
Design of Web-Based Information System for Jemaat Hidup Baru Salatiga Baptist Church

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Abstract

The use of the web as a medium for disseminating information has been utilized, both by individuals and institutions. Churches are one of the religious institutions that utilize the web as a medium for disseminating information. JHB Salatiga Baptist Church does not yet have a web as a means of delivering information to its congregation. Information about the church and service activities has not been documented and is only delivered directly after Sunday worship. Therefore, supporting information media is needed that can support the delivery of information as a whole and can be accessed at any time so that it is more effective and efficient. In this research, the method used is the waterfall method. And this research uses the bootstrap 4 framework and for the testing method using black box. The result of the research with the title "Design of Web-Based Information System of Jemaat Hidup Baru Salatiga Baptist Church", is a web design of JHB Salatiga Church for the delivery of information that makes it easy for congregants to access information effectively and efficiently.

Keywords:

Design;
Web;
JHB Church

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1. Introduction

1.1 Background

The development of information technology has an impact on human life. One of them is in finding information by utilizing the internet. Through the rapid development of technology now, information is available anywhere and anytime [1]. In addition, there are various information media that can be utilized in disseminating information, one of which is the web. Ease and speed are two of the advantages of the web, besides that, the information included in the web can be updated according to the latest changes. The use of the web as a medium for disseminating information has been utilized by both individuals and institutions. The church is one of the religious institutions that utilizes the web as a medium for disseminating information [2]. According to Lamalewa and Darsono, web-based information systems are very important in managing congregational data in churches because they are more effective and efficient [3]. Then according to Asih, Priyanto, and Puryono, web-based information systems are very important in providing information about church activities and congregational services because they can help and provide information that is more practical and easily accessible to the congregation [4]. Furthermore, according to Sahidu and Kinait, web-based information systems are very important because they can help churches in building information systems to manage congregational data and church activities [5].

Jemaat Hidup Baru (JHB) Salatiga Baptist Church is one of the Christian places of worship located on Jl. Tentara Pelajar No. 24, Mangunsari, Sidomukti Sub-district, Salatiga City, Central Java. It was pioneered in 2004 and actively organized in 2013. JHB Baptist Church Salatiga has a congregation of 193 people, consisting of 44 children, 64 youth and 85 parents. So far, JHB Salatiga Baptist Church does not have a web as a means of delivering information to its congregation. Information about the church and service activities has not been documented and is only delivered directly after Sunday worship. This makes the

information not conveyed thoroughly if there are congregations who do not attend worship directly at the church. Therefore, supporting information media is needed that can support the delivery of information thoroughly and can be accessed at any time so that it is more effective and efficient. Based on the context of the above problems, the author wants to conduct research with the title "Designing a Web-Based Information System for Jemaat Hidup Baru Salatiga Baptist Church". This research uses the waterfall method and uses the Bootstrap 4 framework. The expected result of this research is the design of the JHB Salatiga Church web for the delivery of information that makes it easy for congregants to access information efficiently and effectively.

1.2 Basic Theory

1.2.1 Design

Design is designing a good system, including operational steps in the data processing process. Not having a design system will hinder the creation of software. According to several experts, there are definitions of design, among others: "Planning is a process of using various principles and techniques for the purposes of defining a device, process, or system to a certain level of detail that allows the realization (implementation) of its physical form (including software applications)" [6]. Information systems are an organized combination of people, hardware, software, communication networks, and data resources to collect, transform, and disseminate information within an organization" [7].

1.2.2 Web

According to Rizal, the web is an application intended to retrieve data from computer servers on the internet network. If the HTML program code is not compiled first, the web is responsible for interpreting or translating the HTML tags that will be displayed in the browser window. One of the applications known as the web operates through the HTTP protocol, also known as hypertext transfer protocol, and allows users to access multimedia documents such as text, images, sound, animation, and video. Software known as browsers are also used to access the web [8].

