with the WMSU campus.

The game will be having two modes: the story mode and the free roam mode. This way, the first-time comers or the new students will be entertained and have fun while exploring the map. (Granic, I., Lobel, A., & Engels, R. C. M. E. 2014) stated that "Playing video games may also help children develop problem-solving skills". In general, digital

games are not exclusive for children only. In this modern society, we see digital games as a platform for learning. From that aspect, grown people can also utilize the power of digital games through E-Learning games.

Purpose and Description

The main purpose of the game is to let the player explore the map and complete quests to go to the next step. The mobile game allows the player to explore and interact with the buildings, and non-player-characters inside the game. The mobile game has two (2) modes, the story mode and the free mode. The goal in the Story Mode is to let the player complete the enrollment process. Every step in the enrollment process serves as a checkpoint for the game. The player must complete the proceed to the next step. Each quest is telling the player to search and collect a certain item or items placed around the WMSU. These items are the official requirements of the incoming freshmen enrollment of WMSU. After finding and completing the tasks, the player must submit the item or items to the non-playing character (NPC) to proceed to the next quest.

In contrast, the free mode allows the player to freely roam around and interact with all of the intractable buildings or objects. The quest system is disabled and will be more of a guide to the player. The free mode lets the player interact with the NPC of each college building about the locations of the classroom number (1st, 2nd, 3rd, ... n floor), as well as other rooms like the Dean's Office, etc.

Objectives

The general objective of this study is to create an educational mobile game with 2D environment using GDScript language that lets the player explore the Western Mindanao State University (WMSU) campus and learn information of each building by completing tasks while guiding them the steps of the enrollment process.

Specifically, the study will:

- To create an educational mobile game using Godot Engine.
- To design 2D pixelated game assets and tile-based design of the Western Mindanao State University campus.
- To develop an interactive adventure mobile game to the player which also introduces the Western Mindanao State University campus to other stakeholders.
- To guide the player in the enrollment process.
- To let the players know the locations or areas of the WMSU campus.

Scope and Limitations

The main scope of the game includes mainly incoming freshmen of WMSU, old students, and other stakeholders. The project is mainly based on the main campus of Western Mindanao State University (WMSU). It will cover mostly the entire map of the WMSU Main campus. In a 2D environment, the game is available for Android smartphones.

For the limitations, the game is not available for iOS devices. Some parts of the campus might not be accessible or will be blocked, depending on the college rules for privacy. The requirements of the freshmen enrollment will be based on the current and updated requirements of WMSU as of 2023. The WMSU extension campuses will not be covered. This game will also not cover the senior high enrollment.

Significance of the Study

The implementation of the mobile game will be significant to incoming freshmen of WMSU. These people may have a hard time familiarizing the environment in the campus which leads to not finding what they are looking for or wasting energy and time. It may be logical to ask for help from the people inside the campus, but for those from the minority groups of low self-esteem, having no confidence, and people with disability, it may be too hard to ask. Through playing the actual mobile game, the player can navigate by himself/herself to his/her destination by just playing it.

The game will not be limited to guides on how to complete the enrollment process, but also aids the player to familiarize the campus and provide information about the buildings inside the campus.

CHAPTER II

REVIEW OF RELATED LITERATURE

Related Studies

The rise of technology like computers and smartphones have drastically improved for 2 decades and has become an aid to most people in the field of engineering, agriculture and politics. As technology continues to develop new uses, an entertainment aspect has become popular, video games. Though it did not take long to surface the negative comments from the grown people.

Video games have been greatly blamed for children getting lazy, addicted or developing violent behavior. As time goes by, video games have evolved from a simple entertainment to a teaching platform that encourages people to learn while playing a video game. This has become a great leap from having a negative impact for children and youths. In youths and children from the United States, ninety-seven (97) percent have been playing for at least an hour per day (Granic, I., Lobel, A., & Engels, R. C. M. E. 2014). Gaming can be a good instrument in terms of education and view as an alternative or addition to traditional teaching (Mohamad, 2020). Many students today have access to smartphones of which mobile educational games can be played in a more comfortable and easy access.

As video games begin to be labeled as a learning platform from schools, most video games are developed to increase student engagement, and improve their curiosity and critical thinking. Thus, it has also surpassed what a traditional educational technique can do in terms of deep and epistemic learning (Lynch-Sauer, Arato, N. 2011), (Verkuyl et al., 2020). A meta-analysis of games from (Shute, 2012) presented a 0.33 standard deviation increase in learning after playing a game-based instruction compared to a traditional-instruction based. Gamification is the use of game design elements in a non-game context of which the intent is to have fun and play with passion while completing tasks (Reiners, 2014).

When playing games, people can experience emotions such as happiness, anger and frustration, fear, or satisfaction (Gajdůšek, 2021). In an example of people playing games, when facing difficult situations or levels, a player may become frustrated or angry because the level or the intensity of the game is very hard. In contrast, beating that level gives the player a satisfactory feeling. Some video games reward the player after beating a certain level, which therefore enables him to become hungry to play more. Creating a video game takes time and effort. As researchers, one must also be familiar with programming languages when developing video games. In this paper, the researchers will be discussing the game engine where the video game will be developed. There are many game engines that suit your style from 3-Dimensional (3D) video game engines like Unity Engine and Unreal to 2-Dimensional (2D) like the RPG Maker. In terms of 2D, one stands out the most when it comes to 2D pixelated environments, the Godot Engine. The Godot Engine is very powerful compared to engines like Unreal and Unity where you need to install the engine itself. After downloading Godot Engine, you can automatically run the application and start your development (Schmuck, n.d.). With just a data space of 800mb, most people who own flash drives can easily transfer or copy the file which means it is very accessible.

A 2-Dimensional (2D) video game has a flat surface or environment that uses sprites. The camera perspective either looks like the top or side, or the top-down perspective (gamedev.net, n.d.). Tile-based design or map models is a traditional map model because it runs on a low memory of which memory storage was very low at that time. A tile map models square tiles of 8x8 pixels like a grid. This allows an easy building to create a bigger map than the current size of memory would have allowed on that time (Benedicto, n.d.).



Figure 1

A 2D pixelated character named Pira (*Design and Development of Top Down 2D Action-Adventure Video Game with Hack & Slash and Bullet Hell Elements, n.d.*)



Figure 2

A 2D pixelated character named Pira *Calico Desert from Stardew Valley in a Top-Down perspective (Stardew Valley: StardewValleyGuide.)*

In a game called No Escape, a survival shooting 2D top-down game, the author suggested that, although the game was a 71% satisfaction scale, it also needs to have learning material as an addition for future development of the video game (Goandy et al. 2020).

Synthesis

Most video games have been developed in 3D and 2D side perspective (like Super Mario) and totally forgot the traditional 2D top-down perspective. Most of it also were available to be played on a computer or a mobile device. Today, video games required specs have been on high which means device specs must also be greater or on par with the required specs of the game. Otherwise, the video game may not be smooth or worst, playable. The technological advancement of this decade has also improved. Thus, even video games have become a platform as an alternative or a supplement to traditional learning. The previous studies have clearly shown that a video game is not just for entertainment purposes. It can also be used as a learning platform as well as guidance with people having fun while learning.

With that being said, the researchers are confident that developing a mobile game that guides or teaches the students of WMSU, particularly the new or potential students, of the enrollment process, locations of colleges and other vital buildings of the campus.

Conceptual Framework

In this section, the researchers must have the knowledge and skills in developing the 2D top-down WMSU campus exploration. The researcher must also have the knowledge in graphics design of sprites like the character, buildings, and other objects of the game. In addition, the researchers must also have an idea of the programming language called GDScript of which it will be used in implementing the mobile game using an engine called Godot Engine.

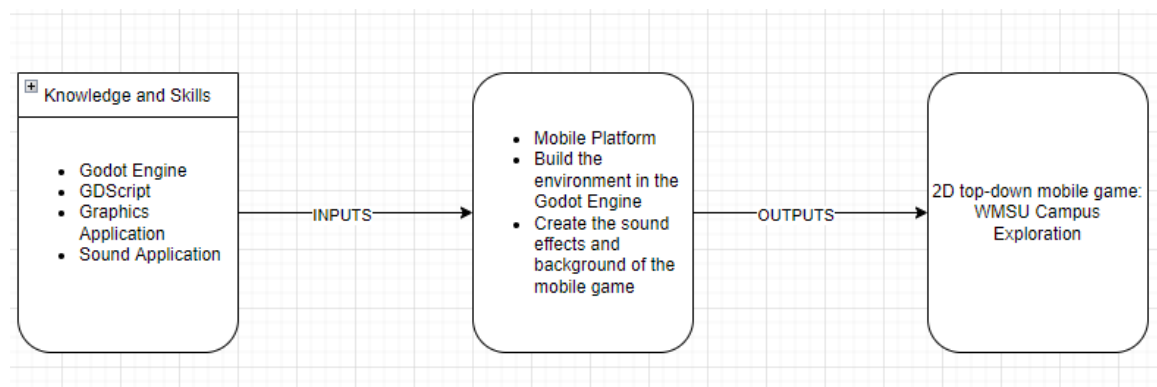


Figure 3

Conceptual Framework in Diagram

Definition of Terms

Table 1

Definition of terms

Term	Definition
1. Non-player character or NPC	is a character in the game that either gives quests/tasks or guides the player
2. Video game	is a game that is played through computers screens of which a player will be controlling digital images from a computer program
3. Top-down perspective	is a perspective in which the player's perspective is looking down from above
4. Quest	is a mission or task that a player needs to complete it in order to advance to the next quest
5. Item	is an object of the game of which it is mostly a document
6. College building	is an in-game structure where students of each course or major belong
7. Story Mode	is a mode of which a player must venture throughout the campus by completing quests
8. Free Mode	is a mode of which a player can freely roam the entire campus without completing all the quests
9. Tile-based map	is a design of which small and regular-shaped images or tiles are used for creating the game environment
10. Player	is an in-game playable character of either a student or a visitor

CHAPTER III

METHODOLOGY

Research Design

The researchers will be using applied research design. The research method will be used in giving knowledge about the enrollment process to the incoming students as well as efficiently guiding them about the vital areas or located buildings of the Western Mindanao State University campus.

