

UI/UX Design and Evaluation of Shrouded Buana Game Using Design Thinking and Cognitive Walkthrough

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Abstract

The rapid growth of mobile gaming, which accounts for a significant portion of the global gaming market, necessitates optimal UI/UX design to maintain competitive advantage and player retention. One of the most popular games in Indonesia is Genshin Impact, which recorded 6,857,493 downloads on the Indonesian Playstore and Appstore as of September 2022. Research concerning UI/UX in games like Genshin Impact has become increasingly vital due to the growing emphasis on user engagement and accessibility within the gaming industry. The specific challenges of effectively designing UI/UX for complex open-world games, such as Genshin Impact, present significant opportunities for further exploration. Shrouded Buana is a game developed with Genshin Impact as its primary reference. This research focuses on avoiding various UI/UX-related issues in Genshin Impact. The Design Thinking framework is employed as the methodology for developing the UI/UX of Shrouded Buana. The usability level of the Shrouded Buana UI/UX is measured using the Cognitive Walkthrough (CW) method. the Cognitive Walkthrough is conducted through playtesting, where 30 users are presented with specific scenarios of tasks to complete. The Shrouded Buana's average task completion time (TCT) across all scenarios is 96,71%. The Average of Shrouded Buana's Task Completion Time is 5,15 s. Its mean Shrouded Buanas's UI UX are very good so can support respondents to finish all scenarios quickly.

Keywords:

User Interface (UI),
User Experience (UX),
Design Thinking,
Cognitive Walkthrough,
Role Playing Game (RPG).



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I. INTRODUCTION

The rapid growth of mobile gaming, which accounts for a significant portion of the global gaming market, necessitates optimal UI/UX design to maintain competitive advantage and player retention [1] [2]. Furthermore, the integration of emerging technologies, such as mixed reality and AI-driven interaction models, has expanded both the challenges and opportunities within the scope of UI/UX design [3] [4].

A survey conducted by Vero and Decision Lab among players, watchers, and streamers revealed that 52 million Indonesians are active gamers [5]. One of the most popular games in Indonesia is Genshin Impact,

which recorded 6,857,493 downloads on the Indonesian Playstore and Appstore as of September 2022 [6]. Research concerning UI/UX in games like Genshin Impact has become increasingly vital due to the growing emphasis on user engagement and accessibility within the gaming industry [1], [7].

Several studies on Genshin Impact have revealed that the game significantly enhances players' English language proficiency in both reading and writing [8]. Furthermore, it has been proven to improve learning outcomes, engagement, enthusiasm, and motivation within educational contexts [9].

The evolution of mobile and immersive gaming platforms has intensified the demand for interfaces that enhance player experience while simultaneously accommodating diverse user needs [10], [11].

The specific challenges of effectively designing UI/UX for complex open-world games, such as Genshin Impact, present significant opportunities for further exploration [1], [12]. Existing literature reveals a knowledge gap concerning tailored usability guidelines that address the unique demands of gamified systems within rich interactive environments [7], [12], [13]. While some studies emphasize general heuristics usability and gamification principles, others highlight the necessity for adaptive interfaces that account for player diversity and accessibility [7], [13], [14]. Debates persist regarding the balance between aesthetic minimalism and functional complexity, as well as the extent to which AI and deep learning should mediate user interactions [4], [10]. The consequences of neglecting these gaps include diminished player satisfaction, loss of engagement, and the exclusion of users with disabilities [12], [15].

Shrouded Buana is a game developed with Genshin Impact as its primary reference. This research focuses on mitigating various UI/UX-related issues identified in Genshin Impact. While the overall UI/UX of Genshin Impact is generally well-executed, several deficiencies persist regarding its iconography, specifically icons that fail to meet player expectations, icons that cause player confusion, and a lack of descriptive labels for these icons.

This study focuses on the UI/UX design of Shrouded Buana by mitigating the interface issues identified in its reference game, Genshin Impact, such as incomprehensible iconography, clashing color contrasts, and disorganized UI layouts. As stated in the journal *Psychological Analysis of User Interface Design* by Yan W., a fundamental challenge in UI/UX design lies in the 'relationship between objects and people,' where the design must satisfy player satisfaction, user needs, and emotional engagement [16]. Accordingly, the Design Thinking framework is employed as the methodology for developing the UI/UX of Shrouded Buana.

The usability level of the Shrouded Buana UI/UX is measured using the Cognitive Walkthrough (CW) method. Cognitive Walkthrough is a technique centered on evaluating user actions and goals as they attempt to complete predefined tasks. This method has been proven effective for game testing [17] and is commonly applied across various game, including Genshin Impact [18], Grand Theft Auto [19], and Arknights [20].

In this study, the Cognitive Walkthrough is conducted through playtesting, where users are presented with specific scenarios of tasks to complete. The outcomes of these user tasks are subsequently analyzed to evaluate the usability of Shrouded Buana.