1.2.3 Bootstrap

Bootstrap is a CSS framework library created specifically for front-end web development. Bootstrap is also one of the most popular HTML, CSS and Javascript frameworks among web developers, which is used to develop responsive websites. Therefore, web pages can then be customized according to the size of the monitoring device (desktop, tablet, mobile) that the user uses when accessing the web from the browser"[9].

1.3 Related Research

Referring to previous research conducted by Jimmy in 2018 entitled "Designing Web Profiles for Christians (Case study of GKPI Pamen Medan Church)". The purpose of this research is to convey information and the availability of the GKPI Pamen Medan Church profile so that it can be easily accessed by congregations, ministries, and parties outside the church [10]. Then the research conducted by Alon Giban, Elvis Pawan and Patmawati Hasan entitled "Information System for the Kingmi Church of the Gospel Kemah Congregation Using the Waterfall Method". By using the waterfall system development model, this research produces a web-based information system for the Kingmi Papua Church. Another research was conducted by Ridwan Sanjaya and Seabri Hesinto in 2018 entitled "Designing a Profile Website for Hotel Agung Prabumulih Using Bootstrap Framework". The purpose of this research is to create a hotel profile website using the Bootstrap framework that can provide information about the hotel to guests and customers [11]. Another research was conducted by Mega Wahyu Rhamadani, Herry Wahyono, Nuke L. Chusna, Nur Hikmah and M. Ageng Laksono in 2023 entitled "Website Design for Pasar Rebo District Using Bootstrap Framework". The purpose of this research is to create a website to provide an overview and information about Pasar Rebo and improve the services provided to the community to get information [12].

The research conducted at Jemaat Hidup Baru (JHB) Salatiga Church focused on designing a church web using the waterfall method and the Bootstrap 4 framework, which resulted in an interface design with Home, About Us, Services, and Contact menus. The difference between this research and the previous research by Alon Giban, although both designed the church web, but the object of research only focused on JHB Salatiga Church. In addition, the research and system development methods used are the waterfall method and the Bootstrap 4 framework. Then other research conducted by Ridwan Sanjaya and Mega Wahyu Rhamadani,

although both designed the web using the bootstrap framework, the objects and research methods used were different.

2. Research Methods

In this research, the method used is the waterfall method. The waterfall method is the simplest software development method and is sometimes referred to as the classic life cycle, which refers to a systematic and sequential software development approach [13]. The waterfall stages can be seen in Figure 1.

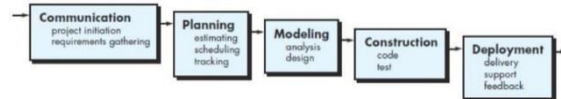


Figure 1. Waterfall method (Pressman & Maxim, 2015) [16].

2.1 Communication

In the initial stage, the author collected information about Jemaat Hidup Baru (JHB) Salatiga Church through direct observation and interviews with the local pastor. The initial data found is that the church already has a Multimedia Team that handles the Youtube of JHB Salatiga Church, but the information shared is limited to church activities only, so the existence of a church web is very necessary and fully supported for the effective dissemination of church information.

2.2 Planning

But this stage, information about Salatiga Jemaat Hidup Baru (JHB) Church was collected through direct observation and interviews with the local pastor. It was discovered that the church has a media team that manages a YouTube channel but the information shared is limited to the scope of church activities. Therefore, the existence of a website is considered necessary to effectively disseminate information about the church.

2.3 Modeling

The system was designed using the Unified Modeling Language (UML), which includes diagrams such as use case diagrams, activity diagrams, and class diagrams. UML was chosen because it provides a standardized way to visualize system design, allowing for better communication between stakeholders and easier documentation. Compared to other modeling techniques, UML is flexible and widely used in software engineering.

2.4 Construction

The coding phase involves developing the system using the Bootstrap 4 framework to develop the user interface. The design ensures responsiveness and cross-device compatibility. Black box testing is performed in this phase to verify that the system meets its functional requirements.

2.5 Deployment

This step includes installing and configuring the system on the server, deploying the web application for public access, and performing post-deployment testing. The church's multimedia team was trained on how to administer the system.