The researcher will also be giving an alpha test to the respondents (incoming freshmen) for the evaluation of the researchers' mobile game. Afterwards, during the beta testing, the respondents will be given a pre-test and post-test to conclude if the researchers' mobile game has effectively given knowledge about the enrollment process, guide of campus A and campus B, and information of buildings inside the campus.

Respondents

The main respondents of the 2D top-down mobile game: WMSU campus exploration will be the incoming freshmen of WMSU, and sub respondents will be the old students, and other stakeholders. The incoming freshmen will benefit more from this mobile game as it provides them knowledge about the enrollment process of WMSU as well as guiding them the location of each building through the game's quests system.

Data Gathering Instruments, Techniques, and Procedures

The researchers will be using questionnaires to gather the knowledge of incoming freshmen of WMSU. The questionnaire will be disseminated online by using google forms. A physical questionnaire will also be available to those who do not have internet access. Pretest and posttest will be given to the respondents. Before playing the game, the respondents will be required to answer the pretest. After that, a posttest will be given to the respondents after playing the game.

Technical Tools

The researchers will be using these tools to implement the 2D Top-down mobile game: WMSU Campus Exploration:

HARDWARE:

- Desktop PC
- Android device (for testing)

SOFTWARE:

- GODOT Game Engine
- Aseprite (pixel editor)

Software Process Model

The researchers will be using a software development called Agile Methodology of the implementation of the car simulation video game. In the field of game development, agile methodology is commonly used. It reduces the time of production while maintaining its precision and efficiency.

Storyboard

Description: A mobile game for new students of Western Mindanao State University about the enrollment process and guides for locations of buildings or other offices. The mobile game has 2 modes: Story Mode & Free Mode. Story mode contains quests about the enrollment process. A step-by-step quest of enrollment will be introduced to the players. Free mode gives the player freedom. The mode will be quests-free. The player will be able to visit NPCs and look for information of its respective college building.

Target Audience: Incoming students of WMSU, Old students of WMSU, Visitors

Topic Sequence:

- Story Mode
- Free Mode

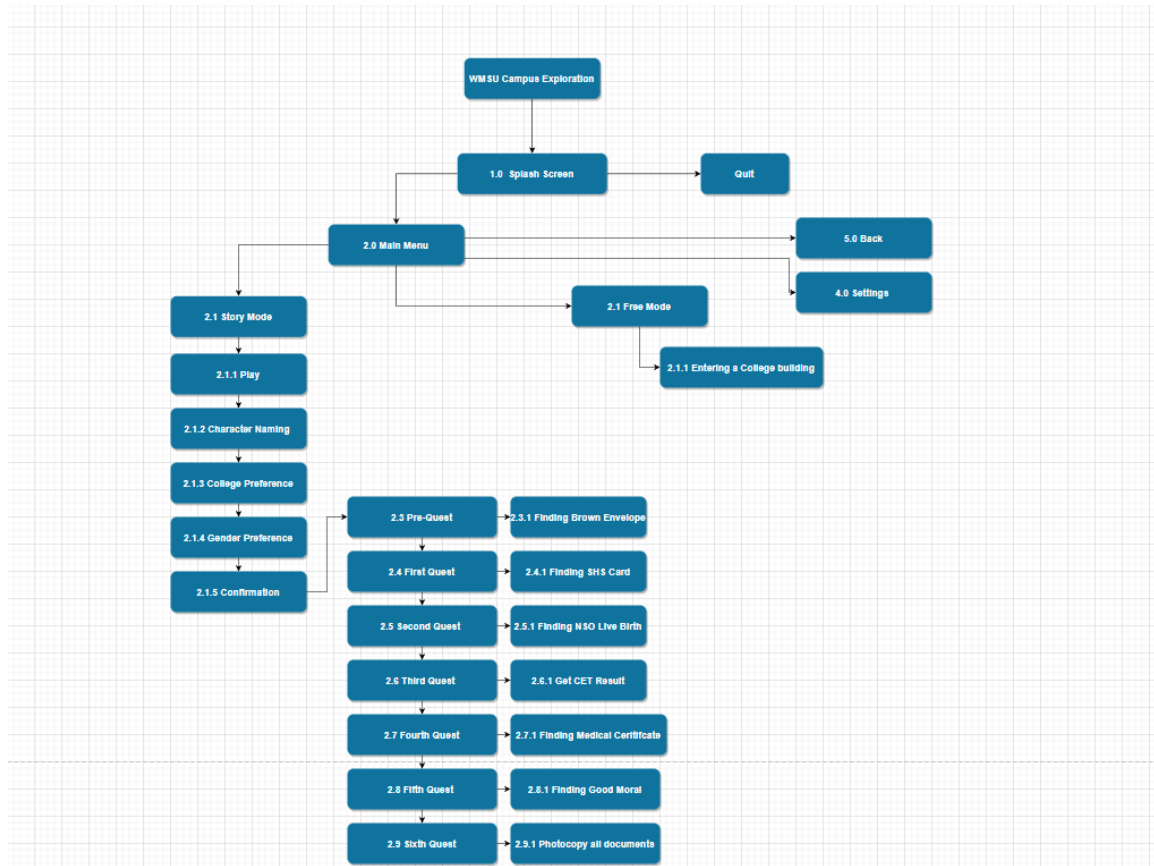


Figure 4
HIPO chart

Module Specification Model

Table 2

Story Mode storyboard

STORYBOARD	VISUALS	INTERACTIONS	TEXT	AUDIO	ANIMATION/VIDEO
1.0 Splash Screen	Illustration: TBD Description: Image of our mobile game with title	Button: btnStart Label: "Start" Link: Proceeds to 2.0 Button: btnQuit Label: "Quit" Link: Exits the game	Title: TBD	Background Music: TBD	Animation: aniSplash of the mobile game
2.0 Main Menu	Illustration: TBD	Button: btnStoryMode Label: Story Mode Link: Proceeds to 2.1 Button: btnFreeMode Label: Free Mode Link: Proceeds to 2.1 Button: btnSettings Label: Settings Link: Proceeds to 3.0 Button: btnAbout Label: About Link: Proceeds to 4.0 Button: btnBack Label: Back Link: Proceeds to 2.0	Title: TBD	Background music: TBD	Animation: aniSplash of the mobile game
2.1 Story Mode	Illustration: Male Character & Female Character Description: Image of male and female character	Button: btnMale Label: Male Link: Proceeds to 2.1.1 Button: btnFemale Label: Female Link: Proceeds to 2.1.1	Title: Select Gender	Background Music: TBD exclusive for Story Mode	Animation: Walking animation of character when mouse cursor is hovered on the character

		Button: btnBackNM Label: Back Link: Proceeds to 2.0			
2.1.1 Play	Illustration: None	Gesture: Tap Label: None Function: Tap the screen to make an action. Link: Proceeds to 2.1.2		Background Music: TBD exclusive for Story Mode	Animation: Change scene
2.1.2 Character Naming	Illustration: Text label	Button: btnOk Label: OK Link: proceed to 2.1.3 Button: btnBackCN Label: Back to Main Menu Link: Proceed to 2.0		Background Music: TBD exclusive for Story Mode	Animation: Dialogue Panel for character naming Link: Pop panel for 2.1.3
2.1.3 College Preference	Illustration: Brown Envelope Description: A brown envelope will be seen for filling up 2.1.3 & 2.1.4	Button: btnOk Label: OK Link: proceed to 2.1.3 Button: btnBackCN Label: Back to Main Menu Link: Proceed to 2.0		Background Music: TBD exclusive for Story Mode	Animation: Dialogue Panel for college preference Link: Next panel for 2.1.4
2.1.4 Gender Preference	Illustration: Brown Envelope	Button: btnDropdown Label: Select your college Description: Shows all the college of WMSU Action: Tap Button: btnChoose Label: Select Link: Proceed to 2.1.5 Button: btnBackCol Label: Back Link: Proceed to 2.0		Background Music: TBD exclusive for Story Mode	Animation: Dialogue Panel for the confirmation of name and chosen college
2.1.5 Confirmation	Illustration: Brown Envelope	Button: btnConfirm Label: Confirm	T1: Your name is "name"	Background Music: TBD exclusive for Story Mode	Scene: A scene will be presented after completing 2.1.5

		Link: Proceed to 2.2 Button: btnBackConf Label: Back Link: Proceed to 2.1.4	T2: Awesome! The “chosen college” is a great college. Good choice! T3: Confirm name and college?		Description: The building of the player's chosen college will be unlocked. Animation: College building's color will be changed from gray to its respective color. Animation: Dialogue Panel Dialogue Panel of T1 Dialogue Panel of T2 Dialogue Panel of T3
2.2 Pre-Quest	Illustration: NPC guard Description: A guard standing at Gate 3.	Gesture: Tap Action: Tap the guard. Button: btnJoystick Function: Movement of the character Description: Navigate your character to the chosen college building Link: Proceed to 2.3	(T1 of Guard at Gate 3: Hi, who are you? T2: I see. You're enrolling today. T3: Please head over to "chosen college" for admission. (Without brown envelope) TW1: Please get that brown envelope!	Background Music: TBD exclusive for Story Mode	Animation: Black screen. Description: Next scene Animation: Dialogue Panel Dialogue Panel of T1 Dialogue Panel of T2 Dialogue Panel of T3 Dialogue Panel of TW1
2.2.1 Finding the Brown Envelope	Illustration: 2 Brown Envelopes Description: 2 Brown envelopes	Button: btnJoystick Function: Movement of the character Description: Navigate your character to the a tree near gate and sidewalk outside the gate Gesture: Tap	T1: Obtained 2 Brown Envelopes T2: First step is complete!	Background Music: TBD exclusive for Story Mode Sound effects: If an item is obtained.	Animation: Dialogue Panel Dialogue Panel of T1 Dialogue Panel of T2

