

Website Based Floor Plan Design for Henricus Constant and Mikael Unika Soegijapranata Buildings

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Abstract— This study explains how influential technological progress is in several aspects, in this study it refers to aspects of education, knowledge, and facilities for students regarding floor plans. And with existing technological advancements, it doesn't make it difficult for students to find information boards or bulletin boards.

There are several methods of analysis, namely, Primary Data Sources and Secondary Data Sources. The second uses the Data Collection method in this method which is also divided into several sections, namely: Collection of Questionnaires or Questionnaires, Literature Study and Interviews. The third uses the Testing method which is divided into several tests, namely: Application Testing, Testing Model Development, Methodology Flowchart, Framework of Mind.

Keywords— technological, education, knowledge, and facilities.

I. INTRODUCTION

1.1 Background

The development of this technology also has an impact on routes and plans, with routes or plans that have been modified in such a way as to keep up with technological developments, it is increasingly easier for people to find the location of the place they want.

Soegijapranata Catholic University has several buildings, each of which has various

faculties and rooms on each floor that are useful for lecture activities.

Therefore, it is urgently needed a floor plan that has been designed to keep up with the times to help Soegijapranata Catholic University students.

With this floor plan, it will be easier for students to get to know the Henricus Constant building at Soegijapranata University. And with this plan, students are expected to no longer be confused if there is a need for the Henricus Constant and Mikael buildings.

1.2 Problem Formulation

Based on the background above, the formulation of the problem can be taken as follows:

1. How can the Soegijapranata Catholic University students use this website-based floor plan?
2. How can students understand this website-based plan?
3. What is the impact of this website-based floor plan for the convenience of Soegijapranata Catholic University students?

1.3 Problem Limitation

Limitations of problems in the design of this system are:

1. Website-Based Floor Plan Application Design for the Henricus Constant and Mikael Unika Soegijapranata Buildings is intended for Unika students to make it easier for students to find a room to go to or look for.

2. This application is designed using the web base method.
3. This system only focuses on visualizing the Henricus Constant and Mikael building plans.

1.4 Research Objectives

Based on the formulation of the problem above, it can be interpreted that the research objectives obtained are

1. This website-based floor plan has a User Interface that is easy for students to understand.
2. This website-based floor plan can make it easier for students in lecture activities.
3. This website-based floor plan can increase students' knowledge of the Henricus Constant and Mikael buildings.

II. METHOD

2.1 Data Sources

a. Primary Data Sources

The primary data source used is by conducting interviews with students at the Soegijapranata Catholic University.

b. Secondary Data Sources

Secondary data sources are obtained through journals or wikipedia available on the internet related to the topic of this application design.

2.2 Data Collection Techniques

2.2.1 Questionnaire or Questionnaire

This questionnaire or questionnaire data collection technique utilizes a feature that exists on Google, namely the Google form, namely by creating and designing a questionnaire or questionnaire form and then distributing the form through social media services to make it easier to reach respondents.

2.2.2 Literature Study

Library research is a data collection technique through written information sources, for example, scientific journals, written works, and online journals.

System Development Analysis is conducting a survey and assessing the feasibility of developing the system to be designed, and analyzing the needs of the system to be designed.

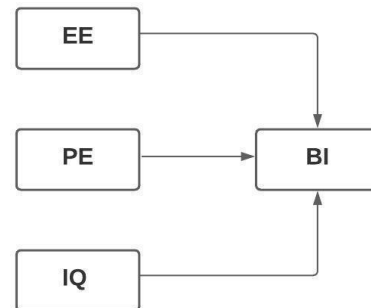


Image 2.1 Variable Image

2.4 Methodology Flowchart

A methodology flowchart is a diagram that explains how to describe the flow of problem solving aimed at gathering information and data on the object to be studied.

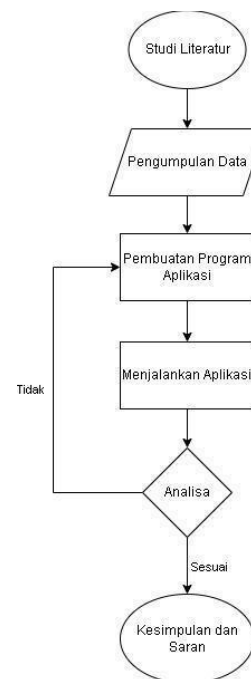


Image 2.2 Methodology Flowchart Image

2.4.1 Framework of Mind

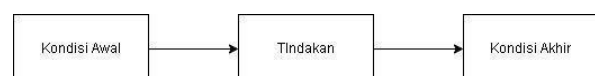


Image 2.3 Frame of Mind Image

Image Frame of Mind below explains that the initial condition is that students are not familiar with the contents of the rooms in buildings other than the buildings students occupy, therefore many of the students who want to carry out activities or have an interest in going to rooms in other buildings do not know the location where the target room is located.

The final condition is the implementation of the website application, with the aim that it can be used as expected.

