

Design Of A 360 Degree Web-Based Virtual Tour System For The North Sumatera State Museum

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Abstract: Virtual Tour is a multimedia technology that allows users to view places from unlimited or uninterrupted perspectives. A creative system is needed to help enhance the promotion of the North Sumatera State Museum. Because basically, there is no 360-degree Virtual Tour system based for the North Sumatera State Museum. This research produces a design for a 360-degree Virtual Tour system that can be used to develop a 360-degree virtual tour system capable of enhancing promotional media and impacting the increase in the number of visitors to the North Sumatera State Museum.

INTRODUCTION

Media is more widely used to disseminate information in the current technological era, including print media such as books, posters, and flyers. Multimedia, data innovation, captures the attention and imagination of users by combining images, sound, text, and motion. By using connections and tools, users can interact and imagine. To convey information to a wider and more comprehensive general public, multimedia-based technology is required. Sight and sound as images are the most well-known data media worldwide, displaying images that are generally computerized and are a reliable method for conveying original data. The rapid development of technology today makes multimedia one of the technologies that can provide information. (Lestari et al., 2020). Virtual Tour is a platform that allows users to visit locations online in real-time through 360-degree panoramic images. (Selama et al., 2019)

The technology known as a virtual tour gives users the impression that they are part of the scenery and makes it easier to view, capture, and analyze virtual data. (Di & Riau, 2019). Virtual tour is a technology that allows users to interact with environments in the virtual world displayed by a computer, making them feel as if they are within that environment. Virtual tour technology is a type of interface technology between humans and machines that can realistically display objects according to the experienced

environment, including sight, hearing, movement, and other actions. (Mulyanto et al., 2018)

Not only can it clearly depict the real environment, but a virtual tour can also allow users to observe the virtual environment and feel as if they are actually there. This 360-degree virtual tour system can enhance the appeal to both local and international communities, thereby increasing participation, boosting visitor numbers, and modernizing through technological promotion. (Purnama et al., 2018).

The North Sumatra Provincial State Museum was inaugurated on April 19, 1982, by the Minister of Education and Culture, Dr. Daod Yoesoef, but the first collection was placed by the first President of the Republic of Indonesia, Ir. Soekarno, in 1954 in the form of a makara. Therefore, this museum is famously known as Gedung Arca.

The museum building stands on a land area of 10,468 square meters. Architecturally, the main building of this museum resembles a traditional house from North Sumatra. The front roof section is adorned with ornaments from the Malay, Batak Toba, Simalungun, Karo, Mandailing, Pakpak, and Nias ethnic groups.

Based on its collection, the North Sumatra Provincial State Museum is categorized as a general museum. Most of its collection comes from the North Sumatra region, consisting of cultural heritage artifacts from the prehistoric era, classical Hindu-Buddhist influence, Islam, to contemporary struggle history. Some others come from various regions in Indonesia and from other countries such as Thailand. Until 2005, the North Sumatra Provincial State Museum housed approximately 6,799 collections.

The provincial state museum of North Sumatra does not yet have a 360-degree virtual tour-based media. In this era of multimedia technological advancements, the North Sumatra State Museum should utilize it to reach a wider audience. By doing so, the North Sumatra State Museum will have a good promotional medium, which can impact the number of visitors coming to the North Sumatra State Museum.

Based on the problems described above, the author designed a web-based 360-degree virtual tour technology system to provide information that makes it easier for tourists to learn about the Museum Negeri Sumatera Utara and to facilitate the general public in obtaining information about the museum's layout. With the 360-degree documentation of the Museum Negeri Sumatera Utara, which is easily accessible through the website, the public can see the condition of the Museum Negeri Sumatera Utara

beforehand before visiting it in person.

With the design of this 360-degree virtual tour system, the author hopes that it can increase visitors' interest in exploring the North Sumatra State Museum through the website, which will then have a different approach in conveying information to visitors, expected to enhance the attraction of the younger generation to learn more about the North Sumatra State Museum.

RESEARCH METHODS

The first step in this research is defining the problem and data collection. After the data collection is complete, it is followed by analysis, planning, and drawing conclusions.

The data used in this research are primary data and secondary data. In addition, data collection was conducted through literature review, observation, and interviews, to gather support for the network identification system design. This data collection is useful during the design process based on the system's production needs. The next step is needs analysis, where all the requirements needed to build the system are analyzed based on the problems described in the problem statement. Needs analysis is a step required by users to solve the problem from the system's perspective. The purpose of this step is to gather the necessary requirements to design a 360-degree virtual tour system based on a website. (Afrianto et al., 2015).

RESULTS AND DISCUSSION

To better introduce the North Sumatra State Museum, especially to the current younger generation, a system that aligns with current technological developments and is favored by the younger generation is needed. Therefore, this website-based 360-degree virtual tour technology is very suitable for the North Sumatra State Museum in enhancing community engagement.