		Action: Tap the Brown envelopes to obtain. Link: Proceed to 2.3			
2.3 First quest	Illustration: NPC Faculty of that college	Button: btnJoystick Function: Movement of the character Gesture: Tap Action: Tap the "npc-name-faculty" Button: btnYes Label: Yes Link: Proceed to 2.3.1 Button: btnNo Label: No Link: Will exit the dialogue panel of the faculty. (You need to tap the "npc-name-faculty" again to start the quest)	T1: Hi, my name is "npc-name faculty". T2: I'll be needing these documents. T3: 1 SHS Card. T4: Think you can do it? (If player selected "Yes") T5: Good! You can find these documents at the open field of our campus! T6: Good luck, Crimson! (If player selected "No") TN5: Oh. That's too bad.	Background Music: TBD exclusive for Story Mode	Scene: A scene will be presented after completing 2.3 Description: The open field will be unlocked. Animation: Open field's color will be changed from gray to its respective color. Some documents of the first quest will be shown if the player accepts the first quest. Animation: Dialogue Panel Dialogue Panel of T1 Dialogue Panel of T2 Dialogue Panel of T3 Dialogue Panel of T4 Dialogue Panel of T5 Dialogue Panel of T6 Dialogue Panel of TN5
2.3.1 Finding the SHS card	Illustration: 1 SHS Card Description: Original SHS card	Button: btnJoystick Function: Movement of the character Description: Navigate your character to the open field Gesture: Tap Action: Tap the SHS Card to obtain. Link: Proceed to 2.4	T1: Obtained 1 SHS card T2: First step is complete!	Background Music: TBD exclusive for Story Mode Sound effects: If an item is obtained.	Animation: Dialogue Panel Dialogue Panel of T1 Dialogue Panel of T2

2.4 Second Quest	Illustration: NPC Faculty of that college	Button: btnJoystick Function: Movement of the character Gesture: Tap Action: Tap the "npc-name-faculty" Button: btnYes Label: Yes Link: Proceed to 2.4.1 Button: btnNo Label: No Link: Will exit the dialogue panel of the faculty. (You need to tap the "npc-name-faculty" again to start the quest)	T2: I'll be needing these documents. T3: 1 NSO Live Birth T4: Think you can do it? (If player selected "Yes") T5: Good! You can find these documents Outside the gym.	Background Music: TBD exclusive for Story Mode	Scene: A scene will be presented after completing 2.4 Description: The open field will be unlocked. Animation: Open field's color will be changed from gray to its respective color. Some documents of the first quest will be shown if the player accepts the first quest. Animation: Dialogue Panel Dialogue Panel of T1 Dialogue Panel of T2 Dialogue Panel of T3 Dialogue Panel of T4 Dialogue Panel of T5
2.4.1 Finding NSO Live Birth	Illustration: Gym	Button: btnJoystick Function: Movement of the character Description: Navigate your character to the open field Gesture: Tap Action: Tap the yellow NSO document to obtain. Link: Proceed to 2.5	T1: Obtained 1 NSO Live Birth	Background Music: TBD exclusive for Story Mode Sound effects: If an item is obtained.	Animation: Dialogue Panel Dialogue Panel of T1
2.5 Third Quest	Illustration: NPC Faculty of that college	Button: btnJoystick Function: Movement of the character Description: Navigate your character to the College building Gesture: Tap Action: Tap the "npc-name-faculty" to start the quest. Link: 2.5.1	T1: Hi, again! Our next step will be getting your CET result T2: Head over to our open field and get it. T3: Good luck!	Background Music: TBD exclusive for Story Mode	Scene: A scene will be presented after completing 2.4 Description: The Research Center will be unlocked. Animation: Research Center's color will be changed from gray to its respective color. Animation: Dialogue Panel

					<p>Dialogue Panel of T1</p> <p>Dialogue Panel of T2</p> <p>Dialogue Panel of T3</p>
2.5.1 Getting Cet result	<p>Illustration: NPC of the Research Center</p>	<p>Button: btnJoystick</p> <p>Function: Movement of the character</p> <p>Description: Navigate your character to the Research Center</p> <p>Gesture: Tap</p> <p>Action: Tap the "npc-name-rc" to claim your CET result.</p> <p>Link: Proceed to 2.6</p>	<p>T1: I am "npc-name-rc". I am in-charge of giving your CET test results.</p> <p>T2: One moment, please.</p> <p>T3: ...</p> <p>T4:</p> <p>T5: Here it is. Your name is very common.</p> <p>T6: There's like a couple of people with the same name as you. Hehehe.</p> <p>T7: Goodbye</p> <p>T8: Obtained 1 CET result</p> <p>T10: The second step is completed!</p>	<p>Background Music: TBD exclusive for Story Mode</p> <p>Sound effects: If an item is obtained.</p>	<p>Animation: Dialogue Panel</p> <p>Dialogue Panel of T1</p> <p>Dialogue Panel of T2</p> <p>Dialogue Panel of T3</p> <p>Dialogue Panel of T4</p> <p>Dialogue Panel of T5</p> <p>Dialogue Panel of T6</p> <p>Dialogue Panel of T7</p> <p>Dialogue Panel of T8</p> <p>Dialogue Panel of T9</p> <p>Dialogue Panel of T10</p>
2.6 Fourth Quest	<p>Illustration: NPC Faculty of that college</p>	<p>Button: btnJoystick</p> <p>Function: Movement of the character</p> <p>Description: Navigate your character to the College building</p> <p>Gesture: Tap</p> <p>Action: Tap the "npc-name-faculty" to start the quest.</p> <p>Link: 2.6.1</p>	<p>T1: Great job! Now for the next document.</p> <p>T2: Get your 1 medical certificates at the University Clinic.</p> <p>T3: Goodbye</p>	<p>Background Music: TBD exclusive for Story Mode</p>	<p>Scene: A scene will be presented after completing 2.5</p> <p>Description: The University clinic will be unlocked.</p> <p>Animation: University clinic's color will be changed from gray to its respective color.</p> <p>Animation: Dialogue Panel</p> <p>Dialogue Panel of T1</p> <p>Dialogue Panel of T2</p>

					Dialogue Panel of T3
2.6.1 Getting medical certificate	Illustration: University clinic	Button: btnJoystick Function: Movement of the character Description: Navigate your character to the University clinic Gesture: Tap Action: Tap the "npc-name-uc" to claim your medical certificate Link: Proceed to 2.7	T1: Greetings. I'm "npc-name-uc". T2: Here for a medical certificate? T3: Stand here. T4: T5: .. T6: (Ouch) T7: That wasn't so bad. Here's your 1 medical certificates. T8: Adios! T9: Obtained 1 medical certificates. T10: The third and fourth step is completed!"	Background Music: TBD exclusive for Story Mode Sound effects: If an item is obtained.	Animation: Dialogue Panel Dialogue Panel of T1 Dialogue Panel of T2 Dialogue Panel of T3 Dialogue Panel of T4 Dialogue Panel of T5 Dialogue Panel of T6 Dialogue Panel of T7 Dialogue Panel of T8 Dialogue Panel of T9 Dialogue Panel of T10
2.7 Fifth Quest	Illustration: NPC Faculty of that college	Button: btnJoystick Function: Movement of the character Description: Navigate your character to the College building Gesture: Tap Action: Tap the "npc-name-faculty" to start the quest. Link: 2.7.1	T1: Hi, again! Our next step will be getting your good moral document. T2: Head over to our Basketball court and find it. T3: Good luck!	Background Music: TBD exclusive for Story Mode	Scene: A scene will be presented after completing 2.7 Description: The Basketball court will be unlocked. Animation: Basketball court's color will be changed from gray to its respective color. Animation: Dialogue Panel Dialogue Panel of T1 Dialogue Panel of T2 Dialogue Panel of T3

2.7.1 Finding Good moral	Illustration: University clinic	Button: btnJoystick Function: Movement of the character Description: Navigate your character to the Basketball court Gesture: Tap Action: Tap the good moral item to obtain. Link: Proceed to 2.8	T1: Obtained 1 Good moral documents. T2: Great job! T3: The fifth and sixth step is completed!"	Background Music: TBD exclusive for Story Mode Sound effects: If an item is obtained.	Animation: Dialogue Panel Dialogue Panel of T1 Dialogue Panel of T2 Dialogue Panel of T3
2.8 Sixth Quest	Illustration: NPC Faculty of that college	Button: btnJoystick Function: Movement of the character Description: Navigate your character to the College building Gesture: Tap Action: Tap the "npc-name-faculty" to start the quest. Link: 2.8.1	T1: Hi, again! Our next step will be photocopying all of your documents. T2: Head over to our WMSU press. T3: Good luck!	Background Music: TBD exclusive for Story Mode	Scene: A scene will be presented after completing 2.8 Description: The WMSU Press will be unlocked. Animation: WMSU Press' color will be changed from gray to its respective color. Animation: Dialogue Panel Dialogue Panel of T1 Dialogue Panel of T2 Dialogue Panel of T3
2.8.1 Photocopy Certificate of Good Moral	Illustration: WMSU Press	Button: btnJoystick Function: Movement of the character Description: Navigate your character to the WMSU Press Gesture: Tap Action: Tap the "npc-name-wp" to buy. Link: Proceed to 2.9	T1: Obtained 1 Certificate of Good Moral photocopy. T2: Great job!	Background Music: TBD exclusive for Story Mode Sound effects: If an item is obtained.	Animation: Dialogue Panel Dialogue Panel of T1 Dialogue Panel of T2

2.9 Sixth Quest	Illustration: NPC Faculty of that college	Button: btnJoystick Function: Movement of the character Description: Navigate your character to the College building Gesture: Tap Action: Tap the "npc-name-faculty" to start the quest. Link: 2.9.1	T1: Great job! Now for the second photocopy. T2: Go again and buy 2 Live Birth photocopies at WMSU Press T3: Goodbye	Background Music: TBD exclusive for Story Mode	Scene: A scene will be presented after completing 2.9 Animation: Dialogue Panel Dialogue Panel of T1 Dialogue Panel of T2 Dialogue Panel of T3
2.9.1 Photocopy Live Birth	Illustration: WMSU Press	Button: btnJoystick Function: Movement of the character Description: Navigate your character to the WMSU Press Gesture: Tap Action: Tap the "npc-name-wp" to buy. Link: Proceed to 3.0	T1: Obtained 2 Live Birth photocopy. T2: Great job! T3: The seventh and eighth steps are completed!"	Background Music: TBD exclusive for Story Mode Sound effects: If an item is obtained.	Animation: Dialogue Panel Dialogue Panel of T1 Dialogue Panel of T2 Dialogue Panel of T3
3.0 Seventh Quest	Illustration: NPC Faculty of that college	Button: btnJoystick Function: Movement of the character Description: Navigate your character to the College building Gesture: Tap Action: Tap the "npc-name-faculty" to start the quest. Link: 3.0.1	T1: Great job! Now for the third photocopy. T2: Go again and buy 3 Vaccination card photocopies at WMSU Press T3: Good luck!	Background Music: TBD exclusive for Story Mode	Animation: Dialogue Panel Dialogue Panel of T1 Dialogue Panel of T2 Dialogue Panel of T3
3.0.1 Photocopy of Vaccination card	Illustration: WMSU Press	Button: btnJoystick Function: Movement of the character Description: Navigate your	T1: Obtained 3 Vaccination card photocopies. T2: Great job!	Background Music: TBD exclusive for Story Mode	Animation: Dialogue Panel Dialogue Panel of T1 Dialogue Panel of T2

