Development Of Web-Based Digital Wedding Invitation To Reduce Paper Usage

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Abstract. A wedding invitation is an object used to convey information and invite the reader to attend the sender's wedding. The majority of conventional wedding invitations use paper as their raw material. In 2023 paper contributes to the composition of waste in Indonesia by 10.83% of the total 30 tons of more total waste in Indonesia. This research aims to develop a website-based digital wedding invitation that minimizes the use of paper and helps wedding couples in distributing their invitations. The research process starts from requirement analysis of needs to the testing phase using black box testing. In the end, this research produces a website-based digital wedding invitation that can reduce paper waste and make it easier for wedding couples to distribute their invitations.

Keywords: wedding invitation, digital wedding invitation, web-based invitation

Introduction

Nowadays, invitations are important for an event. An invitation is an invitation in the form of a flyer or letter to invite someone or a group of people to attend an event (Sihombing & Siahaan, 2019). One example of an invitation that is commonly found is a wedding invitation. As the name implies, wedding invitations are used to invite a person or group of people to attend a wedding event held by the sender of the invitation (Triadi et al., 2023).

Many wedding invitations circulating today use paper as the main material. The use of paper as the main material in wedding invitations can also cause the bride to spend more energy and time to be able to distribute the invitations because the wedding invitations need to be given directly to the invited guests. In addition, according to the Indonesian Ministry of Environment in 2023, paper contributed to the composition of waste in Indonesia by 10.83% of the total 30 tons of waste in Indonesia. Globally, paper waste can account for 10% of waste in cities around the world (Ozola et al., 2019). Thus, the use of paper as the main material, especially in wedding invitations, must be minimized to protect the environment and reduce waste.

Through current technological developments, wedding invitations that were originally made of paper can be formed into digital wedding invitations that utilize digital technology such as websites. The utilization of the website as a wedding invitation will make it easier for users to be able to access it anywhere and anytime (Mardi et al., 2020). With the ease of access provided by digital wedding invitations, of course, it will also help couples who are getting married to spread their invitations easily, practically, and quickly. The use of digital wedding invitations will also help achieve one of the Sustainable Development Goals (SDGs) number 15 Life on Land. This is because digital wedding invitations will help preserve forests by minimizing the use of paper as the main material for wedding invitations so that SDGs 15 will be achieved.

Based on the previous explanation, this research aims to develop a website-based digital wedding invitation to minimize paper waste in Indonesia. The result of the research is a website used for digital wedding invitations which certainly helps the bride and groom to spread their invitations more easily, practically, and quickly.

Methods

This research is included in qualitative research. Where in this research the results are in the form of website development based on software system design according to the software development life cycle (SDLC). SDLC can be considered as a recipe for designing, building, and maintaining information systems with various steps (Saravanos & Curinga, 2023). The SDLC used in this research is the waterfall method, which is an SDLC method that has the characteristics of working on each phase must be completed first before continuing to the next phase (Heriyanti & Ishak, 2020). The software development phase in this research is divided into 4 phases, namely:

1. Requirement & Analysis
   In this phase, the needs for specifications of digital wedding invitations are clearly described along with user interactions when using digital wedding invitations (Heriyanti & Ishak, 2020). The depiction of specifications and user interactions in this study will use a use case diagram. Use case diagrams are used to show how a system is used from the perspective of an actor (user) (Ganesh & Prabu, 2020).
2. Design Phase
   The design phase is a phase where the design of digital wedding invitations will be made such as software architecture (Kurniawati & Badrul, 2021). In this phase, researchers will create an architectural design of a website-based digital wedding invitation.
3. Implementation Phase
   In this phase, the implementation process will be carried out from the architectural diagrams and designs that have been made in the previous phase (Andrei et al., 2019). This phase will produce a website that will be used for digital wedding invitations.
4. Testing Phase
   After the results of the implementation phase are complete, the digital wedding invitation website will begin to enter the testing phase. The testing phase will test the website directly by checking the features of the digital wedding invitation (Hidayati & Sismadi, 2019). In this phase, researchers will use black box testing which is commonly used to test the quality of software that focuses on software functionality (Setiyani, 2019).