User Analysis

To understand the access rights and who the users of this 360-degree virtual tour system are, a user analysis must be conducted. In the results of this user analysis, it can be designed that the users accessing this system consist of 2 (two) types of access rights

users, namely admin and user. Table 1 shows the user analysis design for each user.

Table 1. User Analysis

No	User	Access Rights
1	Admin	Managing all the data used on the 360 virtual tour website, entering data, modifying and deleting data, and users who have access.
2	User	Users with access rights use the system by viewing the dashboard, gallery, and 360 virtual tour page.

System Design

The result of this research is a design for a 360-degree web-based virtual tour system for the North Sumatra State Museum. This 360-degree virtual tour system is expected to enhance visitor attraction in exploring the North Sumatra State Museum, through a website that will have a different concept in delivering information to visitors, which is expected to increase interest in learning more about the North Sumatra State Museum. The design of the web-based 360-degree virtual tour system features a distinctive one-page layout. With this one-page website design, users can comfortably explore the 360-degree virtual tour of the Museum Negeri Sumatera Utara.

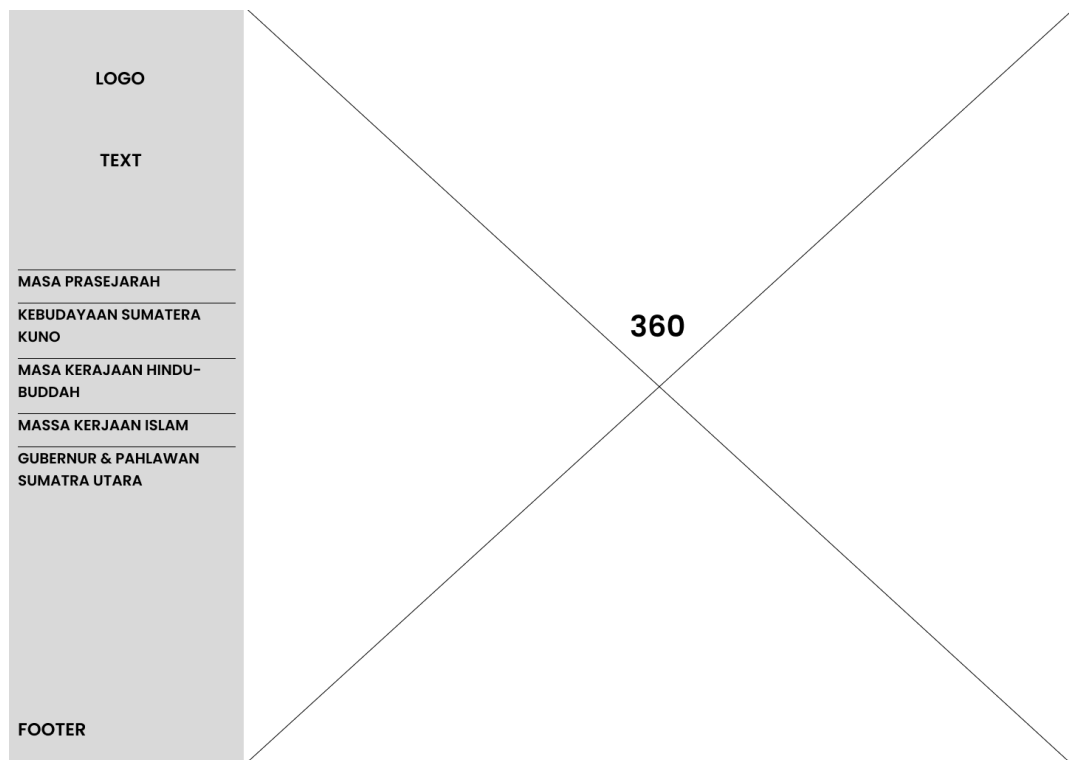


Figure 1. Virtual Tour Interface Design

In this design, the menu is positioned on the left side, where the logo and name of the virtual tour system are placed at the top, followed by the prehistory menu, North Sumatra culture menu, Hindu-Buddhist kingdom menu, Islamic kingdom menu, North Sumatra governor and hero menu, and also a footer.

CONCLUSION

A 360-degree virtual tour is a technology that allows users to interact with environments in the virtual world as displayed by a computer, making users feel as if they are within that environment. Therefore, the 360-degree virtual tour is very suitable for implementation in developing museum introduction media, including the North Sumatra State Museum. From the results of this research, a design for system users was obtained, divided into 2 users: admin and general users. This research also produced a design for a 360-degree web-based virtual tour system for the Museum Negeri Sumatera Utara. With the results of this research, it is hoped that the Museum Negeri Sumatera Utara can utilize the currently developing technology that is in line with today's younger generation. Thus, the impact can increase public knowledge about the Museum Negeri Sumatera Utara and familiarize them with the history and culture of Sumatera Utara.

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