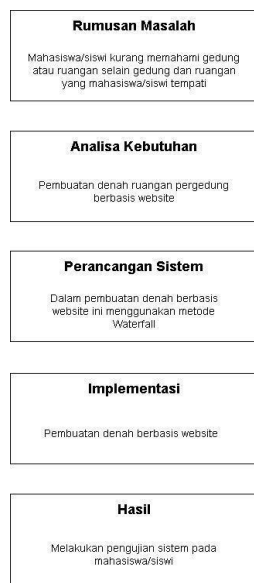


Image 2.4 Program Thinking Framework Image

III. RESULT AND DISCUSSION

In the process of analyzing the system that has been determined consists of admin and user, the admin will be brought to the main view but the admin has access rights to change the name of the room, and the user will be taken to the main view where the main view contains the floor plan view along with the rooms in each floor so that it will make it easier for the user to find the intended room, but the user does not have access rights to change, only given access to view.

3.1 System Planning

This Website-Based Floor Plan Application aims to make it easier for students to see or know all the rooms in the

Henricus Constant and Mikael buildings so that students are not confused about finding the room they are going to. So this system will be made with a simple User Interface (UI), and an easy-to-understand User Experience (UX) with the aim that students can easily use it.

3.1.1 Use Case Diagram Design

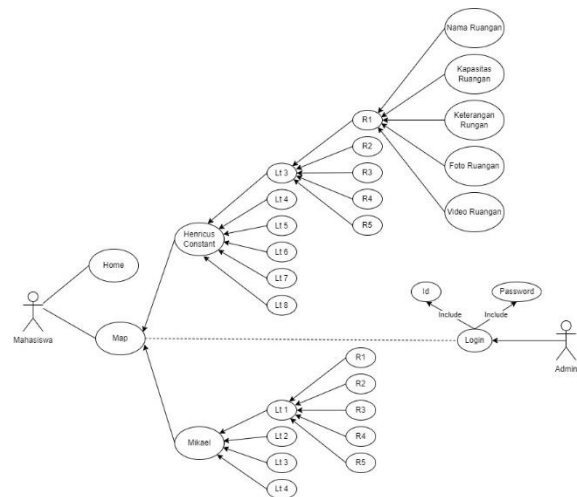


Image 2.5 Website-Based Floor Plan Use Case Diagram Image

in the use case diagram above it explains that the website-based plan has 2 actors, namely students (users) and editors (admin). Students will only display the building and its room information, on the editor page it will display room data which aims to update the existing data on the website plan.

3.1.2 Entity Relationship Diagram Design

The admin table has a one to many relationship with the room table which means one admin can edit a lot of room data.

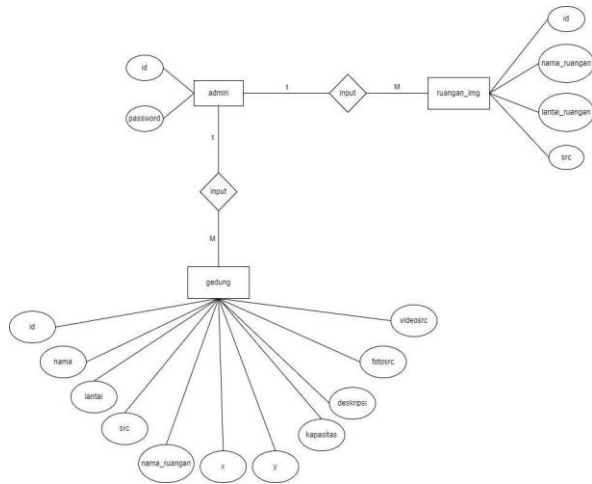


Image 3.1 Entity Relationship Diagram Image

3.1.3 Activity Diagrams

After designing use case diagrams and ERD, then carry out the stage of making the core process flow of the website that will be made. Image below will explain the core process flow of a website-based plan. From the activity picture below it is explained that the admin will display a page with the contents of the building and room data, each of which can be edited or added data if needed.

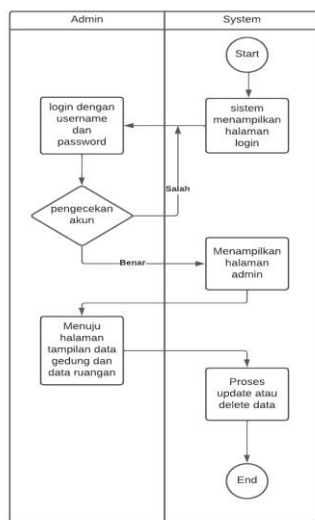


Image 3.2 Activity Diagram admin Image

4.1.4 Website User Interface Design

4.2 System Implementation

4.2.1 Home Menu Interface Implementation

3.2.2 Building Menu Interface Implementation

3.2.3 Implementation of Map Display Interface in Buildings

3.2.4 Implementation of the Admin Login Display Interface

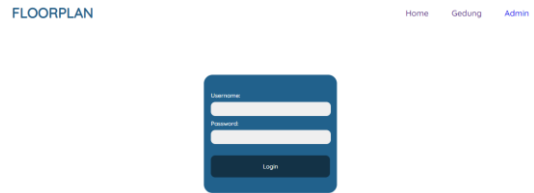


Image 3.3 Login Interface Image

the login page or admin login page, only the admin who has a username and password can access further entry into the admin page. The admin here is in charge or has more access rights to the contents of the data in the database, the admin can add, change, and even delete data if needed.

