Digitalization of the Internship Management System to Supports Independent Learning-Independent Campus

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ABSTRACT
In the twenty-first century, technological developments are so massive and fast, we can easily obtain information via computers assisted by systems that make people's lives easier. To get the required results, the data will be analyzed and designed to become a student internship management information system using the waterfall method. This reseacrh will cover the stages carried out in developing an information system using the waterfall method, namely the requirements analysis stage, design stage, implementation stage, testing stage and maintenance stage. Apart from that, this proposal will also discuss the modules that will be created in the student internship management information system, namely the internship application module, the internship location determination module, the internship supervisor module, the internship implementation module, and the internship evaluation module. In developing this information system, several tools will be used such as Entity Relationship Diagrams (ERD) to describe the relationships between tables in the database and Use Case Diagrams to describe interactions between users and the information system. In this research has been designed using the Waterfall method in developing this information system, allowing the stages of analysis, design, implementation and testing of the system to be carried out in a structured manner. The results of the research show that the implementation of this system can help in overcoming several obstacles, especially students who are looking for a company can apply directly through the system and communicate through it, also the management of Merdeka Belajar based internships is more complete because it has the features needed. The test results were carried out based on scenarios with appropriate results.

General Terms
Software Engineering

Keywords
Digitalization, internship, system

1. INTRODUCTION
Manado State Polytechnic, which is a Vocational College under the Ministry of Education, Culture, Research and Technology, always follows Ministry policies such as the Independent Campus Learning Program (MBKM).

Activities included in the Independent Learning-Free Campus in accordance with Minister of Education and Culture Regulation No. 3 of 2020 Article 15 paragraph 1, which can be outside the study program carried out both inside and outside the University, are as follows:

1. Student Exchange (Example: Permatasari Program)
2. Internship/Work Practice
3. Teaching Assistance in Educational Units (Example: Teaching Campus)
4. Research Research
5. Student Affairs Project
6. Entrepreneurship
7. Independent Study or Project (Example: Google Bangkit, MooC Aptikom, Apple Academy)
8. Building a Village or Thematic KKN

MBKM contains the philosophy of implementing independent learning which is an instrument in realizing equality and democratic education in Indonesia and this is also one of the efforts to realize shared ideals as stated in the Preamble to the 1945 Constitution [1].

In order for study programs to be aligned with MBKM activities, they must be able to adapt and focus activities on MBKM in the form of curriculum development [2].

The MBKM program that has been running so far has been appreciated by students who strongly agree with the MBKM activities included in the curriculum, especially internships/work practices and independent studies [3].

Curriculum updates, especially for the MBKM program, were initiated in 2021 and implemented in 2022. The MBKM programs that have been implemented by the Department of Electrical Engineering are Internship/Work Practicum (both local and national), Certified Independent Study, all of which are equivalent to 20 credits in a semester. walk.

The choice of MBKM activities carried out is related to Main Performance Indicator (IKU) 2, namely students gaining learning experience outside campus [4], based on one of the strategies for implementing MBKM with the reason of starting from something simple or something that can be implemented by the study program in the Department. Electrical Engineering.

The current MBKM program, attended by students majoring in electrical engineering, is still oriented towards the activities of the Ministry of Education, Culture, Research and Technology and has not yet implemented it in local conditions. In 2023, internships/work practices using the MBKM approach will begin to be implemented locally. But it cannot be implemented well because there is no system that can bring together prospective internship/work practice students with industry digitally.

Education always strives to create students who always make updates for the sake of updates all the time [5]. Even though its implementation there are still various obstacles, including in the evaluation process. The independence or freedom of teachers in the MBKM era in its implementation is of course still based on the competencies that must be achieved in the study program. For students, evaluation in the era of independent learning acts as an intermediary to realize educational goals, developing students' potential as learners [6]. Pros and cons are the obstacles that exist related to the implementation of independent learning on independent campuses. The following are the challenges faced in implementing independent learning, independent campuses,

namely 1) study program collaboration procedures with partners outside higher education; 2) transformation of the pattern at PTN-BH to be at an international level; 3) internship procedures carried out outside the study program [7]. This seems difficult to realize due to ineffective communication, resources and attitudes of implementers, especially people and supporting facilities [8]

In order to realize education with an MBKM approach, especially in the Electrical Engineering Department, it is necessary to change the mindset of educational staff, especially in the Electrical Engineering Department, to meet the needs of the academic community, student needs and achievement of the Unit Performance Index in the context of building a digitally connected environment. .