Result and Discussion

In this section, the researcher will show the results and discussion from the diagram to the testing of digital wedding invitations based on the 4 phases below:

1. Requirement Analysis
   At the requirement analysis phase, researchers analyzed the minimum functional requirements of digital wedding invitations. From these minimum functional requirements, researchers can create a use case diagram shown in **Figure 1**. below:

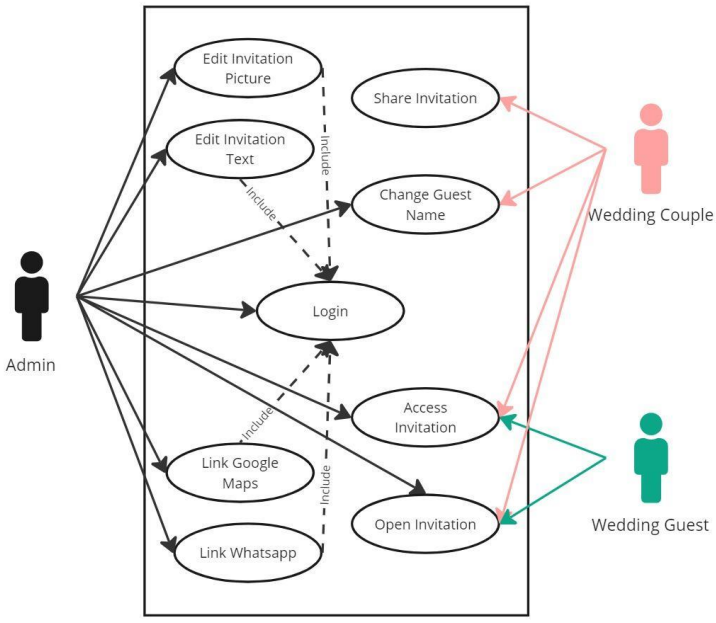

Figure 1. Use case digital wedding invitation

Based on **Figure 1.** it can be seen that in the use case diagram there are 3 actors, namely admin, wedding couple, and wedding guest. Of the three actors have their respective duties in operating or using digital wedding invitations. The admin actor has the task of creating digital wedding invitations for customers (wedding couples) so that the admin is required to be able to edit, change all aspects of digital wedding invitations such as text to images. The wedding couple actor has the task to access the invitation, open the wedding invitation, and share the digital wedding invitation to the wedding guest. Then, the wedding guest has the task to be able to access and open the digital wedding invitation that has been sent by the wedding couple.

2. Design Phase
In the design phase, researchers create an architectural design that will be used in making digital wedding invitations. As explained earlier, the digital wedding invitations that researchers make will be web-based,so the following is **Figure 2.** for the architectural design:

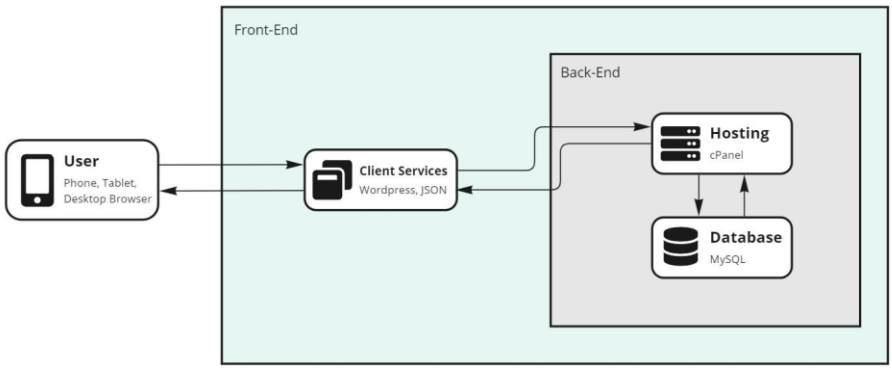

Figure 2. Architecture design digital wedding invitation

Based on **Figure 2.** it can be seen that the architectural design of digital wedding invitations is divided into 2 parts, namely front-end and back-end. The front-end part is the part that focuses on creating a web display for digital wedding invitations, where in this section researchers use Wordpress and JSON. Then, the back-end part is the part that stores web data and provides data to the front-end if needed, in this section researchers use cPanel for hosting and MySQL for database.