		<p>character to the WMSU Press</p> <p>Gesture: Tap</p> <p>Action: Tap the "npc-name-wp" to buy.</p> <p>Link: Proceed to 3.1</p>	<p>T3: The ninth and tenth steps are completed!"</p>		<p>Dialogue Panel of T3</p>
3.1 Eight Quest	<p>Illustration: NPC Faculty of that college</p>	<p>Gesture: Tap</p> <p>Action: Tap the "npc-name-faculty" to start the quest.</p> <p>Link: Proceed to 3.1.1</p>	<p>T1: Great job! Now for the fourth photocopy.</p> <p>T2: Go again and buy 2 Chest X-ray results photocopies at WMSU Press</p> <p>T3: Good luck!</p>	<p>Background Music: TBD exclusive for Story Mode</p>	<p>Scene: A scene will be presented after completing 3.2</p> <p>Animation: Dialogue Panel</p> <p>Dialogue Panel of T1</p> <p>Dialogue Panel of T2</p>
3.1.1 Photocopy Chest X-ray	<p>Illustration: WMSU Press</p>	<p>Button: btnJoystick</p> <p>Function: Movement of the character</p> <p>Description: Navigate your character to the WMSU Press</p> <p>Gesture: Tap</p> <p>Action: Tap the "npc-name-wp" to buy.</p> <p>Link: Proceed to 3.2</p>	<p>T1: Obtained 2 Chest X-ray results photocopies.</p> <p>T2: Great job!</p> <p>T3: The all steps are completed!"</p>	<p>Background Music: TBD exclusive for Story Mode</p> <p>Sound effects: If an item is obtained.</p>	<p>Animation: Dialogue Panel</p> <p>Dialogue Panel of T1</p> <p>Dialogue Panel of T2</p> <p>Dialogue Panel of T3</p>
3.2 Submitting brown envelope to program adviser	<p>Illustration: NPC Faculty of that college</p>	<p>Button: btnJoystick</p> <p>Function: Movement of the character</p> <p>Description: Navigate your character to the College building</p> <p>Gesture: Tap</p> <p>Action: Tap the "npc-name-faculty" to start the quest.</p> <p>Link: 3.3</p>	<p>T1: Are you here to submit the brown envelope?</p> <p>T2: Now that you have finished all of your quests, we will take it from here.</p> <p>T3: The next steps will be automated using computers so</p>	<p>Background Music: TBD exclusive for Story Mode</p> <p>Sound effects: If an item is obtained.</p>	<p>Animation: Dialogue Panel</p> <p>Dialogue Panel of T1</p> <p>Dialogue Panel of T2</p> <p>Dialogue Panel of T3</p> <p>Dialogue Panel of T4</p> <p>Dialogue Panel of T5</p>

			it is so much easier now! T4: Quest are all finished! T5: Farewell!		
3.3 Credits	Illustration: TBD	Gesture: Tap Action: Tap the to prompt to Main menu. Link: 2.0	(Credits)	Background Music: TBD	Animation: None
Settings		Button: btnSound Description: Enable/Disable Sound	T1: ON/OFF	Background Music: TBD	
5.0 Exit					

In this storyboard of Free mode, all the processes of each college will be the same. A college building may have a different number of floors, classrooms, faculty rooms, laboratory (computer, science, etc), comfort rooms. Nevertheless, the process of finding what the player is looking for will be the same for all colleges. Below is the process of finding the faculty room of a particular college.

Table 3

Free Roam Mode storyboard

STORYBOARD	VISUALS	INTERACTIONS	TEXT	AUDIO	ANIMATION/VIDEO
2.1 Free Mode	Illustration: WMSU Main Campus	Button: btnJoystick Function: Movement of the character Description: Navigate your character to the College of "Name of College"	T1: Hello. Fellow, crimson. T2: You have chosen Free mode. T3: This mode will give the player freedom to go anywhere around the University campus. T4: You can visit each NPC of any area to know more	Background Music: TBD exclusively for Free Mode	Animation: Animation panel Dialogue Panel for T1 Dialogue Panel for T2 Dialogue Panel for T3 Dialogue Panel for T4 Dialogue Panel for T5

			about their building. T5: Have fun!		
2.1.1 Entering a college building	Illustration: Any college Building Illustration: NPC any college building	Gesture: Tap Link: 2.1.2		Background Music: TBD exclusively for Free Mode	
2.1.3 Chosen Floor	Illustration: Rooms of every current floor	Gesture: Tap Link: 2.1.4 Label: Department Faculty Room 2		Background Music: TBD exclusively for Free Mode	Animation: Change scene from floor to floor

Implementation Plan

In this section, the researchers will create, or collect the particular assets for the game. The building structure sprites or tilesets that will be used in the game will be created or modified by the researchers in order to fully mimic a 2D pixelated graphic of WMSU environment. After finishing the design of the sprites, the researchers will place the sprites at its respective locations. After putting all the building structure sprites, the researchers will start designing the game's character model. This includes the character movement as well as its animation. After the character design, the researchers will design the in-game items which are the requirements (document), coins, etc. After this, adding NPCs of each respective colleges for the quest system. The researchers then will proceed to the quest system where the dialogue and the logic of quest system will be implemented.

Prototype



Figure 5

Sample buildings in the game

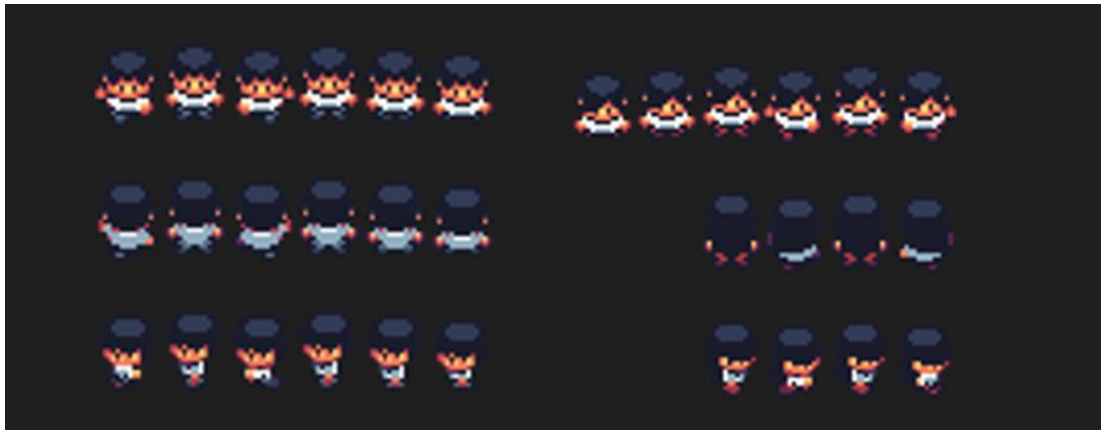


Figure 6

Characters for Story Mode male and female

CHAPTER IV

RESULTS AND DISCUSSION

In this chapter, the researcher will present the results of the Alpha testing, and Beta testing of the mobile game. The testers are students at senior high school of Titay National High School, Zamboanga Sibugay. The researchers' used a method called the Likert Scaling Sign Method to obtain the feedback of the respondents about the mobile game. In the beta test, the researcher will be using a method called dependent t-test to measure and prove whether the researchers' hypothesis will be accepted or rejected based on the result of the t-test.

Alpha Testing Result

The alpha testing was finalized by the researchers before it was given to the testers. The testers are the senior students (12th year) of the Titay National High School and Ayala National High School. The results are the evaluation of the game from the testers in terms of Instructional Content, User Friendliness, Readability, and Technical Aspect of the mobile game.

Table 4
Five Point Likert Scale for Alpha Testing

Rating/Weight	Interpretation	Range
5	Outstanding	4.21 – 5.00
4	Good	3.41 – 4.20
3	Satisfactory	2.61 – 3.40
2	Poor	1.81 – 2.60
1	Unsatisfactory	1.00 – 1.80

The table above shows the range, interpretation and the rating for the Alpha Testing.

Table 5**Weighted Mean of Instructional Content**

Instructional Content	12th year Students of Titay National High School and Ayala National High School	
	Mean	Interpretation
The game's objectives are clear.	4.69	Outstanding
All of the required documents for the enrollment are present (freshmen only).	4.90	Outstanding
The game includes instructions to let the player know various locations of WMSU Main Campus.	4.69	Outstanding
The game is able to clearly introduced each required documents to the player.	4.66	Outstanding
Legend: 4.21 – 5.00 Outstanding 3.41 – 4.20 Good 2.61 – 3.40 Satisfactory 1.81 – 2.60 Poor 1.00 – 1.80 Unsatisfactory		

The table above shows the weighted mean for the Instructional Content. For the “clarity of the objectives of the game”, it had a mean of **4.69** which had a rating of **Outstanding**. For the “required documents for the enrollment are present”, it had a mean of **4.90** which had a rating of **Outstanding**. For the “game includes instructions to let...”, it had a mean of **4.69** which had a rating of **Outstanding**. For the last question, it had a mean of **4.66** which had a rating of **Outstanding** also. All of the Instructional Content questions had an **Outstanding** rating.