This digital need is important considering that digital can increase comfort in an activity, reduce dependency and constraints related to location, increase the availability of information, enable instant long-distance communication, speed up the processing time of an activity [9].

MBKM activities that are implemented digitally in an information system can provide convenience in coordinating information needs for MBKM activities, and also in supporting the achievement of IKU at the study program, faculty and institutional levels. So that MBKM activity data can be recorded properly and its availability is guaranteed to accommodate certain activities such as IKU 2 activities, of course an appropriate information system is needed [10]. The digital information system is also very useful for students in understanding MBKM activities, making it easier.

1.1 Research Design

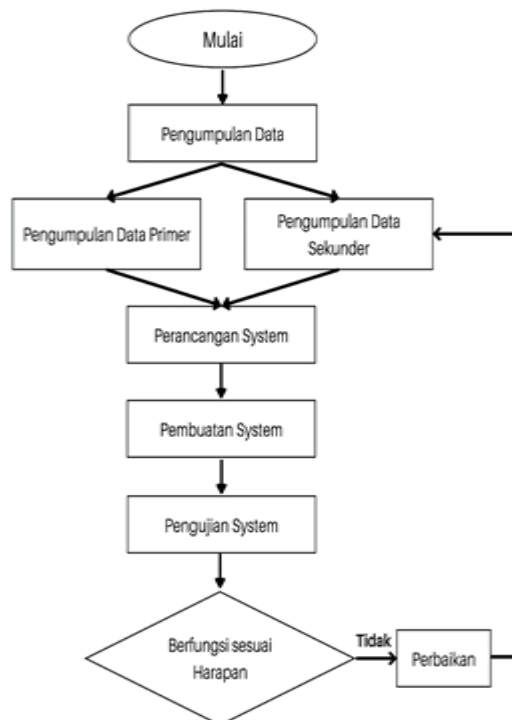Research design is needed to guide the research to the expected results.

Fig:1 Research Flowchart

1.2 Research Methods and Types

Research methods are a process of solving logical problems, where data is needed to support research needs. Methodology is also a theoretical analysis of a method or method, and research is a systematic investigation to increase a certain amount of knowledge. It is also a systematic effort to investigate a particular problem that requires an answer. This type of data research is divided into 2, namely quantitative (systematic) and qualitative (descriptive). The development carried out to create this application used the waterfall model method. The stages in the waterfall model include:
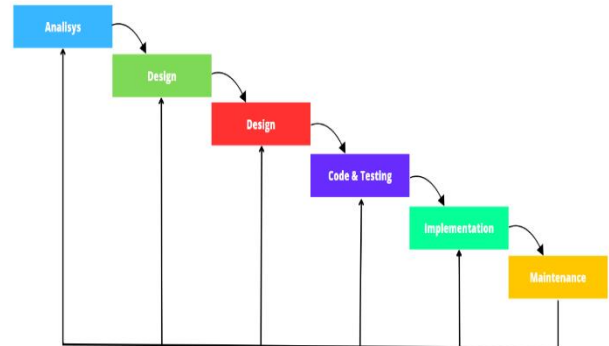

Fig: 2 Waterfall Methods

1.3 Data Collection Methods

1.3.1 Studi Literatur

The study was carried out by studying, researching and reviewing various literature from the library, which came from books, scientific journals, papers and other reading materials related to the research topic, as well as on the web related to the problem raised.

1.3.2 Observasi

Carrying out research and systematic review and recording of a research subject, by looking at what things are in accordance with the existing problem boundaries

1.3.3 Interviews

Interviews were conducted to collect accurate data by conducting questions and answers with related parties and experts in design.