II. METHODS

A. Research Stages

The research process initiates with a literature study to examine the various required references. Subsequently, a Design Thinking process which is comprising four stages: Empathize, Define, Ideate, and Prototype is conducted to generate innovative solutions [21], [22]. Upon completion of the design phase via the Design Thinking method, the UI/UX is evaluated for usability using the Cognitive Walkthrough (CW) technique. Design Thinking has been widely implemented in game development [23]; in certain cases, this method is integrated with game design principles to form an effective game development framework [24], [25].

Gamification and game development involve the application of game mechanics and design principles to engage users and facilitate learning or behavioral change [26], [27]. The intersection of these concepts forms a framework where Design Thinking guides both the creative process and game design evolution, fostering innovation and addressing user needs effectively [28], [29].

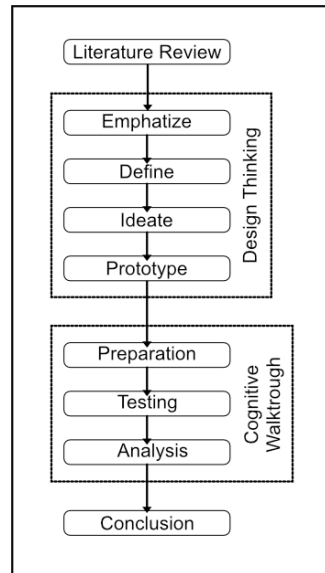


Figure 1. Research Stages

The Cognitive Walkthrough process comprises three primary stages: preparation, testing, and analysis [30]. The preparation stage involves developing UI/UX testing scenarios for Shrouded Buana, which will be executed by 30 participants who are experienced or frequent players of RPG games. The determination of the sample size refers to previous studies that conducted usability testing using the Cognitive Walkthrough method and is adjusted according to the complexity of the system being evaluated [31]. Following the collection of playtesting data, the subsequent step is to analyze the results using the Cognitive Walkthrough analytical framework.

B. Design Thinking

The Design Thinking framework comprises five stages: Empathize, Define, Ideate, and Prototype. The Empathize stage aims to identify the challenges faced by users through interviews. Once the interview data is gathered during the Empathize phase, the process proceeds to the determination of goals, experiences, and pain points.

Once all data has been gathered and clarified during the Define stage, the subsequent phase is Ideate, which involves formulating solutions to mitigate the identified issues. The final stage entails the development of a prototype, serving as a specific representation of the Shrouded Buana UI/UX design.

C. Cognitive Walkthrough

The usability testing process using the Cognitive Walkthrough technique begins with the development of testing scenarios (Table 1). These scenarios consist of a series of inquiries or instructions to be presented to the participants. The participants' responses to these testing scenarios are subsequently observed to evaluate the usability of Shrouded Buana.

Table 1. Cognitive Walkthrough Scenarios

ST	Scenarios	Steps
S1	Accessing the Settings Menu from the Main Menu	2
S2	Initiating the Shrouded Buana gameplay	2
S3	Navigating the Quest Page to the Side Quest section	3
S4	Executing the pause function during active gameplay	2
S5	Modifying weapon selection within the equipment interface	4
S6	Executing the zoom-in functionality on the map page	3
S7	Exiting to the Main Menu	3

The scenarios are administered to 30 respondents who are either RPG players or active players of Genshin Impact. The Cognitive Walkthrough evaluation is conducted through offline playtesting sessions, where participants execute the scenarios directly under the supervision of the researcher. Throughout the playtesting process, the researcher observes the participants to measure the success rate of scenario completion, record the task duration, and identify any interaction obstacles encountered.

III. RESULTS AND DISCUSSIONS

A. Design Thinking

The Design Thinking process consists of four stages: Empathize, Define, Ideate, and Prototype. During the Empathize stage, interviews are conducted with respondents to gather their perspectives on RPG games. Table 2 below presents the interview questions utilized in the Empathize phase.

Table 2. Interview Questions

No.	Questions
1	Have you previously engaged with Role-Playing Games (RPGs)? If so, please specify the titles you have played.
2	Among the titles previously mentioned, which game do you play most frequently?
3	What is your assessment of the User Interface (UI) layouts in the RPGs you typically play?
4	Have you encountered any difficulties regarding the interface layout while playing those games?
5	In your opinion, what essential elements should be integrated into an RPG's UI to enhance the overall player experience?
6	Do you have a preference for minimalist or simplified UI designs?
7	How frequently do you modify the UI settings in an RPG to align with your personal preferences?
8	What is your perspective on the implementation of maps in RPGs? Do you believe they significantly improve the game's usability?
9	How do you perceive the strategic use of color within the UI of an RPG?
10	In your view, what are the primary factors that contribute to user confusion regarding the UI/UX of an RPG?

