

# Laboratory Imaginative Work Information System With Waterfall Method (Case Unas Artificial Intelligence Laboratory)

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## Abstract

Data processing is a routine and important requirement for companies, organizations that must be prepared and maintained properly, accurately. Therefore, it is necessary to create a system to be able to manage this data properly, namely with computers or laptops for data processing, storage and analysis of the results obtained. fast and realtime. Artificial Intelligence Computer Laboratory, Faculty of Communication and Information Technology, National University designed an imaginative information system using the waterfall method as the initial flow or first process flow to design or create a system as a means to carry out activities that aim to provide information, knowledge and also make it easier for users to knowing what results have been created, created, designed, developed, owned by the Artificial Intelligence laboratory. The results of this design or system will be based on the website.

**Keywords:** Information System, Imaginative Work, Laboratory, Waterfall Method

## 1. Introduction

Another advantage of computers is that they can handle hundreds of data every day and can process large and large amounts of data without errors. This information system for laboratory imaginative work with artificial intelligence laboratory case studies is designed because it wants to provide information about the activities of the work or project results that have been made by the laboratory [1]. The system designed will have several feature menus such as a home menu, an about us menu, a contact us menu, a login menu, a type of work menu, a how-to menu, and a news menu. Which later on in the type of work menu there is a search menu for the type of work you want to know. In the how to use menu there will be a video of how to use it, how to use the project or work. The activity or project or can be called the work of the tool that has been made has not used a special program for the storage and management of its data, it is necessary to create a new system [2]. With this new system, it will be easier to provide accurate, fast, good information and will assist the head of the laboratory and other leaders in seeing and knowing the results of laboratory work.

## 2. Research Methodology

The research methodology used in this research is using quantitative methods. This quantitative research develops and uses mathematical models, theories and hypotheses. The existing criteria have been determined since the beginning of the study. Research is an attempt to connect empirical reality and theory. This is because quantitative research is not carried out in order to test theories or hypotheses, but to find them. This research is used to examine the problem solving process. Imaginative information system laboratory work in this study using the waterfall method. The results of this study are expected to help data storage, storage of the work that has been designed, made in the laboratory.

## 2.1. Method of Collecting data

### 1. Observation.

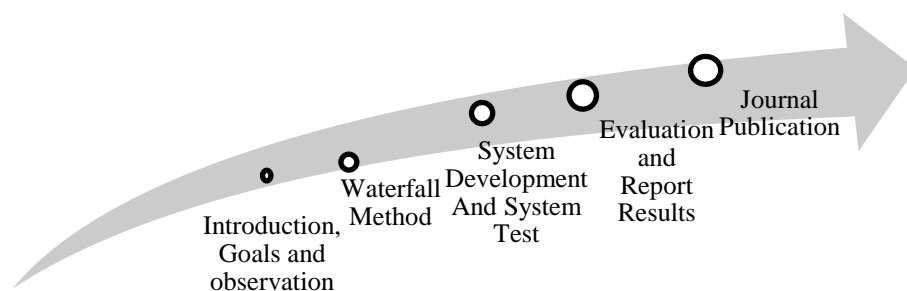
Observation or direct observation of the object of research. The observation technique is carried out by structured observation by preparing a list of data requirements and data sources.

### 2. Literature review.

Data collection methods obtained by studying, researching, and reading books, information from the internet, journals, and other sources related to imaginative, innovative Information Systems about the work.

## 2.2. Research RoadMap

A roadmap is a roadmap of a research. So that the research is more structured, can continue to grow, and produce useful results that are easy to apply.



**Figure 1. Research Roadmap**

Roadmap of the research to be carried out by understanding the background, the purpose of direct observation of needs, carrying out the initial system design process, system creation and system testing, evaluation and report results, journal publications [3][4].

## 2.3. Research Instrumentation

In this study, the instruments used are as follows:

Literature on the concept of an Imaginative Laboratory Information System with Waterfall Method.

- a) The software used in this study uses Website-based programming.
- b) Applications for data storage processes for system analysis information using PHP database.

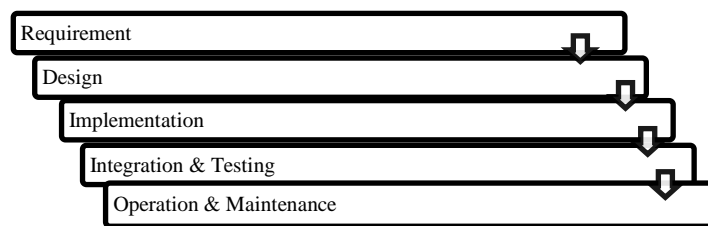
## 2.4. Waterfall Method

Waterfall is one type of application development model which emphasizes sequential and systematic phases. Like a waterfall.