1.4 Analysis dan Design

System design uses several tools such as flowcharts, use case diagrams and activity diagrams. Some design results are included in this article.
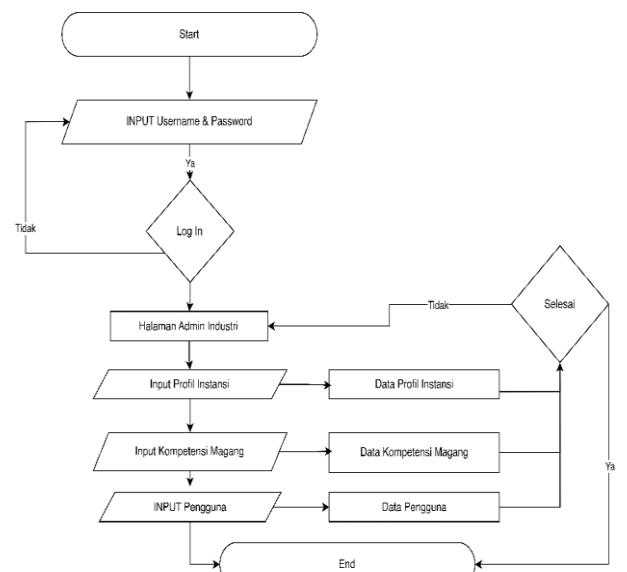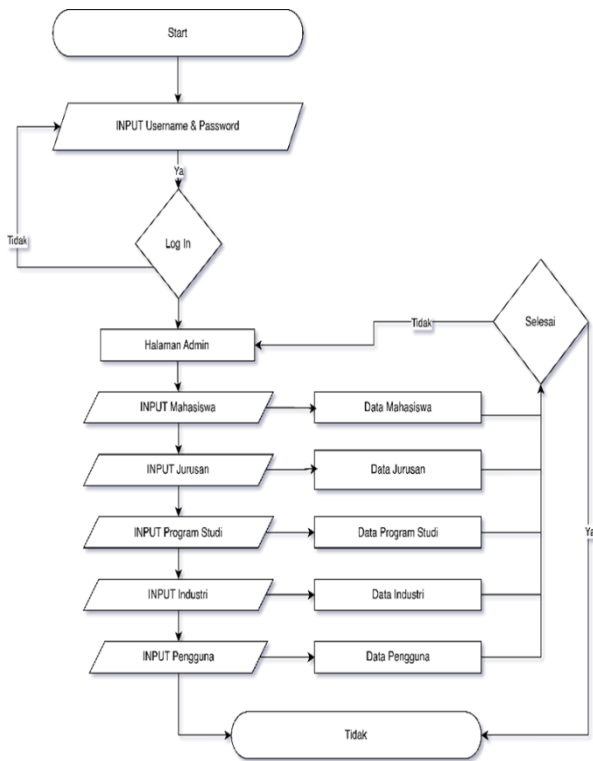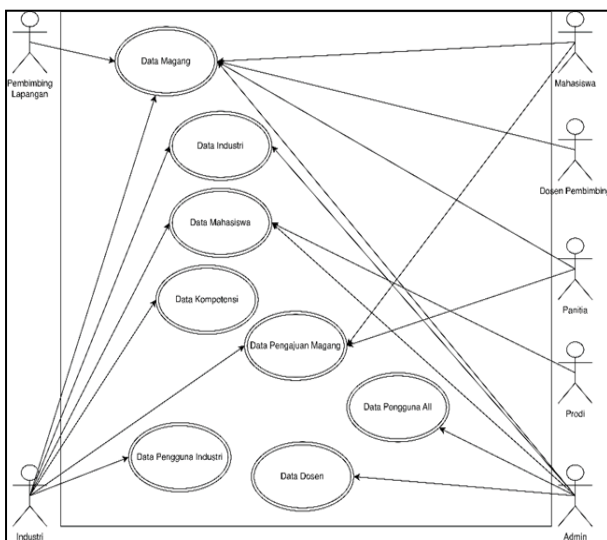

Fig: 3 Admin Industry Flowchart
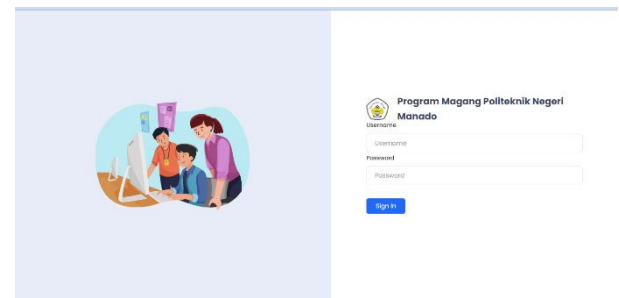
Fig: 4 Admin Flowchart