3. Results and Discussion

3.1 System Design

This system is designed to find out an overview of the web to be created. UML (Unified Modeling Language) is a set of tools in the form of diagrams to design or model the operation of a system, for example modeling the workflow of functions that will be implemented in the system [13].

3.1.1 Use Case Diagram

Use Case Diagrams are useful for describing the series of actions (use cases) that must or can be performed.

Carried out by several systems in cooperation with one or more people using external system (actors) [14]. Draft Use Case Diagram of Baptist Church Web Design system Jemaat Hidup Baru (JHB) Salatiga as shown in Figure 2.

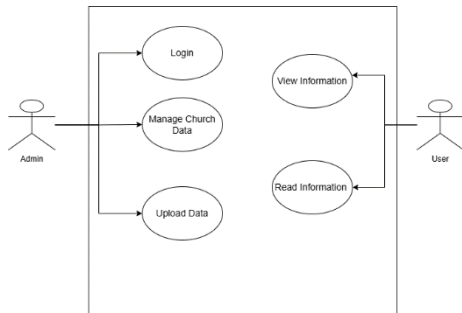


Figure 2. Use Case Diagram

3.1.2 Activity Diagram

Activity design on the internet is based on two elements: admin and user. User Activity Diagram describes various user activities on the following website system.

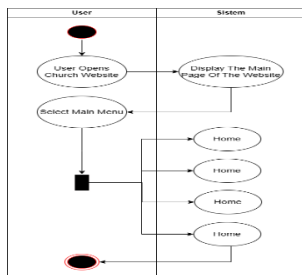


Figure 3. User Activity Diagram
Admin activity Diagram describes various administrative activation on the following website system.

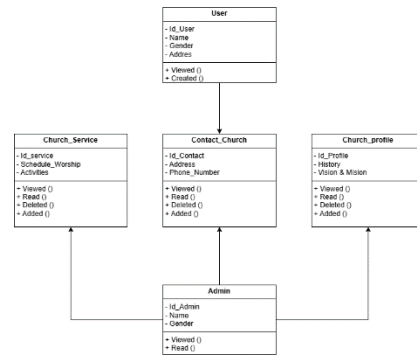


Figure 5. Class Diagram

3.2 Interface design result

In Figure 6, the Home page displays information:

- Header: Displays the name “JHB Salatiga Church” with navigation menus such as “Home,” “About Us,” “Services,” and “Contact” for easy access to information.
- Hero Section: Presents a photo of the church as the main background, with the welcome text “Welcome to JHB Salatiga Church” and a “Contact Us” button for direct interaction.

And Figure 7 displays the Home Page Program Code.



Figure 6. Home Page

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</pre>

```

Figure 7. Home Page Program Code

Figure 8 (About Us, Vision and Mission). This image explains the background and mission of the Church. Here are the important points:

- About Us: Jemaat Hidup Baru Salatiga Baptist Church was established in 2004 with a growth journey that included the establishment of a place of worship and congregational development. Currently, the church has more than 150 members who are actively involved in the ministry.
- Vision: Delivering a vision that becomes their spiritual guide.
- Mission: Briefly stated but indicates the direction of the church's activities, such as expanding discipleship.

And Figure 9 displays the About Us Page Program Code.

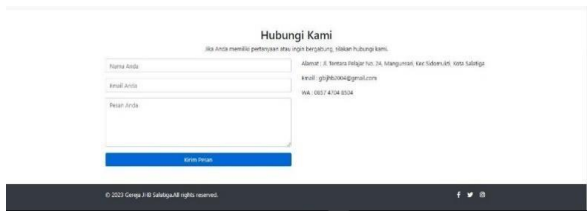


Figure 8. About Us page