The interview data is processed during the Define stage. Based on the findings, the identified user goals and desired experiences include intuitive navigation, aesthetic appeal, minimalist UI design, accessible maps, and comprehensible inventory descriptions. In addition to these objectives, several pain points were identified, such as disorganized UI placement obstructing the gameplay, incomprehensible iconography, and inconsistent color schemes that detract from the visual aesthetics. Furthermore, participants noted a lack of specific information features, the absence of a map leading to user disorientation, a requirement for shortcuts on every page

The data gathered from the Empathize process is subsequently converted into user personas. A user persona is a representational construct derived from interview results that illustrates the needs and behaviors of the target users [32], [33].



Stefani Purnama
22 | Student
Surabaya, East Java

Biography

Stefani Purnama, commonly referred to as Stef, is a student and an avid gamer with a particular interest in the RPG genre. She frequently plays Genshin Impact, a title she favors due to its high-quality artistic direction and its highly responsive and intuitive user interface.

Frustrations

Stef experiences specific frustrations with RPG user interfaces, primarily regarding the lack of a centralized system that provides detailed in-game information, such as a comprehensive game dictionary. Furthermore, she identifies a need for a mini-map that offers extensive spatial data, including precise positioning and objective locations, along with functional shortcuts to facilitate simultaneous access to multiple interface pages.

Needs

Stef seeks a gameplay experience that features a comprehensive archive page serving as a detailed game dictionary. Additionally, she requires a map system integrated with spatial information—such as positioning and objectives—supplemented by intuitive iconography like home indicators. She also emphasizes the implementation of dedicated shortcuts for the map and quest pages to ensure seamless navigational accessibility for

Figure 2. User Persona of Stefanni Purnama

The first user persona, Stefanni Purnama, is illustrated in Fig. 2. She is a university student residing in Surabaya, East Java, with a profound interest in gaming, particularly the RPG Genshin Impact. Based on her experience with RPGs, Stefanni has identified several UI/UX-related challenges. Specifically, she finds the absence of detailed information features, such as an in-game archive, to be disruptive to the gameplay

experience. Furthermore, she expresses a preference for shortcut buttons to facilitate more efficient page navigation.

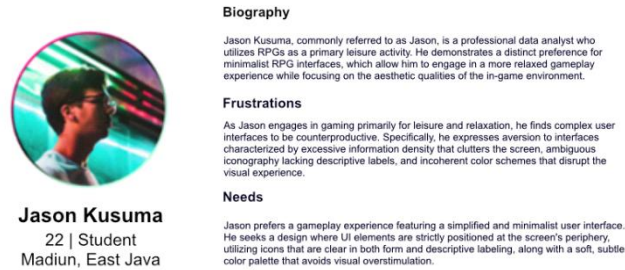


Figure 3. User Persona of Jason Kusuma

The second user persona is Jason Kusuma. In contrast to Stefanni, who engages in frequent gameplay, Jason plays games primarily for leisure. Consequently, he exhibits a strong preference for minimalist design to fully appreciate the game's aesthetics. Furthermore, Jason expresses a significant aversion to unconventional iconography, clashing color schemes, and visual inconsistencies.

The data derived from the Define stage, as represented in the user personas, is subsequently utilized to formulate solutions for the identified issues. This process of solution generation constitutes the Ideate phase. Table 3 below presents the proposed solutions for each identified problem:

Table 3. Identified Issues and Its Solutions

No	Identified Issues	Proposed Design Solutions
1	Disorganized UI placement.	Position UI elements along the screen's periphery to maintain an unobstructed view of the game scene.
2	Ambiguous or unintelligible iconography.	Utilize standardized icons and incorporate descriptive labels beneath each icon to enhance user comprehension.
3	Inconsistent and visually jarring color combinations.	Establish a dedicated color palette to ensure all visual elements align systematically with the game's theme.
4	Absence of comprehensive in-game profile information.	Implement a centralized Archive Page containing detailed information on characters, weaponry, enemies, and other game objects.
5	Lack of navigational features (Mini-map).	Integrate a comprehensive map and mini-map system to facilitate spatial orientation and player navigation.
6	Absence of functional shortcuts.	Incorporate shortcuts on every page to enable rapid access and improve navigational efficiency for the player.
7	Inadequate font sizing for legibility.	Standardize typography with a minimum 8-point font size to ensure optimal legibility and maintain interface consistency.

The next step involves the development of user flows to delineate the page sequences, thereby ensuring clarity for the players.

