5.1. Design Concept

The main purpose of this application design is to visually convey historical information to visitors, in order to improve the learning experience of visitors, especially among students. Because in Indonesia, many visitors are more interested in getting information visually, while most museums still prioritize text in the submission of materials. This subject can decrease the attractiveness and motivation of visitors to be able to get information and experience learning from museums.

Therefore, in this project digital technology is used to make visitors actively engage in museum experiences. For example, it is an interactive board to provide visitors with an opportunity to interact with museum content directly. This helps increase visitor engagement and enrich their experience.

The project was created to attract target markets visually and interactively. Thus, digital technology allows museums to present content in a more visual, interesting, simple, and understandable format. Audio, animated video, and other interactive elements are used to help convey museum material to the audience.

Initially, the author planned to include voice over and text in two languages, namely Indonesian and English. However, due to the results of daily visitor data during the research process, it shows that the majority of museum visitors
are domestic tourists, so the chosen language is only Indonesian. Voice over, text and visual are important components of the protection, as visitors – especially from students – rely heavily on visual and audio to understand the material presented by the museum. However, the project was purposely designed simply, so as not to shift the focus of the visitor to anything other than the material presented.

5.2. Application Design Technical Format

It was created specifically for the landscape orientation of the NW Short Standing Touchscreen Monitor (FB19TCD), with the size of 1440x900 pixels. Application interactivity has been tested on actual devices, and is generally interactive to use. However, due to Figma's lack of optimization, there were several prototype obstacles that occurred but were not very significant.

The biggest problem is in the decreasing device spec. Because the device is 9 years old or older, there is often jammed and long loading that causes unwanted frustration when users want to navigate the application.

5.3. Final Design

The final design of the project is as follows.

5.3.1. Home Page

The Home Page consists of two logos (Munasprok and Kemendikbudristek), the title or name of the museum, the photos of the museum, and the "Mulai (Start)" button. Homepages are used to initiate interactive stories or narratives designed to familiarize visitors with themes or concepts in the museum. Visitors can click on the "Mulai (Start)" button to begin a narrative experience that will guide them through the content presented. In
addition, the Home Page design was made simple with the "Start" button to create curiosity and enthusiasm for visitors.

Figure 5.3.1 Home Page.

5.3.2. Menu Page

The Menu page consists of a series of tile grids designed similar to the tiles in Windows 8.1. Since the target audience is a student audience, this approach is intended to make visitors feel interested and enthusiastic about interacting, by unifying simple yet clear elements of images, tile titles, icons, and motion animations. Meanwhile, on the side of the wall are the names of the museum, two logos, and a series of menu tiles that will be consistently present in each page of the ui. The menu tile aims to navigate users to content pages, so that they are presented with a combination of icons and names of each page for ease of understanding.
5.3.3. **Digital Diorama & National Figure Page**

The Digital Diorama page consists of a series of two elements: moving illustrations and a series of tiles. Digital dioramas are presented in the form of moving illustrations followed by narrator audio that tells the national figure's activities.
On the right of the motion illustration, there is a series of tile grids that present each national figure in the digital diorama. The purpose is to navigate the user to the National Figure Page containing their role in that room, where the digital interaction board is located. Each page contains an image of each figure, his name, a brief description of his role, and two type tile categories.

![Digital Diorama Page - National Figure](image)

The first tile category is a menu tile, containing icons back to the Digital Diorama Page, located below the left close to the sidebar. The second category is a menu grid that will navigate users to other National Figure's Page.

5.3.4. Wayfinding & Room Page

The Wayfinding Page consists of a simple 2d plan. The Wayfinding’s map reference source is the museum's architectural map.

Each room is given a different color and has its own meaning. But color division follows the chronology of the history course that
takes place in each room. Therefore, from Room One to Room Four, the color is made brighter but also keeps the contrast side to be easily recognized.

![Denah Museum](image)

**Figure 5.3.4.1 Wayfinding Page.**

Each room is given a bar containing a location icon and a room title, so users can know the name of their location or visit. The bar can be pressed and output a floating menu containing a photo view of the room from which each bar is located and the "Lihat (View)" button.
If users want to look further, they can press the "Lihat (View)" button so that they will navigate to another page containing photos, names, and historical events indoors. Inside the page, there are a series of menus that will help users to move to the Museum's Room Page dynamically, or return to the Wayfinding Page. If users are not interested, they simply press the "X" button to remove the hovering menu.
5.3.5. Museum History Page

In the Museum's History Page; there are museum photo views, page titles, historical descriptions, and a series of menu tiles. This menu tile contains navigation to switch pages, but it's still in the Museum's History Page, to read more historical information.

Meanwhile, the museum's history is briefly presented, because its detailed history has been presented on the second floor. Therefore, at the end of the sentence, an invitation was written to visit the second floor.
5.3.6. Quiz Page

The concept of the design of the quiz content is simple, which is a question-and-answer session that is related to museums. The purpose of creating quiz content for this digital interaction board is to be the museum's evaluation of the transmission of historical information to visitors.
The Quiz page starts on the page that contains "Mulai (Start)" to start the quiz or activate the first question. The function of this page is to mark the beginning of measurement of user knowledge or understanding. Once the button is clicked, the user's answer is evaluated and the value.