- a) Requirements.  
The initial stage here is that the system developer must know all the information desired by the user, the researcher conducts a direct survey and conducts discussions with the system developer.
- b) Design.  
The second stage is the design aims to find out the description or flow of what must be done, the researchers here have designed the initial appearance of the system first.

- c) Implementation.  
The third stage is the implementation of the system created, whether it is appropriate from the desired function, the researchers here carry out the implementation of the system.
- d) Integration & Testing.  
The fourth stage is testing that is useful and serves to find out whether the system software is as desired or there are still shortcomings, researchers here test the system with blackbox testing.
- e) Operation & Maintenance.  
The last stage is the software that is already running and ready to be operated by the user or users, the researchers here check and maintain the system continuously [5][6].

Below is a picture of the stages of the waterfall method:

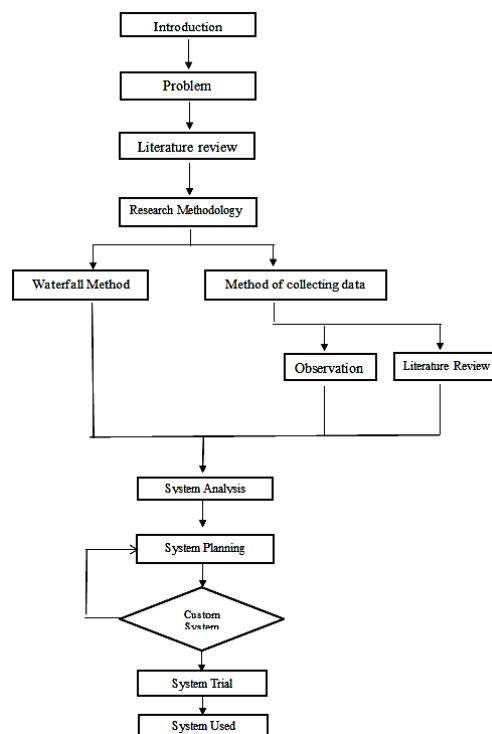


**Figure 2.** Stages of the waterfall method

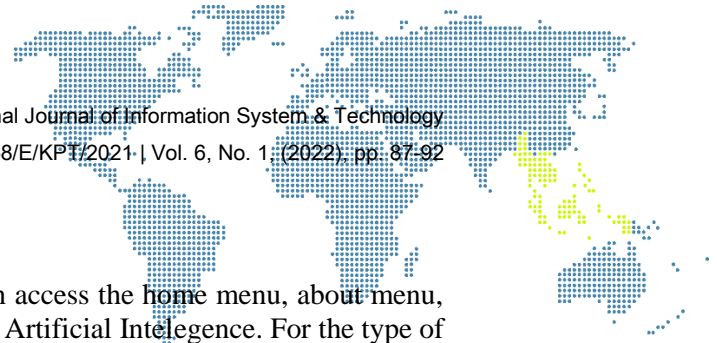
Stages of the waterfall method in designing an imaginative information system of laboratory work

## 2.5. Research Design

Engineering design or flow of imaginative laboratory information system design



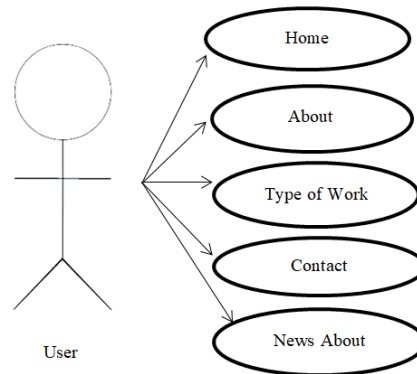
**Figure 3.** Engineering design or system creation flow



### 3. Results and Discussion

#### 3.1. Usecase Diagram

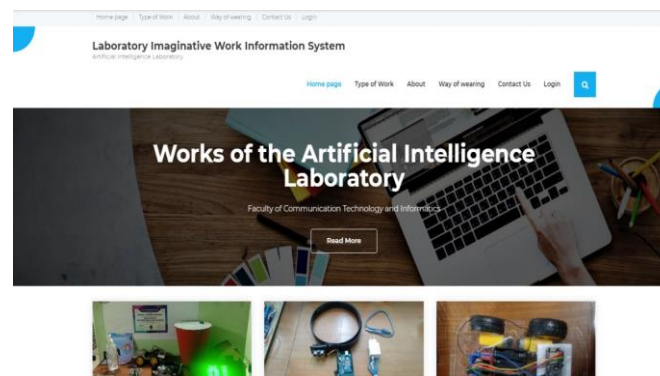
Usecase Diagrams here are system users who can access the home menu, about menu, work type menu, contact us menu, news menu about Artificial Intelligence. For the type of work menu, here is a place to store various kinds of works that have been created and created by the laboratory.