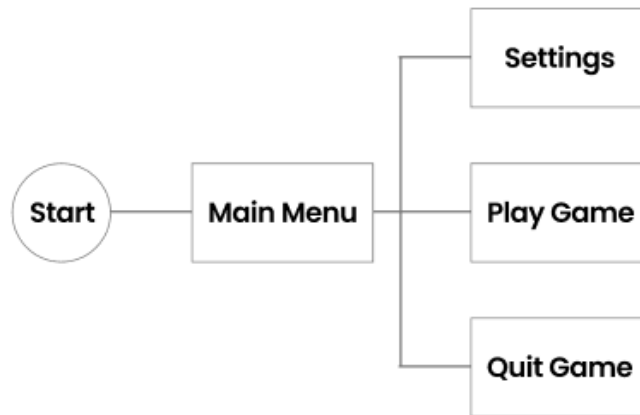


Figure 4. User Flow of Shrouded Buana

The main menu consists of three primary sub-menus: Settings, Play Game, and Quit Game. The 'Play Game' function is utilized to initiate the gameplay, while the 'Settings' menu allows users to configure various parameters, including difficulty levels, display resolution, and language preferences. Finally, the 'Quit Game' option enables users to exit the application. The gameplay session commences once the user selects the 'Play Game' button.

The final stage of the Design Thinking framework is prototyping, which involves the development of wireframes followed by high-fidelity prototypes. Wireframing is a critical step in UI/UX design, as it delineates the primary structural framework of the interface. This structure is subsequently transformed into a finalized mockup, incorporating refined layouts, imagery, and typography meticulously arranged within the screen.

The wireframe comprises the essential pages within an application or game. For the Shrouded Buana project, the wireframe encompasses the Main Menu, Settings, Quest, Maps, Inventory, Archive, and the Heads-Up Display (HUD). The Heads-Up Display refers to the graphical interface consisting of information, menus, or interactive buttons that remain visible during active gameplay.

- Main Menu

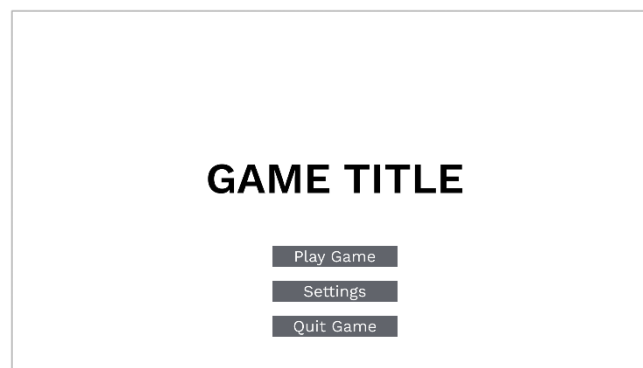


Figure 5. Main Menu Wireframe

The Shrouded Buana main menu features three primary options: Play Game, Settings, and Quit Game. The 'Play Game' function is designated to initiate the gameplay session, 'Settings' allows users to configure the game according to their preferences, and 'Quit Game' enables users to exit the application. The wireframe for the main menu is presented in Figure 5.

- Settings

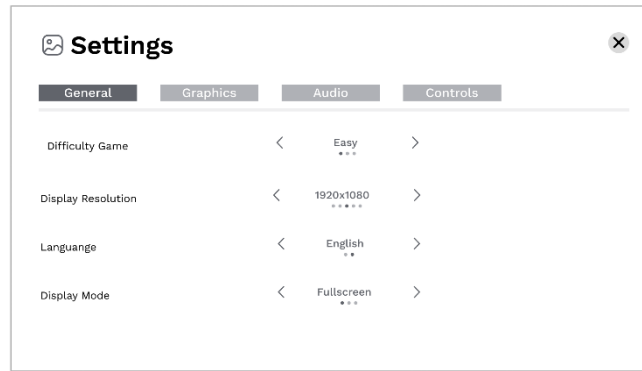


Figure 6. Settings Wireframe

The Settings menu is utilized for general configurations, encompassing categories such as General, Graphics, Audio, and Controls. Within the General settings, a 'Difficulty' option is provided to adjust the challenge level of the gameplay. Additionally, the menu includes a 'Display Resolution' setting for screen resolution adjustments and a 'Language' setting for linguistic preferences. Finally, the 'Display Mode' setting is available to configure the visual output mode.

The Graphics settings menu comprises several parameters, including Preset, Texture Quality, Level of Detail (LoD), and Terrain Detail. The 'Preset' option provides pre-configured graphics packages, allowing players to select optimized settings without the need for manual adjustment of individual parameters. 'Texture Quality' regulates the sharpness and surface detail of in-game objects. 'Level of Detail' (LoD) manages object fidelity based on the player's viewing distance; specifically, objects distant from the camera are rendered with reduced detail, whereas proximal objects are rendered with higher fidelity to optimize performance. Finally, 'Terrain Detail' is utilized to configure the geometric complexity of the ground surfaces and natural environments within the game.

The Audio settings encompass several parameters: Sound Effects, Music Volume, Dialogue Volume, and Speaker Setup. The 'Sound Effects' setting regulates the volume of in-game sound effects, while 'Music Volume' controls the background music intensity. 'Dialogue Volume' is utilized to adjust the auditory output of character interactions. Furthermore, 'Speaker Setup' allows users to configure the audio output according to their hardware, such as speakers, earphones, or other peripheral devices.