Table 6**Weighted Mean of User Friendliness**

User Friendliness	12th year Students of Titay National High School and Ayala National High School	
	Mean	Interpretation
The buttons are visible to the player.	4.72	Outstanding
The player can choose their college.	4.86	Outstanding
The game lets the player decide for their gender (male and female only).	4.93	Outstanding
The game lets the player know the locations of the items, and non-player character.	4.52	Outstanding
The player can pause, and go back to the main menu.	4.69	Outstanding
The tutorial of the game is clear and concise.	4.34	Outstanding
Legend: 4.21 – 5.00 Outstanding 3.41 – 4.20 Good 2.61 – 3.40 Satisfactory 1.81 – 2.60 Poor 1.00 – 1.80 Unsatisfactory		

The table above shows the weighted mean for the User Friendliness. For the “buttons are visible...”, it had a mean of **4.72** which had a rating of **Outstanding**. For the “player can choose...”, it had a mean of **4.86** which has a rating of **Outstanding**. For the “game lets the player decide...”, it had a mean of **4.93** also with a rating of **Outstanding**. For the “game lets the player know...”, it had a mean of **4.52** which has a rating of **Outstanding**.

For the “player can pause...”, it had a mean of **4.69** which has a rating of **Outstanding**. For the last question, it had a mean of **4.34** which was also had a rating of **Outstanding**.

Table 7

Weighted Mean of Readability

Readability	12th year Students of Titay National High School and Ayala National High School	
	Mean	Interpretation
The dialogues of the game are clear and grammatically correct.	4.79	Outstanding
The item names from the shop are visible.	4.59	Outstanding
The other texts such as the location name, player name, chosen college, and other labels of the game are visible.	4.72	Outstanding
Legend: 4.21 – 5.00 Outstanding 3.41 – 4.20 Good 2.61 – 3.40 Satisfactory 1.81 – 2.60 Poor 1.00 – 1.80 Unsatisfactory		

The table above shows the weighted mean for the mobile game’s readability. For the “dialogues of the game are clear...”, it had a mean of **4.79** which had a rating of **Outstanding**. For the “item names from the shop...”, it had a mean of **4.59** which had a rating of **Outstanding** also. And for the last question, it had a mean of **4.72** and a rating of **Outstanding**.

Table 8**Weighted Mean of Technical Aspects**

Technical Aspect	12 th year Students of Titay National High School and Ayala National High School	
	Mean	Interpretation
The game runs smoothly on any android version.	4.83	Outstanding
The game is able to auto resize its resolution after opening.	4.55	Outstanding
The game has shown no bugs after playing.	4.48	Outstanding
The background music is appropriate to the game.	4.55	Outstanding
Legend: 4.21 – 5.00 Outstanding 3.41 – 4.20 Good 2.61 – 3.40 Satisfactory 1.81 – 2.60 Poor 1.00 – 1.80 Unsatisfactory		

The table above shows the weighted mean for technical aspects of the mobile game. For the smoothness of the game in android, it had a mean of **4.83** which had a rating of **Outstanding**. For the resizable resolution, it had a mean of **4.55** which had a rating of **Outstanding**. For the visible bugs after playing, it had a mean of **4.48** which had a rating of **Outstanding**. And for the last question, it had a mean of **4.55** also with rating of **Outstanding**.

Table 9

Overall Weighted Mean of the mobile game

Overall Rating	12th year Students of Titay National High School and Ayala National High School	
	Mean	Interpretation
Instructional Content	4.74	Outstanding
User Friendliness	4.68	Outstanding
Readability	4.70	Outstanding
Technical Aspect	4.60	Outstanding
Legend: 4.21 – 5.00 Outstanding 3.41 – 4.20 Good 2.61 – 3.40 Satisfactory 1.81 – 2.60 Poor 1.00 – 1.80 Unsatisfactory		

The table above shows the average of mean of Instructional Content, User Friendliness, Readability, and Technical Aspects of the mobile game. For Instructional Content, it had mean of **4.74** which has a rating of **Outstanding**. For User Friendliness, it had mean of **4.68** which has a rating of **Outstanding**. For Readability, it had mean of **4.70** which has a rating of **Outstanding**. For Technical Aspect, it had mean of **4.60** which has a rating of **Outstanding**.

Beta Testing Result

The beta testing was conducted on January 10, 2023. The researchers had given pre-test to the 34 respondents (12th year students of Titay National High School and Ayala National High School) before playing the game. After playing the game, the researchers again gave a post-test to the same respondents.

Pre-Testing and Post-Testing

The table below shows the number of respondents/testers Tn. The test consists of two different topics: Test for requirements of freshmen enrollment, and Test about multiple choice regarding the locations of given choices of picture. Pre-Test Score (Requirements) of the table shows the scores of the testers before playing the mobile game while Post-Test Score (Requirements) would be after playing the game. Furthermore, Pre-Test (Pictures) of the table shows the scores before playing the mobile game, and Post-Test (Pictures) will be after playing the game.

Null Hypothesis: There is no significant difference between the mean scores of the students of Titay National High School and Ayala National High School students before and after playing the mobile game.

Table 10

Table of Pre-Test and Post-Test of Scores about the requirements of freshman enrollment and locations of WMSU

Respondents (T)	Pre-Test Score (Requirements)	Post-Test Score (Requirements)	Pre-Test (Pictures)	Post-Test (Pictures)
T1	8	8	7	8
T2	6	9	7	9
T3	6	8	6	4
T4	8	9	7	8
T5	8	6	2	8

T6	6	5	6	9
T7	8	8	5	7
T8	3	7	6	10
T9	9	8	7	9
T10	5	7	4	8
T11	7	9	7	8
T12	3	7	6	10
T13	4	9	7	7
T14	6	9	7	8
T15	1	7	7	8
T16	5	4	5	10
T17	8	9	8	10
T18	1	6	8	7
T19	4	5	4	7
T20	5	3	5	6
T21	7	7	8	8
T22	3	5	7	9
T23	8	9	7	10
T24	8	7	9	7
T25	5	7	6	3
T26	6	6	5	6
T27	5	7	6	3
T28	3	7	8	7
T29	4	6	8	8
T30	7	4	9	7
T31	4	3	5	10
T32	10	8	7	9
T33	7	5	4	6
T34	5	5	5	9

Pre-Test and Post-Test (Score) Result for Requirements of Freshmen Enrolment

Table 11

Two Sample for Means using Excel

t-Test: Paired Two Sample for Means		
	<i>Pre-test</i>	<i>Post test</i>
Mean	5.68	6.74
Variance	4.89	3.17
Observations	34.00	34.00
Pearson Correlation	0.35	
Hypothesized Mean Difference	0.00	
df	33.00	
t Stat	-2.67	
P(T<=t) one-tail	0.01	
t Critical one-tail	1.69	
P(T<=t) two-tail	0.01	
t Critical two-tail	2.03	

Table 12

Table for T-test result for freshmen requirement topic

	n	Mean (M)	Standard Deviation (SD)	t	Two-tailed (df = 33, a = 0.05)	
Pre-Test	34	5.68	2.21	-2.67	Critical Value (CV)	p-value
Post-Test	34	6.74	1.78		+/- 2.03	0.01

Table 13

Decision table

	Decision
If p-value < level of significance	reject

If p-value > level of significance	do not reject
------------------------------------	---------------

The results from the Pre-Test (M = 5.68) and Post-Test (M = 6.74) shows an increase of scores before and after playing the mobile game. Since, $p(0.01) < 0.05$, there is a significant difference of the mean scores of the students before and after playing the game and the null hypothesis is rejected. In other words, the students have shown an improvement of knowing and familiarizing the requirements of the freshmen enrollment after playing the game.

Pre-Test and Post-Test (Score) Result for WMSU Locations

Table 14

Two Sample for Means using Excel

t-Test: Paired Two Sample for Means		
	<i>Pre-Test</i>	<i>Post-Test</i>
Mean	6.32	7.74
Variance	2.41	3.41
Observations	34.00	34.00
Pearson Correlation	0.08	
Hypothesized Mean Difference	0.00	
df	33.00	
t Stat	-3.56	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.69	
P(T<=t) two-tail	0.00	
t Critical two-tail	2.03	

Table 15

Table for T-test result for location of WMSU topic

	n	Mean (M)	Standard Deviation (SD)	t	Two-tailed (df = 33, $\alpha = 0.05$)
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Pre-Test	34	6.32	1.55	-3.56	Critical Value (CV)	p-value
Post-Test	34	7.74	1.85		± 2.03	0.00

Table 16

Decision table

	Decision
If p-value < level of significance	reject
If p-value > level of significance	do not reject

The results from the Pre-Test ($M = 6.32$) and Post-Test ($M = 7.74$) shows an increase of scores before and after playing the mobile game. Since, $p(0.00) < 0.05$, there is a significant difference of the mean scores of the students before and after playing the game and the null hypothesis is rejected. In other words, the students have shown an improvement of knowing and familiarizing the locations or places of specific areas or building of WMSU campus after playing the game.

Acceptance Testing

In this section, the researcher will be presenting data from the acceptance testing forms given to the testers regarding the features of the mobile game.

Table 17

Table for Acceptance Testing of client

Feature	User Interface	Functionality	Client's Acceptance
Main menu	Out of 34 testers only 4 of them said that UI for this feature needs improvement. The rest of the testers agreed that this feature is appropriate.	All the testers have said that this feature is acceptable.	All the testers have said that this feature is acceptable.
Story Mode Profile	Out of 34 testers only 2 of them said that the UI for this feature needs improvement. The rest of the testers agreed that this feature is appropriate.	All the testers have said that this feature is acceptable.	All the testers have said that this feature is acceptable.
Student Profile Free Mode	Out of 34 testers only 1 person said that the UI for this feature needs improvement. The rest of the testers agreed that this feature is appropriate.	All the testers have said that this feature is acceptable.	All the testers have said that this feature is acceptable.
Tutorial	Out of 34 testers only 3 of them said that the UI for this feature needs improvement. The rest of the testers agreed that this feature is appropriate.	All the testers have said that this feature is acceptable.	All the testers have said that this feature is acceptable.