3.3 Respondent Data Analysis

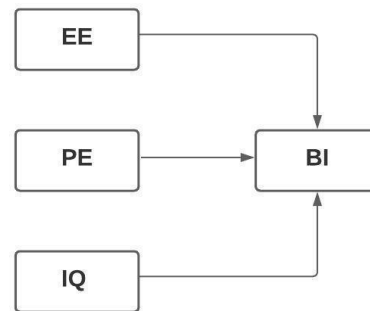


Image 3.4 Variable Image

1. Validity Test

The validity test functions to test the variables tested on the questionnaire, and to test the extent to which the tested variables are valid in carrying out their functions

Table of First Validity Test Results

Rotated Component Matrix^a

	Component			
	1	2	3	4
EE1	.294	.234	.233	.495
EE2	.046	.767	.244	.092
EE3	.485	.408	.256	.120
PE1	-.036	.186	.803	.213
PE2	.372	.257	.648	-.451
PE3	.183	.026	.778	.247
IQ1	.130	.883	.067	.046
IQ2	.252	.627	-.026	.421
IQ3	.257	.173	.238	.766
BI1	.786	.136	.088	.243
BI2	.739	.072	.130	.292
BI3	.847	.102	.033	-.010

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

In the table above is the first validity test, the data above shows that the IQ3 variable does not reach the validity score of 0.279. Then it is necessary to re-test again by eliminating the IQ3 variable.

Rotated Component Matrix^a

	Component		
	1	2	3
EE1	.408	.354	.233
EE2	.035	.759	.268
EE3	.469	.398	.287
PE1	-.008	.222	.800
PE2	.216	.101	.689
PE3	.209	.062	.776
IQ1	.108	.861	.105
IQ2	.322	.703	-.007
BI1	.813	.167	.120
BI2	.782	.120	.155
BI3	.822	.075	.073

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Table of Second Validity Test Results

the table above is the second validity test that has eliminated the IQ3 variable, data obtained on each group variable has a value above 0.279.

2. Reliability Test

Reliability test is used to measure the consistency of research variables. A variable is said to be reliable (reliable/reliable) if the respondents' answers to questions are consistent or stable

from time to time. Reliability test has a range of ratings as follows:

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

Reliability Value Range Table

Reliability Statistics

Cronbach's Alpha	N of Items
.826	11

Table of Reliability Test Results

The reliability test in the table above shows that the results of Cronbach's Alpha .826, when referring to the reliability value range table, indicate that the results of this reliability test have qualified at the GOOD value so that these variables can be accounted for.

3. Correlation Test

The correlation test has the function of looking for relationships and testing between variables in the form of questionnaires or quantitative ones like what researchers do. Following are the results of the correlation test:

		Correlations			
		XE	XPE	XIQ	XBI
XEE	Pearson Correlation	1	.435**	.521**	.473**
	Sig. (2-tailed)		.001	.000	.000
	N	51	51	51	51
XPE	Pearson Correlation	.435**	1	.295*	.339*
	Sig. (2-tailed)	.001		.035	.015
	N	51	51	51	51
XIQ	Pearson Correlation	.521**	.295*	1	.379**
	Sig. (2-tailed)	.000	.035		.006
	N	51	51	51	51
XBI	Pearson Correlation	.473**	.339*	.379**	1
	Sig. (2-tailed)	.000	.015	.006	
	N	51	51	51	51

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Correlation Test Table

Based on the correlation test above, correlated data is marked with a significant value (2-tailed) which is less than 0.5, so from the table above it can be concluded that:

- a. The EE variable correlates with the BI variable with a significance value of less than 0.5 and is marked with an asterisk.
- b. The PE variable correlates with the BI variable with a significant (2-tailed) value that is less than 0.5, and is marked with an asterisk.
- c. The IQ variable correlates with the BI variable with a significant (2-tailed) value that is less than 0.5, and is marked with an asterisk.

4. Analysis of Statistical Test Results

Based on the statistical tests that have been carried out, it can be concluded that

this website-based floor plan can help users to find a location they are looking for, this is reinforced by 32 respondents strongly agree out of 51 respondents. This website is also easy to view anytime and anywhere, this is reinforced by 30 respondents strongly agree. This website can also be useful for finding or knowing a location, this is reinforced by 30 respondents who strongly agreed, and 24 respondents who strongly agreed to use this website-based plan in the future.

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