Lastly, the Controls menu provides configurations for the input mappings associated with various game actions. Within Shrouded Buana, these game actions include Run, Move, Roll, Crouch, Jump, Inventory, Quest, Map, and Pause Game. The wireframe for the settings interface is illustrated in Figure 6.

- Quest Page

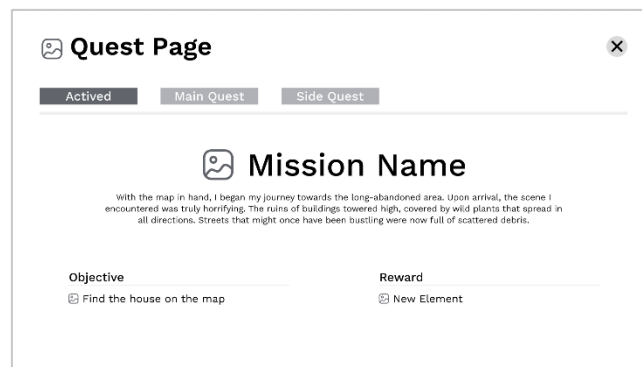


Figure 7. Quest Page Wireframe

The Quest Page features three primary categories: Active, Main Quest, and Side Quest. The 'Active' selection is utilized to identify currently ongoing quests. Within the Active Quest interface, details are provided regarding the quest title and its description, the specific objectives to be fulfilled, and the rewards granted to the player upon successful completion of the quest.

The Main Quest selection is utilized to map the progression of primary quests, categorized into those currently in progress, those yet to be initiated, and those already completed. Active quests are highlighted by allocating a significant portion of the screen real estate to emphasize their priority. Conversely, inactive quests are assigned a smaller screen area. Quests that have not yet been acquired are marked with a padlock icon, whereas completed quests are displayed without the padlock restriction.

Lastly, the Side Quest section allows players to identify and select various optional missions within Shrouded Buana. The wireframe representation for the Quest interface is illustrated in Figure 7.

- Maps

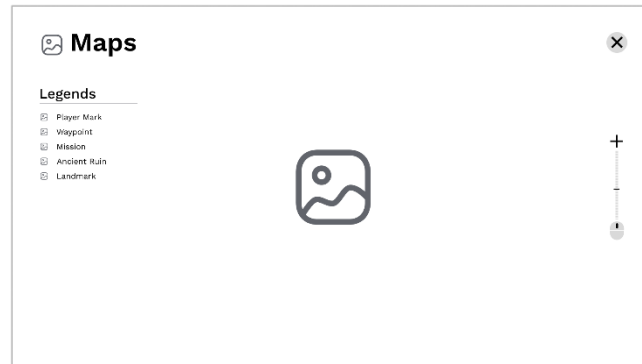


Figure 8. Maps Wireframe

The Map Page in Shrouded Buana functions as a tool for navigation and spatial orientation. This page includes a legend that provides information regarding player marks, waypoints, missions, ancient ruins, and landmarks. Each element is represented through a combination of icons and textual labels to ensure player comprehension. Furthermore, the interface incorporates zoom-in and zoom-out functionalities, facilitated by a slider-based icon. The wireframe for the map interface is illustrated in Figure 8.

- Inventory

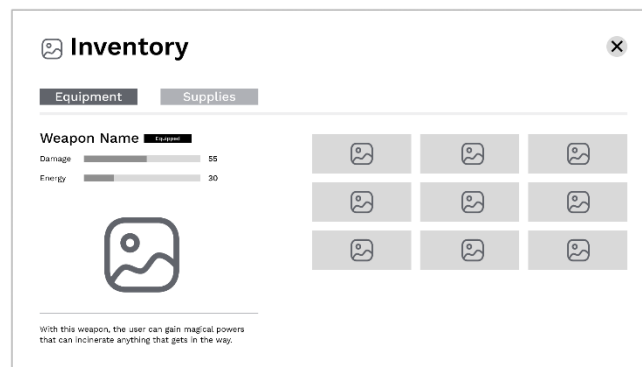


Figure 9. Inventory Wireframe

The Inventory Page features two primary categories: Equipment and Supplies. The 'Equipment' section provides detailed information regarding the weapons and tools currently owned by the player. Specifically, each item is presented with its respective name, damage value, energy metrics, and a concise narrative description. Additionally, the interface displays an overview of other weapons and equipment available in the player's possession.

Conversely, the 'Supplies' section provides detailed information regarding the various consumable items in the player's inventory, including their respective quantities and the effects triggered upon usage. These items encompass, but are not limited to, healing and energy potions. The wireframe representation of the inventory interface is illustrated in Figure 9.