```

<!-- about us -->
<div class="row">
<div class="col-md-12">
<div class="text-center">
<h2>Hubungi Kami</h2>
<hr/>
<div class="text-center">
<p>Jika Anda memiliki pertanyaan atau ingin bergabung, silakan hubungi kami.</p>
</div>
<div class="row">
<div class="col-md-6">
<div class="form-group">
<input type="text" class="form-control" placeholder="Nama Anda"/>
</div>
<div class="form-group">
<input type="email" class="form-control" placeholder="Email Anda"/>
</div>
<div class="form-group">
<input type="text" class="form-control" placeholder="Pesan Anda"/>
</div>
<div class="text-center">
<button type="submit" class="btn btn-primary btn-block">Kirim Pesan</button>
</div>
</div>
</div>
</div>
</div>

```

Figure 9. About Us Page Program Code

Figure 10 (Our Services). This section shows the worship schedule and services available at the church, including:

- Wednesday Prayer Service: Held every Wednesday from 17:00 to 18:00.
- Sunday Worship: There are two sessions, 7:00-09:00 and 10:15-10:30.
- Life Bible Study: Held every Tuesday and Thursday from 17:00-18:30.

And Figure 11 displays the Service Page Program Code.



Figure 10. Service

```

<!-- about us -->
<div class="row">
<div class="col-md-12">
<div class="text-center">
<h2>Hubungi Kami</h2>
<hr/>
<div class="text-center">
<p>Jika Anda memiliki pertanyaan atau ingin bergabung, silakan hubungi kami.</p>
</div>
<div class="row">
<div class="col-md-6">
<div class="form-group">
<input type="text" class="form-control" placeholder="Nama Anda"/>
</div>
<div class="form-group">
<input type="email" class="form-control" placeholder="Email Anda"/>
</div>
<div class="form-group">
<input type="text" class="form-control" placeholder="Pesan Anda"/>
</div>
<div class="text-center">
<button type="submit" class="btn btn-primary btn-block">Kirim Pesan</button>
</div>
</div>
</div>
</div>
</div>

```

Figure 11. Service Page Program Code

Figure 12 (Contact Us). This section provides church contact information for anyone who has questions or would like to join:

- Address: Located at Jl. Tentara Pelajar No. 24, Mangunsari, Sidomukti Sub-district, Salatiga City.
- Email: The church email address is provided for electronic communication.
- WhatsApp number: Listed for direct communication.
- Contact Form: Users can fill in their name, email, and message to contact the church

directly from the site.

And Figure 13 displays the Contact Program Code.



Figure 12. Contacts

```

<!-- about us -->
<div class="row">
<div class="col-md-12">
<div class="text-center">
<h2>Hubungi Kami</h2>
<hr/>
<div class="text-center">
<p>Jika Anda memiliki pertanyaan atau ingin bergabung, silakan hubungi kami.</p>
</div>
<div class="row">
<div class="col-md-6">
<div class="form-group">
<input type="text" class="form-control" placeholder="Nama Anda"/>
</div>
<div class="form-group">
<input type="email" class="form-control" placeholder="Email Anda"/>
</div>
<div class="form-group">
<input type="text" class="form-control" placeholder="Pesan Anda"/>
</div>
<div class="text-center">
<button type="submit" class="btn btn-primary btn-block">Kirim Pesan</button>
</div>
</div>
</div>
</div>
</div>

```

Figure 13. Contacts page program code

3.3 Testing Phase

3.1.1 Blackbox Testing

Testing the church website has been carried out using the black box testing method [15].

Test Function	Procedures Followed	Description
Church WebHome Page	Displays the main web page after the user clicks on the URL address.	Successful
About Us Menu	Display the about us page after the user selects and presses the about us menu.	Successful
Service Menu	Displays our service page after the user selects and presses the service menu.	Successful
Contact Menu	Display the contact page after the user selects and presses the contact menu.	Successful

3.1.2 IU/UX Testing

System was evaluated using heuristic evaluation, focusing on usability, accessibility, and aesthetics. User feedback highlighted the intuitive design and ease of navigation of the site with both the congregation and church administrators expressing their satisfaction with the results.

4. Conclusions

The Online information system designed for JHB Salatiga Baptist Church effectively addresses the need for a centralized and accessible platform for disseminating church information. The use of a waterfall approach ensures a structured development process and the Bootstrap 4 framework provides a responsive design. Future research may explore the integration of additional features such as online event registration and

interactive forums to further enhance the functionality of the system.

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