3. Implementation Phase
In the implementation phase, researchers began to create a website for digital wedding invitations. The process of creating a website is done in Wordpress to create a design and assisted by JSON extensions. The following is a look at the website that researchers have made, starting from the login view to the appearance and design of the digital wedding invitation:

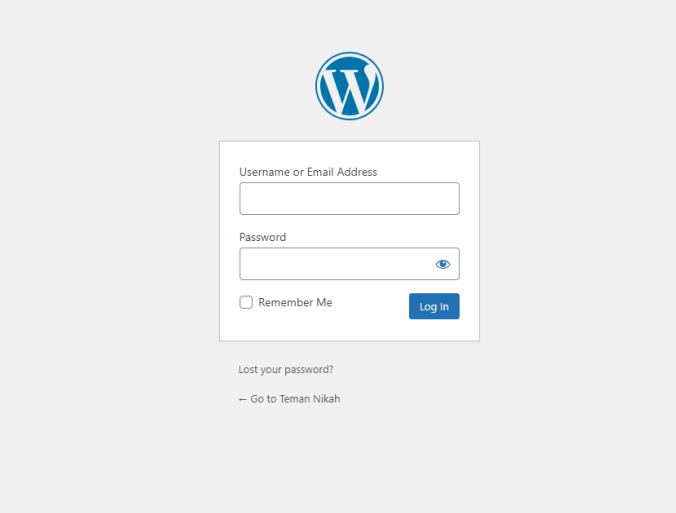

Figure 3. Login page

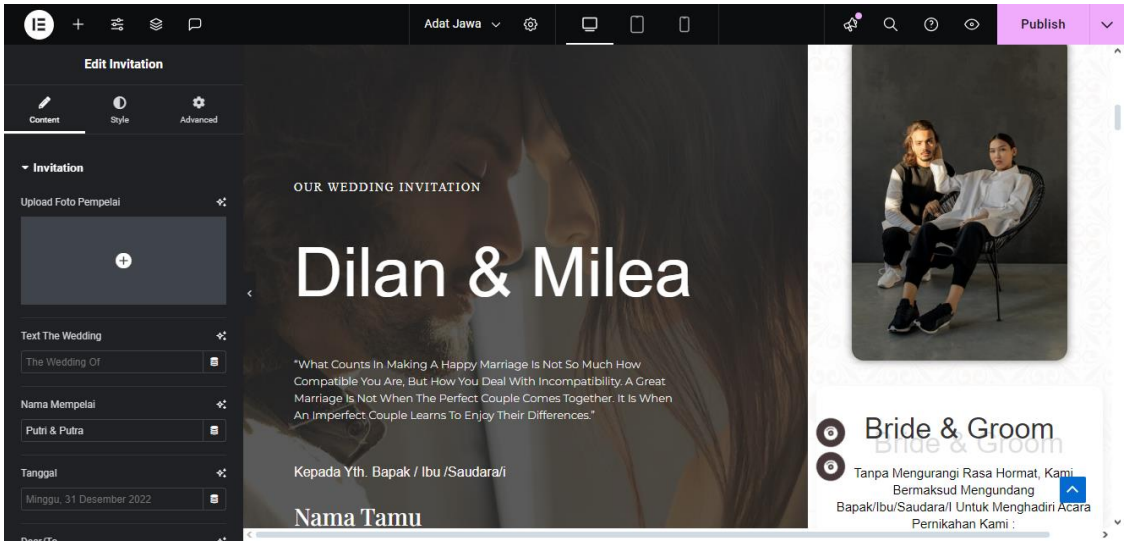

Figure 4. Editor page

Based on **Figure 3.**, we can see the login page that the admin uses to enter the editor page shown in **Figure 4.** On the editor page there will be many parts of the digital wedding invitation that can be edited or changed according to the needs of the wedding couple ranging from colors, text, to images on digital wedding invitations.