- Archive

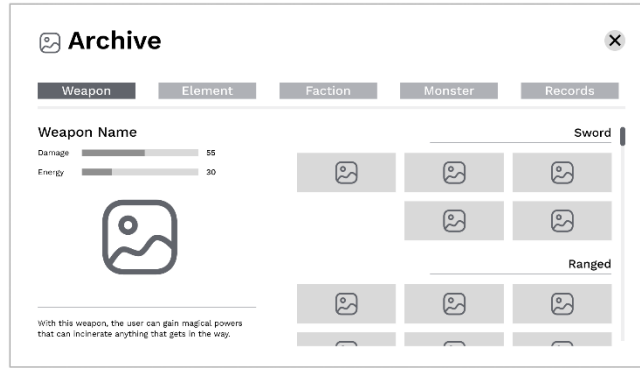


Figure 10. Archive Weapon Wireframe

The Archive Page in Shrouded Buana serves as an in-game encyclopedia, providing comprehensive information regarding all game objects. The data presented within the Archive Page is categorized into Weapons, Elements, Factions, Monsters, and Records. The 'Weapons' section displays the nomenclature, damage values, and energy metrics for every weapon available in the game. The 'Elements' section illustrates all collectible and usable elements within the gameplay. 'Factions' provides data concerning various factions associated with each map, while the 'Monsters' section details all entities along with their health points, damage attributes, and geographical locations. Lastly, the 'Records' section contains archived dialogue logs, which players may access upon the successful completion of the respective quests.

- Heads-Up Display

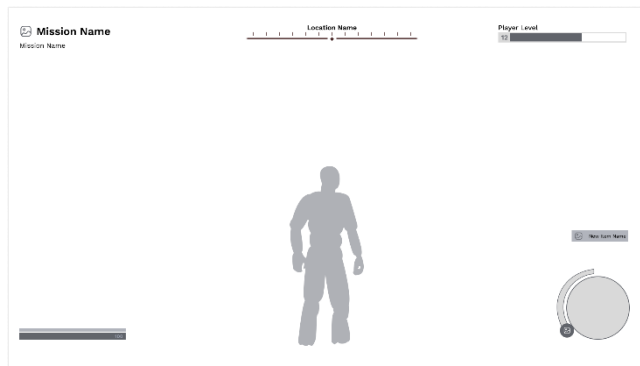


Figure 11. Ingame Wireframe

In Shrouded Buana, each element of the Heads-Up Display (HUD) is positioned along the periphery of the screen. This spatial configuration aims to ensure that relevant, real-time information remains accessible throughout the gameplay session without obstructing the player's field of view or disrupting the immersive experience.

The upper-left corner of the screen displays the current mission title and the designated objective location. Conversely, the lower-left corner presents vital player statistics, specifically health and energy levels. Positioned at the top-center of the interface is a navigational slider, which assists players in identifying their current location and determining the required directional heading.

The upper-right section of the screen displays the player's current level. In contrast, the lower-right corner features the mini-map and the element meter, the latter of which serves as an indicator of the elemental attributes currently possessed by the player. Positioned above these elements is a real-time notification system that tracks and displays items discovered or acquired by the player during gameplay.

Upon the completion of the wireframe, a prototype was developed to provide a specific visualization of the UI/UX for Shrouded Buana. This process commenced with the determination of the typography and color palette. The selected typeface for the game is Ringbearer, a fantasy-themed font chosen for its ability to enhance player immersion and ensure alignment between the narrative content and the visual interface.

[34]. Furthermore, the typographic hierarchy established for the system comprises Headline 1, Headline 2, Body 1, and Body 2.

RINGBEARER

LOREM ISUM DOLOR SIT AMET, CONSECTETUR ADIPISCI ELIT, SED EUSMOD TEMPOR INCIDUNT UT
LABORE ET DOLORE MAGNA ALIQUA. UT ENIM AD MINIM VENIAM, QUIS NOSTRUM EXERCITATIONEM
ULLAM CORPORIS SUSCIPIT LABORIOSAM, NISI UT ALIQUID EX EA COMMODI CONSEQUATUR. QUIS
AUTE IURE REPREHENDERIT IN VOLUPTATE VELIT ESSE CILLUM DOLORE EU FUGIAT NULLA
PARIATUR. EXCEPTEUR SINT OBCAECAT CUPIDITAT NON PROIDENT, SUNT IN CULPA QUI OFFICIA
DESERUNT MOLLIT ANIM ID EST LABORUM

Figure 12. Typography Shrouded Buana

Table 4. Used Fonts

Font	Type	Size
Headlines 1	Medium	78pt
Headlines 2	Medium	32pt
Body 1	Medium	28pt
Body 2	Medium	24pt

Following the typography, a color palette was curated to align with the dark fantasy theme. The palette comprises four primary colors, as follows:

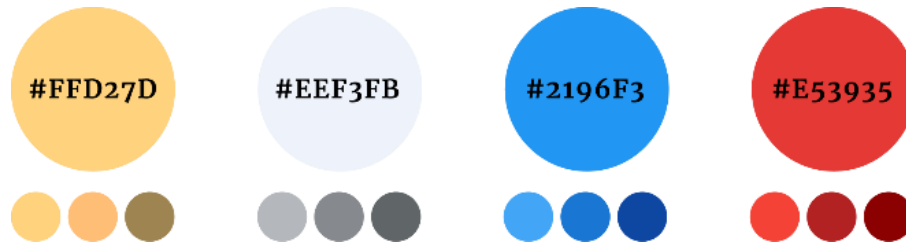


Figure 13. Color Palette of Shrouded Buana

The application of a color palette within the user interface (UI) of a dark fantasy-themed RPG plays a vital role in establishing immersion and serving as a visual communication system for the player. In this palette, Red (#E53935) and Blue (#2196F3) function as color-coded feedback that is psychologically associated with vitality indicators (health) and magical energy (mana) [35]. This configuration enables players to process character status information instantaneously amidst rapid gameplay dynamics.

Once the menu structures, Heads-Up Display, typography, and color palette were established, the process proceeded to the development of the UI/UX mockups for Shrouded Buana. The mockup stage represents a phase where the visual design is refined into a high-fidelity representation. This stage incorporates comprehensive elements, including color schemes, typography, iconography, imagery, and layouts that align with the previously defined wireframes. The mockup development phase prioritizes visual aesthetics while ensuring consistency with the structural design established in the preceding stage. Furthermore, textual content from the wireframe is adjusted to fit the finalized design within the mockup.

- Main Menu



Figure 14. Mockup Main Menu

• Settings



Figure 15. Mockup Settings

• Quest



Figure 16. Mockup Quest

• Inventory



Figure 17. Mockup Inventory

- Archive



Fig 18. Mockup Archive

- In-game



Figure 19. Mockup InGame

B. Cognitive Walktrough

The usability testing in this study involved 30 respondents and utilized the Cognitive Walkthrough method, which comprises two primary parameters: the player's success rate and the task completion time.

a. Respondents

The usability testing in this study involved 30 respondents and utilized the Cognitive Walkthrough method, which comprises two primary parameters: the player's success rate and the task completion time.

Veteran RPG players possess a series of cognitive expectations and motor habits developed through extensive interaction with similar titles within the genre. They maintain established mental models regarding inventory menus, map configurations, and quest navigation structures. Within the framework of Cognitive Walkthrough theory, this prior knowledge facilitates the learning process of new interfaces through the mechanism of positive knowledge transfer. Consequently, users are expected to intuit the correct actions based on pattern recognition derived from their previous gaming experiences.

Consequently, any failures or ambiguities experienced by this respondent group warrant specific attention regarding the UI/UX design of Shrouded Buana. If players who are already familiar with the RPG genre encounter difficulties, such impediments are likely to pose even greater challenges for novice players.

b. Success Rate

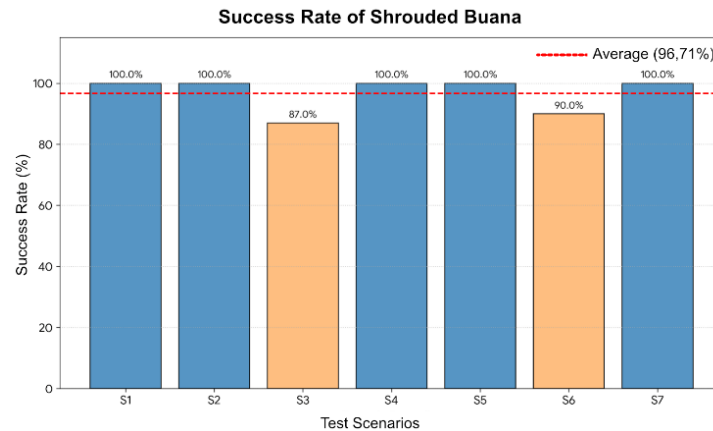


Figure 20. Success Rate Scenario of Shrouded Buana

Aggregately, the Shrouded Buana interface achieved an average success rate of 96.71% across seven task scenarios. This figure demonstrates excellent performance and indicates that the majority of the game's fundamental functions are operable by users. Notably, five out of the seven scenarios—specifically S1 (Settings Menu), S2 (Start Game), S4 (Pause Game), S5 (Change Weapon), and S7 (Quit Game)—attained a perfect success rate of 100%. These results confirm that the high-level navigation architecture, such as the main menu and basic inventory management, has been designed intuitively and aligns consistently with player expectations.

Conversely, two specific scenarios require further optimization: Scenario 3 (Open Quest) and Scenario 6 (Zoom Map). Scenario 3 recorded a success rate of 86.67% alongside a failure rate of 13.33%, while Scenario 6 yielded a 90% success rate and a 10% failure rate. These metrics indicate underlying usability issues within Scenarios 3 and 6, necessitating further design refinements to enhance performance.