**Figure 4.** Usecase Diagram

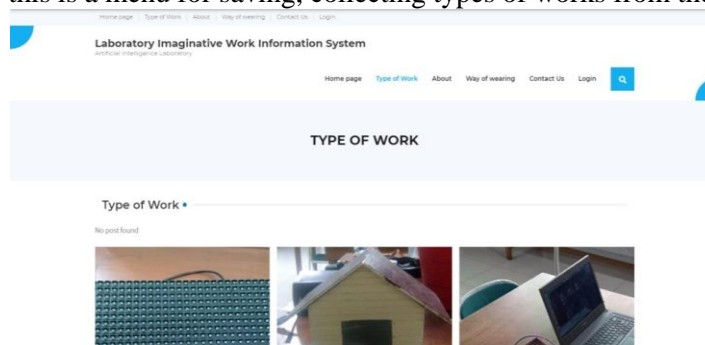
#### 3.2. Application Design

In Figure 5 main display or homepage of imaginative work information system in the laboratory



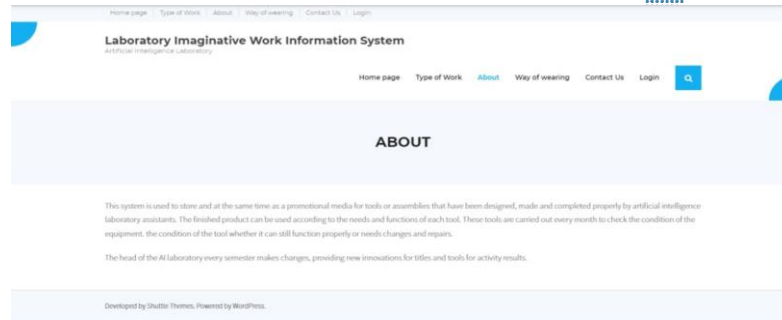
**Figure 5.** Homepage

In Figure 6 this is a menu for saving, collecting types of works from the laboratory



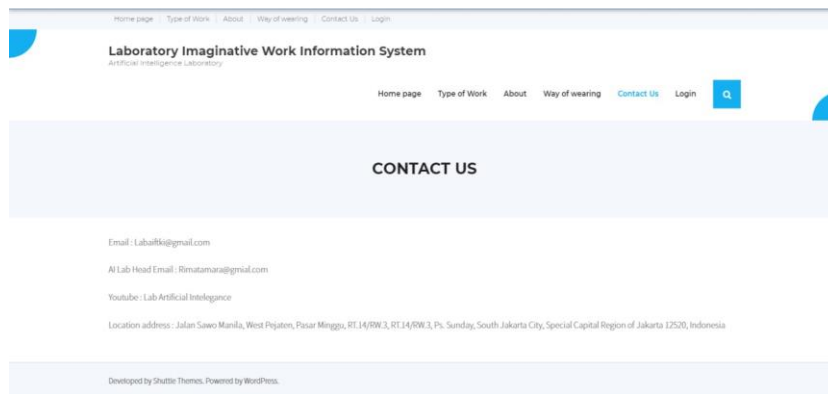
**Figure 6.** Menu Type of Work

Figure 7 menu about which this menu has an understanding or understanding of designed system



**Figure 7. Menu About**

In Figure 8 is contact us which if want to know more you can contact the system owner directly



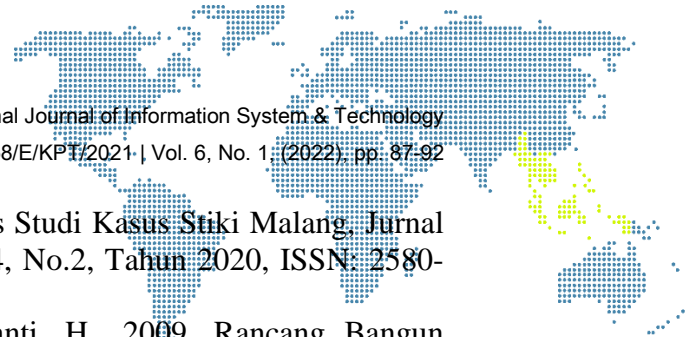
**Figure 8. Menu Contact Us**

## 4. Conclusion

Based on the results of the discussion on the Laboratory Imaginative Work Information System With Waterfall Method Case study: Unas Artificial Intelligence Laboratory it can be said that this system was created to be able to assist system users, especially the head of the laboratory and laboratory assistants in properly storing the assembled results and the type of work that has been done. This system uses system development method with waterfall method by performing 5 stages. The next research can to use other systems development methods, added multiple menu submenu and beautify your system more equipped with system display.

## References

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