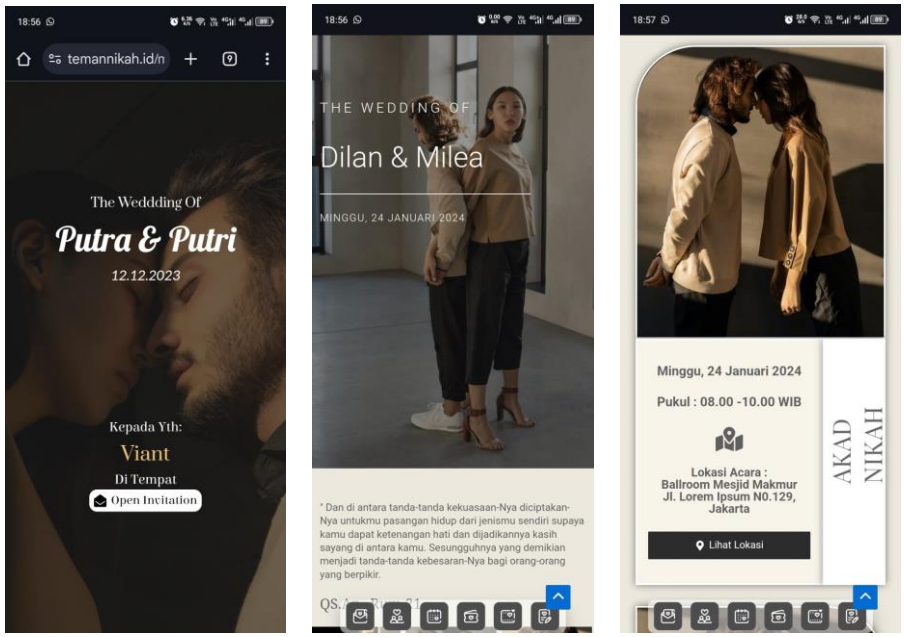

Figure 5. Digital wedding invitation view

In **Figure 5.** shows the appearance of the digital wedding invitation that has been made. There is a digital wedding invitation cover, an opening page, and a section showing the location of the wedding. In the cover view, you will see the name of the wedding couple, the date of the wedding, the name of the invited guests, and the "open invitation" button to open the invitation. Then on the opening page, there is a photo of the wedding couple, the date of the wedding, and prayers according to religion. And on the location view, there is the date of the wedding, the location of the wedding, and the "location" button that will be directed to google maps of the wedding location.

4. Testing Phase

In the testing phase, researchers will test the functionality of the digital wedding invitation website whether it is good or works as it should or needs to be reviewed because it does not work. Researchers used black box testing in this phase by checking (✓) one of the options in **Table 1** below:

Tabel 1: Black box testing

Testing Description	Accepted	Rejected
Admin can login to the website	✓	
Guest name on the invitation can be changed	✓	
The image on the invitation can be changed	✓	
Text on the invitation is editable	✓	
Invitation can link to google maps	✓	
Invitation can link to whatsapp	✓	
Invitation can be opened	✓	
Invitation can be accessed	✓	
Invitation can be shared on social media	✓	

From Table 1, we can see the tests carried out by researchers on the functional of digital wedding invitations that have been made before. From the results of black box testing conducted by researchers, it can be seen that all functionalities of digital wedding invitations have been accepted or are functioning properly. This is evidenced when researchers test the functionality of digital wedding invitations in accordance with the needs previously described.

Conclusion

This research aims to create digital wedding invitations to reduce paper waste and help wedding couples to spread digital invitations easily, practically, and also quickly. Based on the results of the research conducted by researchers, that researchers have made digital wedding invitations by going through 4 phases, namely requirement analysis, design, implementation, and testing. The requirement analysis and design phase describes the minimum software requirements as well as the architectural design of digital wedding invitations shown in the use case diagram and architecture design. From the results of requirement analysis and design, a website will be created in the implementation phase. After successfully creating a website, it will then enter the testing phase using black box testing. Black box testing tests the functionality of the digital wedding invitation website that has been created by previous researchers. The results of the test show that all functionalities of the digital wedding invitation are good and accepted. Which shows that digital wedding invitations are ready to be used by wedding couples and can replace wedding invitations that have the main material of paper.

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