In Scenario 3 (Open Quest), errors occurred due to respondents performing actions that deviated from the established task sequence. Regarding Scenario 6 (Zoom Map), the failure originated from a lack of user awareness concerning the functionality, as several respondents were either unable to determine the execution method or were completely unaware of the navigation's existence.

c. Task Completion Time

To measure the usability of the Shrouded Buana UI/UX, the researcher calculated the average task completion time (TCT) across all scenarios. Fig. 21 presents the average completion times, organized from the fastest to the slowest duration. The data indicates that Scenario S2 achieved the fastest average time at 3.6 seconds, whereas Scenario S1 required the longest duration at 7.6 seconds. The overall mean completion time across all scenarios was 5.16 seconds, suggesting that the UI/UX design is highly effective, as all tasks were completed within a brief timeframe.

The data further reveals that Scenarios S2 (Start Game), S3 (Open Quest), S5 (Change Weapon), and S6 (Zoom Map) were completed faster than the overall mean. Notably, all scenarios that outperformed the average duration were those executed during active gameplay. This suggests that the in-game UI/UX design is highly effective, enabling respondents to engage with the game seamlessly while completing tasks S2, S3, S5, and S6 with high efficiency.

Conversely, Scenarios S7 (Quit Game), S4 (Pause Game), and S1 (Settings Menu) required completion times exceeding the overall average. These specific scenarios involve actions that typically suspend active gameplay; consequently, respondents exhibited a tendency to delay task completion as they were deeply immersed in the gaming experience.

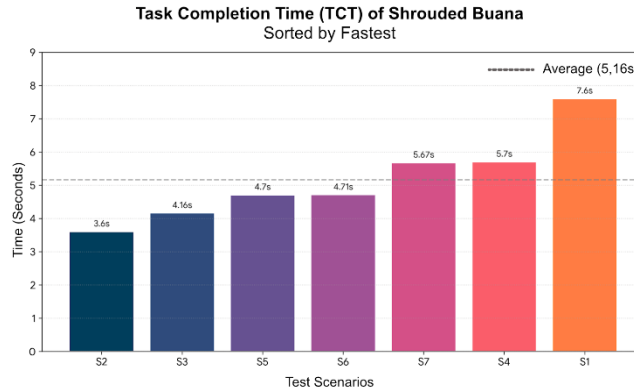


Figure 20. Task Completion Time of Shrouded Buana

C. Usability Issues

The researcher documented various issues identified during the testing process that significantly impeded task completion. These findings are synthesized and presented in Table 5.

Table 5. Usability Issues of shrouded buana

Respondent	Scenario	Identified Issues
R1	Navigating the Quest Page to the Side Quest section.	Unaware of the specific button required for selection.
R6	Navigating the Quest Page to the Side Quest section.	Lacked knowledge of the designated shortcut to access the page.
R10	Executing the zoom-in function on the map page.	Failed to perceive the zoom-in or zoom-out functionality on the map interface.
R15	Executing the zoom-in function on the map page.	Unaware of the input required to activate the specified feature.
R18	Executing the zoom-in function on the map page.	Failed to identify the pressable button on the interface.
R20	Navigating the Quest Page to the Side Quest section.	Absence of in-game UI cues or instructions for accessing the quest page.
R29	Navigating the Quest Page to the Side Quest section.	Unaware of the existence of a button or shortcut for the intended action.

The emerging issues are categorized into two primary areas: Zoom Map (S6) and Open Quest (S3). The 'Zoom Map' issue was encountered by three respondents, specifically R10, R15, and R18. Meanwhile, the 'Open Quest' issue was experienced by four respondents, namely R1, R6, R20, and R29.

Issues identified in Scenario S3 (Open Quest) were primarily attributed to the respondents' lack of awareness regarding the existence of designated buttons or shortcuts for accessing quests. Similarly, the difficulties in Scenario S6 (Zoom Map) stemmed from the respondents' failure to perceive the interactable elements required to execute the zoom functionality.

Reflecting on the initial research problems specifically regarding icons that failed to meet player expectations, caused confusion, or lacked descriptive labels it is evident that these issues have been substantially mitigated. The remaining usability challenges are now localized solely within the 'Zoom Map' icon.

IV. CONCLUSIONS AND RECOMMENDATIONS

The primary design reference for Shrouded Buana is Genshin Impact, with the UI/UX being specifically engineered to mitigate the usability issues identified in the reference title. Based on the comprehensive data obtained from the Cognitive Walkthrough evaluations, it can be concluded that the UI/UX of Shrouded Buana demonstrates exceptional performance, achieving a success rate of 96.7% across seven scenarios involving 30 respondents. Furthermore, the mean task completion time was recorded at 5.16 seconds. The design successfully addressed the core issues prevalent in its predecessor namely, icons that deviated from

player expectations, caused ambiguity, or lacked descriptive labels with the remaining usability concerns now isolated solely to the 'Zoom Map' icon.

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