Additionally, the "Start" button on the UI page of the quiz helps create an interactive experience by providing a visual response to the user. Once the button is clicked, the page changes and questions appear, giving users a sensation of interaction and engagement.

The quiz consists of 5 questions with the application of multiple choices displayed visually such as photographs of national figures.

![Quiz Page](image)

Figure 5.3.6.2 Quiz Page - Visual.

However, due to data source limitations and adjustments to the questions presented, not all multiple options are visually displayed.
In addition, quiz questions focus only on historical events occurring in each room, where the digital interaction board is located.
The correct answer will be green in bar, frame, or text.
The wrong answer will be given a bright red color, with the correct answer correction included.
At the end of the question session, the user can see the total score of the quiz answer session. However, due to Figma's limitations, prototypes for calculating scores could not be performed.

In the quiz session, a series of menu tiles in the sidebar are disabled. The goal is to facilitate data evaluation of user interaction answers and results during quizzes. However, users can still stop the quiz session by pressing the menu tile containing the exit icon, so that the user will navigate to the main page of the quiz.

5.4. Supporting Media

The supporting media for the project are as follows.

5.4.1. Tutorial Video

The video tutorial is intended to inform users of how to interchange with digital interchange boards. It focuses only on the features of the digital interaction board and provides concrete and simple examples of how to use it well.
5.5. User Acceptance Testing

The purpose of User Acceptance Testing (UAT) in this project is to test the software that a predefined user performs to ensure that the system or application is ready for use.

5.5.1. Method

The methods chosen for this project's testing are in-depth and semi-interview individual observations to obtain accurate data on participants' behaviors and impressions during interaction with the application. To execute the testing process, the author must go to the museum and try on his device directly.

This approach was chosen to ensure that prototypes and designs can work in museum-owned devices. In addition, there are many limitations that Figma has, such as; it lacks a score-counting prototype feature, a limited time setting to automatically move to the Home Page after delay, and an Internet connection dependency.
5.5.2. Result

During the test there were several obstacles that made the results not so satisfactory for the author. The first obstacle, the new design is ready to be tested the day before the long holiday of Eid, because the museum is closed during the long holiday. The second obstacle, on that day many schools were off and quiet, so the test takers had to change their test subjects from students (primary target market) to adults (secondary target market).

The parties subject to the test were Firman Nur Chaliq, Jaka Perbawa, and Maulana Wijaya. They all worked in the Preparator Museum section, tasked with creating a museum exhibit, as well as the parties who were sent to assist during the project.

Before conducting the test, the author gives them the design results for evaluation. Then they did a trial run through the author's laptop. Broadly speaking, they don't have any problems with design, but they have a problem in automatic after-delay navigation that is considered too fast.
According to Firman, this automatic after-delay navigation is too fast and will be a problem for users who are slow readers. However, Figma did not support making improvements to the prototype. The duration of 20 seconds is the maximum in Figma to automatically switch pages after delay.

According to Maulana, he took issue with the photos of national figures who looked distorted. However, the complaint was quickly denied by Firman, because the photos were already part of the museum's archives. The author did not get permission to change on ethical grounds, maintain the originality of the museum's archives, and consistency. Moreover, the photos displayed in the museum also have similar shapes.

For Jaka, he didn't care about design and prototyping. He focused only on examining historical texts in design. Because all the historical texts are in accordance with what he sent, so there's no problem.
Later trials continued with the museum's digital interaction board as its media. This is where the peak of the problem occurs. There was a technical problem that caused an obstacle to access Figma. Of the 4 digital interaction boards, there is only one that can be used for trials and it is the most recent device. Although it's the most recent device among other devices, it's been in operation for 9 to 10 years. As a result, technical obstacles remain unavoidable.
After spending almost half an hour to access Figma, in the end the trial was successfully started despite the technical difficulties of the aging device. Navigation from the screen is not working maximum and response is slow. There are frequent jams in old touchscreen and page loading. Moreover, there are many grids on the museum's digital interaction board screen that have been damaged, thus damaging the design of ui. Ironically, all these obstacles do not occur when operated in other media such as in Samsung Galaxy Tab S6 or MacBook Pro laptops.

Based on observations during testing, users also appear to be disturbed by the degraded quality of the device. Although technical difficulties were painful during the test process, users could still recognize features in the design and could obtain information that had been presented in the design. The most interesting subject of deep visual observation results, almost all users are more reactive to visual displays, especially moving ones. For example, on the Menu Page, which displays 4 grid tiles, where users always visit
the digital grid tile diorama presented with motion illustrations in the form of GIF.

At the end of the trial session, they were satisfied and Firman hoped this design could be used by the museum. He also explained that in the near future the museum will do restoration on several devices that are considered irrelevant and obsolete, one of which is the digital interaction board.