Player Movement Button	Out of 34 testers only 3 of them said that the UI for this feature needs improvement. The rest of the testers agreed that this feature is appropriate.	Out of 34 testers only 1 person said that the functionality for this feature is not acceptable. The rest of the testers agreed that this feature is acceptable.	All the testers have said that this feature is acceptable.
Talk Button	Out of 34 testers only 3 of them said that the UI for this feature needs improvement. The rest of the testers agreed that this feature is appropriate.	All the testers have said that this feature is acceptable.	All the testers have said that this feature is acceptable.
Zoom Button	Out of 34 testers only 5 of them said that the UI for this feature needs improvement. The rest of the testers agreed that this feature is appropriate.	Out of 34 testers only 1 person said that the functionality for this feature is not needed. The rest of the testers agreed that this feature is acceptable.	Out of 34 testers only 1 person said that this feature is unacceptable.
Dialogue	Out of 34 testers only 4 of them said that the UI for this feature needs improvement. The rest of the testers agreed that this feature is appropriate.	All the testers have said that this feature is acceptable.	All the testers have said that this feature is acceptable.
Student Profile 1	Out of 34 testers only 5 of them said that the UI for this feature needs improvement. The rest of the testers agreed that this feature is appropriate.	Out of 34 testers only 1 person said that the functionality for this feature is not acceptable. The rest of the testers agreed that this feature is acceptable.	All the testers have said that this feature is acceptable.
Student Profile 2	Out of 34 testers only 4 of them said that the UI for this feature needs improvement. The	All the testers have said that this feature is acceptable.	All the testers have said that this feature is acceptable.

	rest of the testers agreed that this feature is appropriate.		
Quest Item Icon	Out of 34 testers only 4 of them said that the UI for this feature needs improvement. The rest of the testers agreed that this feature is appropriate.	All the testers have said that this feature is acceptable.	All the testers have said that this feature is acceptable.
Location Name	Out of 34 testers only 2 of them said that the UI for this feature needs improvement. The rest of the testers agreed that this feature is appropriate.	All the testers have said that this feature is acceptable.	All the testers have said that this feature is acceptable.
Quest Description	Out of 34 testers only 2 of them said that the UI for this feature needs improvement. The rest of the testers agreed that this feature is appropriate.	All the testers have said that this feature is acceptable.	All the testers have said that this feature is acceptable.
Quest Progress Bar	Out of 34 testers only 4 of them said that the UI for this feature needs improvement. The rest of the testers agreed that this feature is appropriate.	All the testers have said that this feature is acceptable.	All the testers have said that this feature is acceptable.
NPC Faculty Guard	Out of 34 testers only 5 of them said that the UI for this feature needs improvement. The rest of the testers agreed that this feature is appropriate.	Out of 34 testers only 3 of them said that the functionality for this feature is not acceptable. The rest of the testers agreed that this feature is acceptable.	Out of 34 testers only 2 persons said that this feature is unacceptable.

NPC Wandering Students	Out of 34 testers only 4 of them said that the UI for this feature needs improvement. The rest of the testers agreed that this feature is appropriate.	All of the testers have said that this feature is acceptable.	All of the testers have said that this feature is acceptable.
Item Shop	Out of 34 testers only 4 of them said that the UI for this feature needs improvement. The rest of the testers agreed that this feature is appropriate.	Out of 34 testers only 1 person said that the functionality for this feature is not acceptable. The rest of the testers agreed that this feature is acceptable.	All the testers have said that this feature is acceptable.
Coin Label	Out of 34 testers only 4 of them said that the UI for this feature needs improvement. The rest of the testers agreed that this feature is appropriate.	Out of 34 testers only 2 persons said that the functionality for this feature is not acceptable. The rest of the testers agreed that this feature is acceptable.	All the testers have said that this feature is acceptable.
Sign Post	Out of 34 testers only 4 of them said that the UI for this feature needs improvement. The rest of the testers agreed that this feature is appropriate.	All the testers have said that this feature is acceptable.	All the testers have said that this feature is acceptable.

CHAPTER V CONCLUSION AND RECOMMENDATION

Conclusion

The WMSU Campus Exploration is a mobile game that aids the incoming freshmen of WMSU. Its sole purpose is to simulate the enrollment in a step-by-step process by completing quest about the enrollment process in a fun and efficient way. By creating a top-down environment of the actual WMSU, the players can see the whole WMSU just by playing the mobile game without exerting too much energy. As shown in chapter 4, the results yielded great results of knowing the process of the WMSU incoming freshmen enrollment after playing the mobile game. The respondents have also shown enjoyment, statistics aside, when playing the mobile game, the game is an adventure game that ventures and find items to complete the quest.

With that, the researchers concluded that the WMSU Campus Exploration have helped the students. Furthermore, mobile games or video games can be used as an alternative for guides because it can provide entertainment as it simulates the actual environment as if you are already venturing to that place.

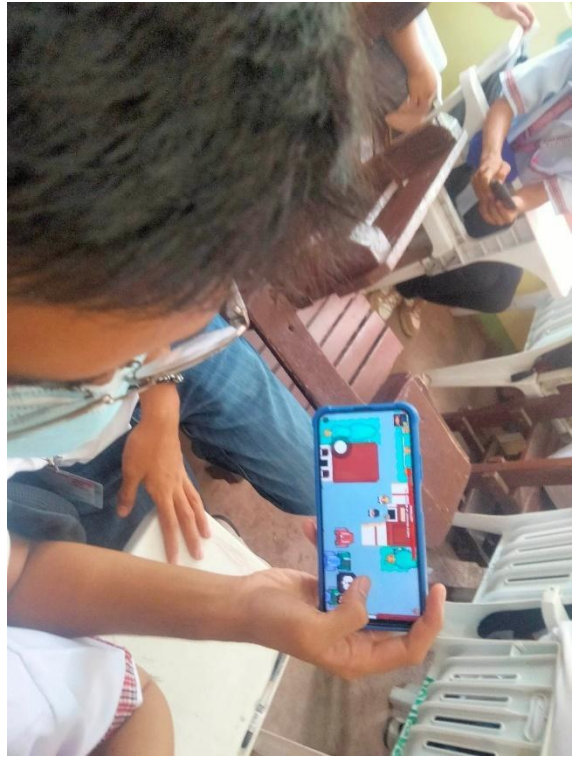
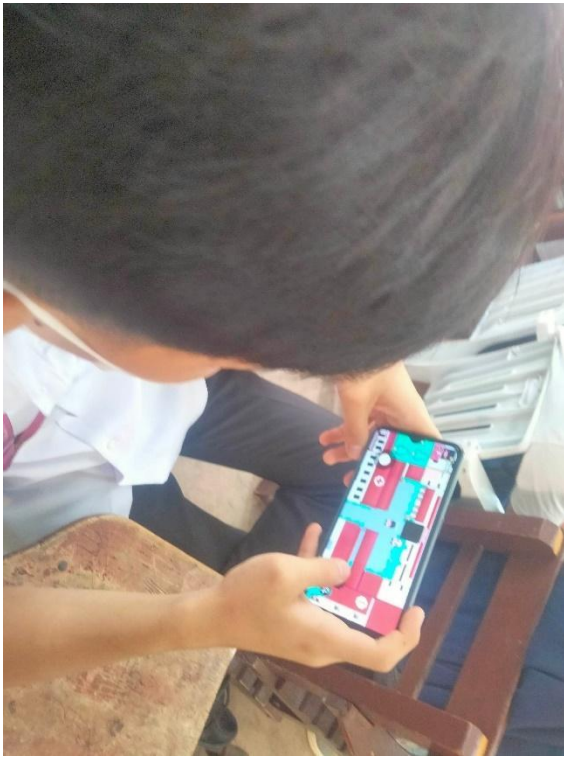
Recommendations

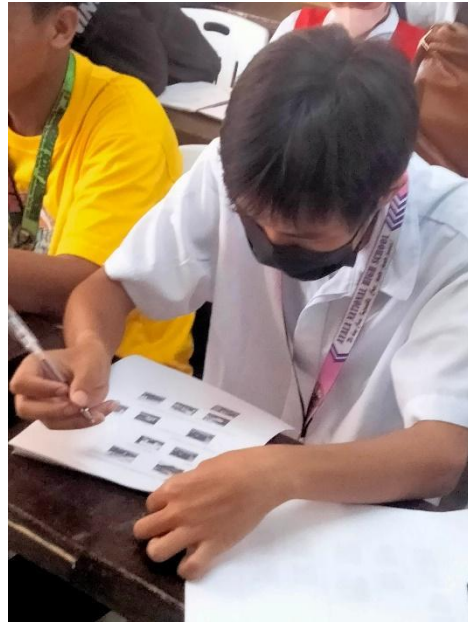
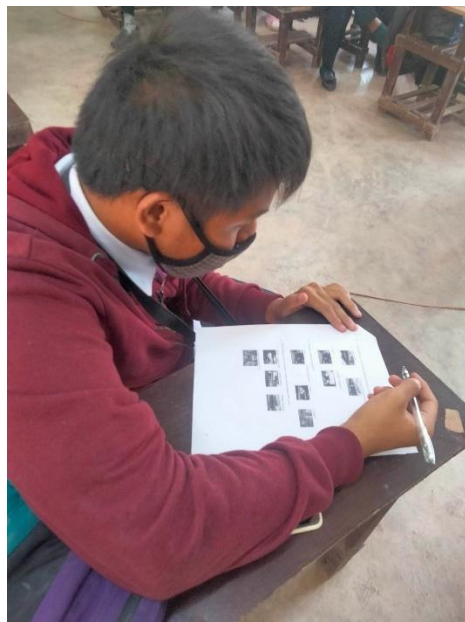
In this section, the researchers will lay down recommendations of the mobile game to whomever future researchers will have the inspiration to continue and improve this study. The recommendations are as follows: Adding and removing of college or courses in the character selection tab, 8 directional movement sprites, longer conversation for the student non-player character, and adding more visual and sound effects for a better user experience.

APPENDICES

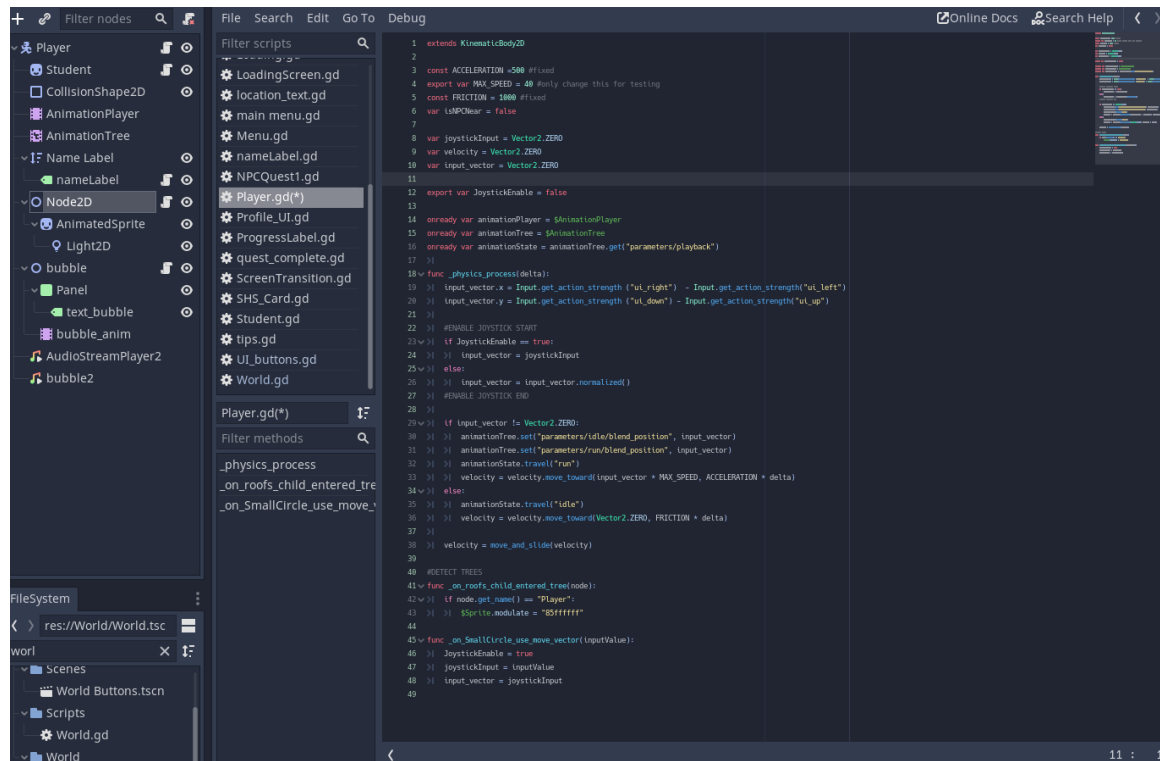
WMSU Campus Exploration is a mobile game that lets the player roam around the campus of Western Mindanao State University main campus. The game has 2 modes: Story Mode: the player is challenged to complete all the quests about the WMSU's freshmen enrollment process and its required documents, and Free Roam Mode: the player has the freedom to venture around the University without completing any quests.

Appendix A: Photo Documentation of Testing

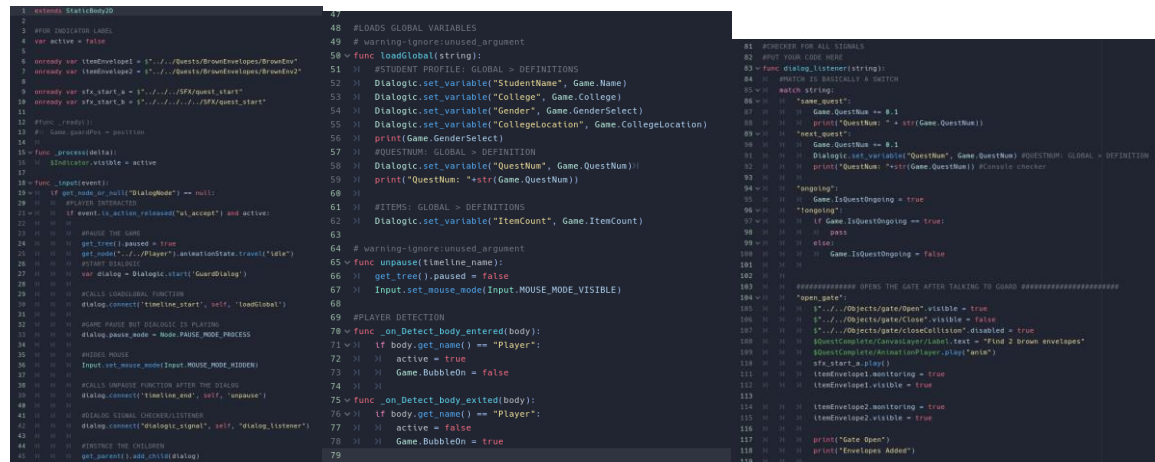




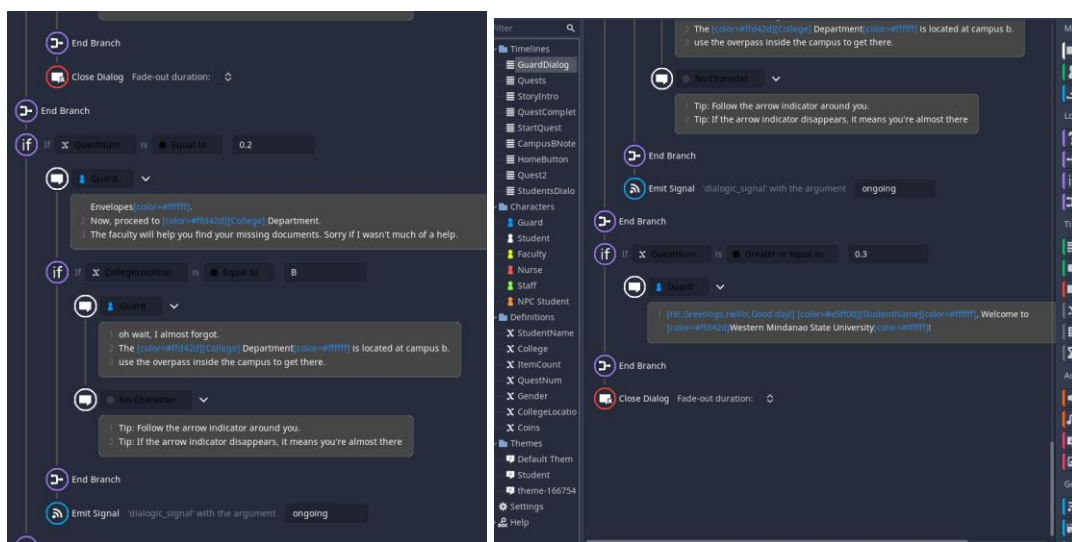
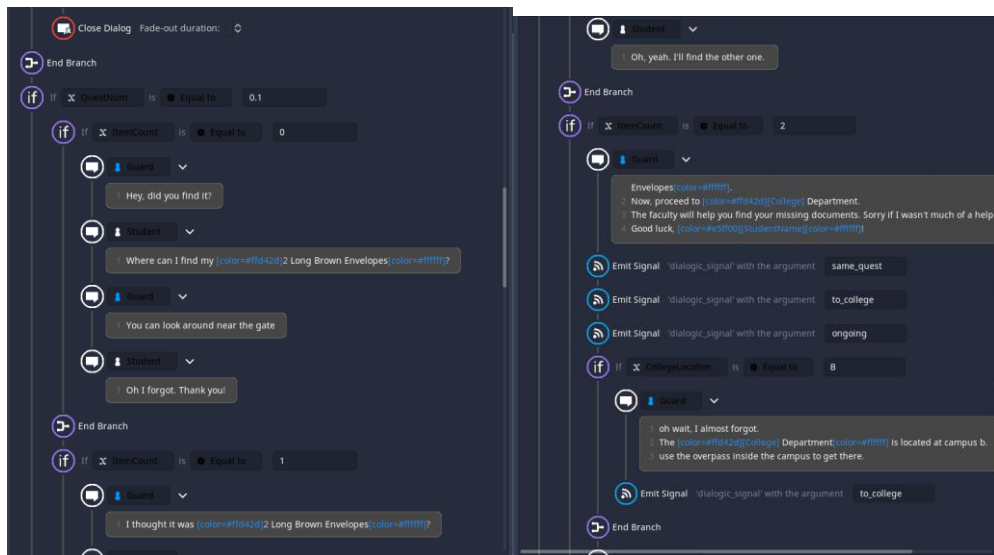
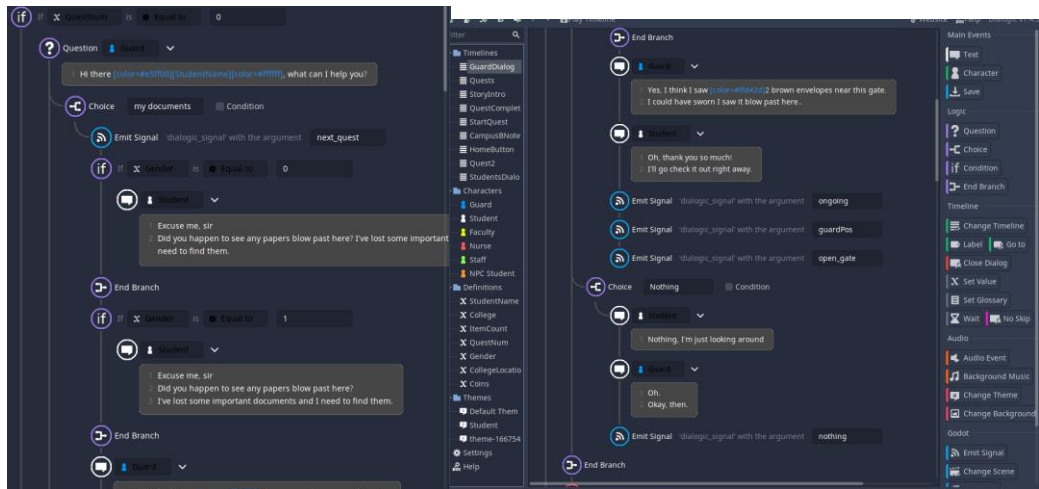
Player movement:



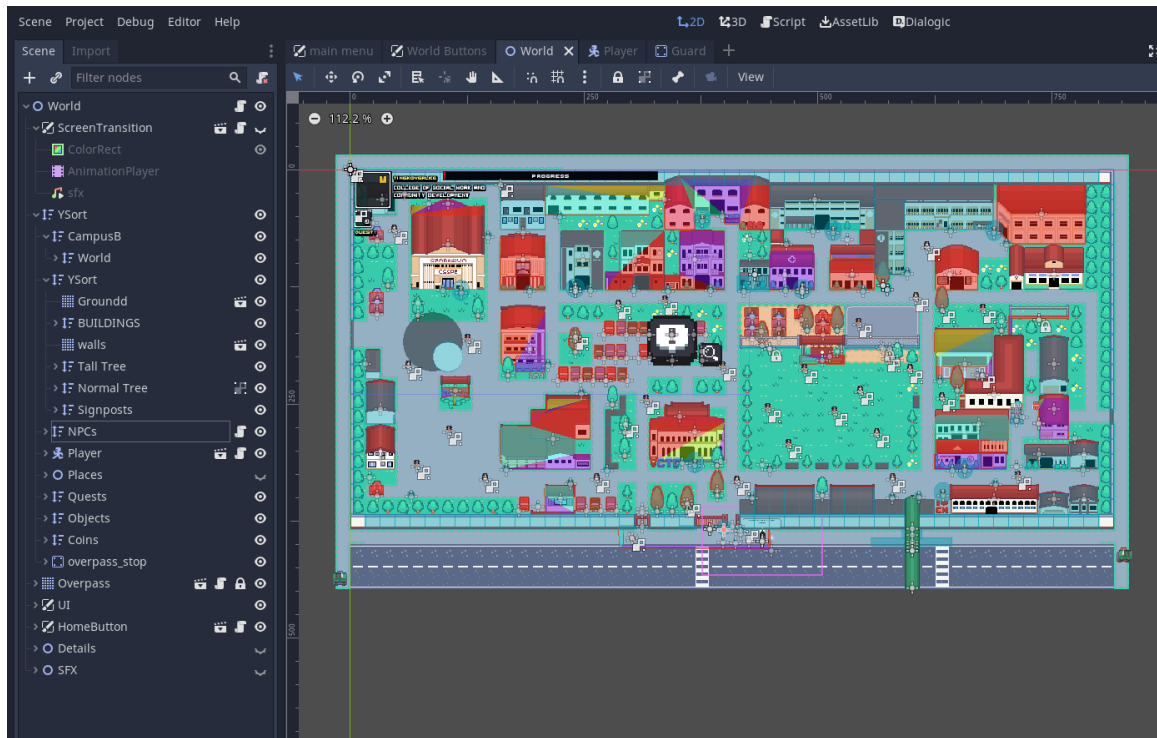
NPC(Guard):



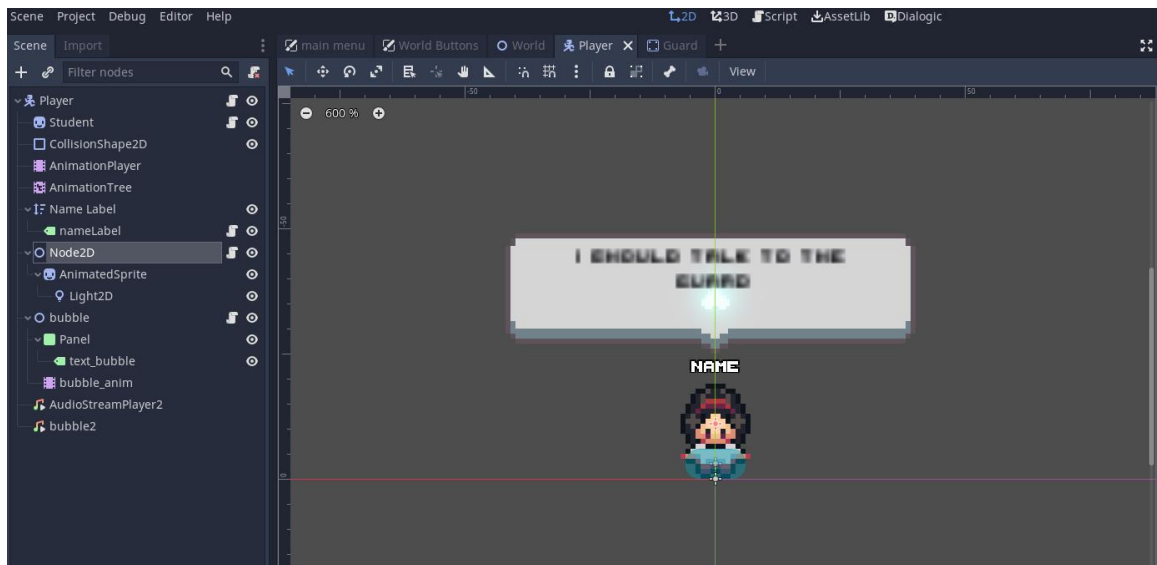
NPC Dialog(Guard)



World Scene with Nodes (collapsed)



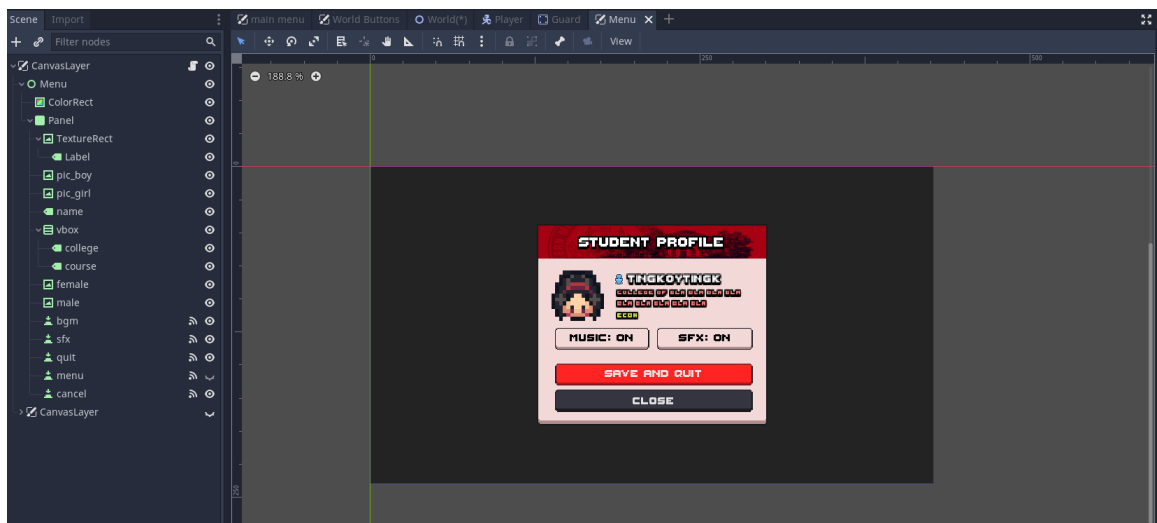
Player Scene with Nodes (expanded)



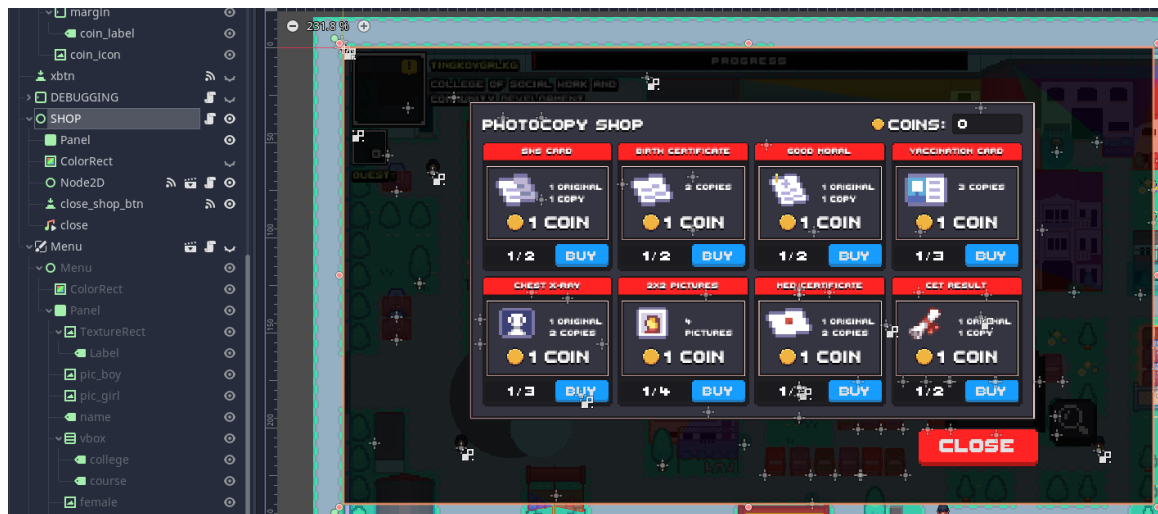
Main Menu UI Scene with Nodes (expanded)



In-game Menu UI Scene with Nodes (expanded)



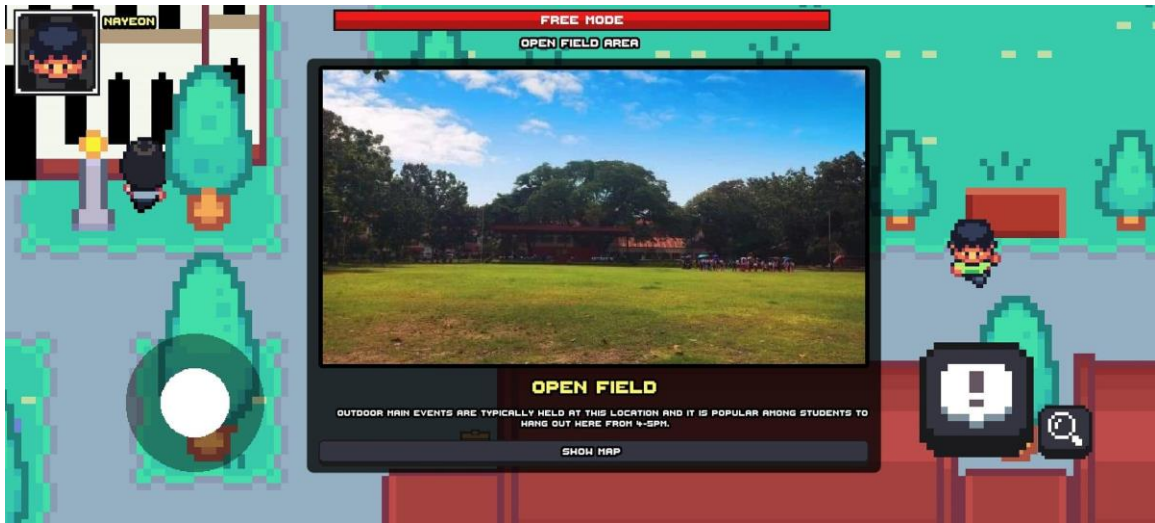
Coin Shop UI Scene with nodes (expanded)



Appendix C: Screenshot/Picture of the System







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