The flowchart above shows the flow of the internship registration process through the website that was built where the admin can create data from students, majors, study programs, industry and also users from the five sections above. This page was created to be able to manage all users.
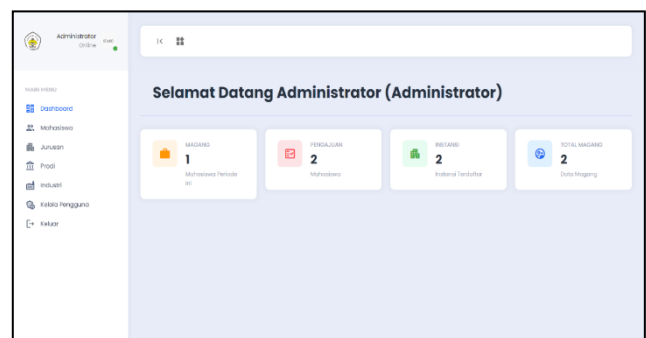

Fig: 5 Usecase

2. Implementation

2.1 Login Layout

Fig: 6 Login Layout

2.2 Admin Layout

Fig: 7 Admin Layout

The image above is a login page which requires all users who want to use this website to carry out the login process. On this administrator page there is also information on students who are doing internships, students who are applying for internships, the number of industries that are campus partners, and the total number of students who are currently undergoing the internship process..

2.3 Industrial Admin (Internship Place) Layout
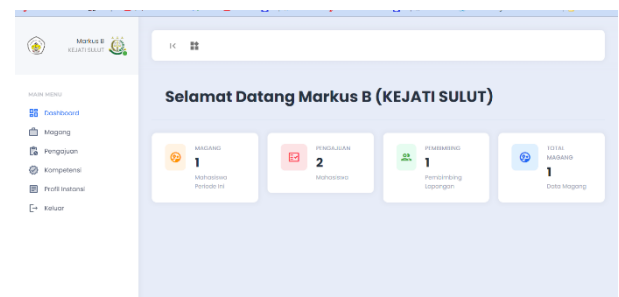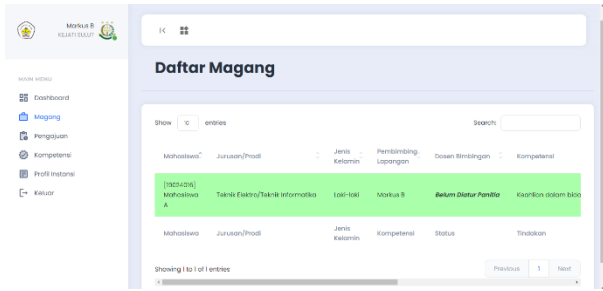

Fig: 8 Admin Industry Layout

Fig: 9 Admin Layout

Industry or fellow interns also get a feature to be able to see every student doing an internship at their agency, and then be able to accept every student who applies for an internship at an existing agency.

Industry can determine the competency to accept each student who wants to do an internship, then can update information data about the industry and can also arrange or add users to become field supervisors for students during the internship activity.

Fig: 10 Admin Layout

2.4 Head of Layout Study Program

The task of the Head of Study Program is only to monitor each student through activity reports which are input every time there is an assignment from industry so that each student can be monitored well and can see the results of their internship.
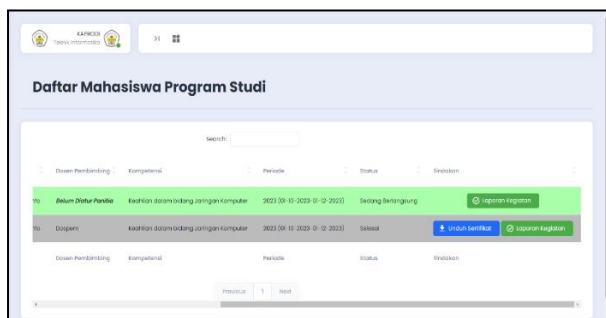

Fig: 11 Head of Layout Study Program
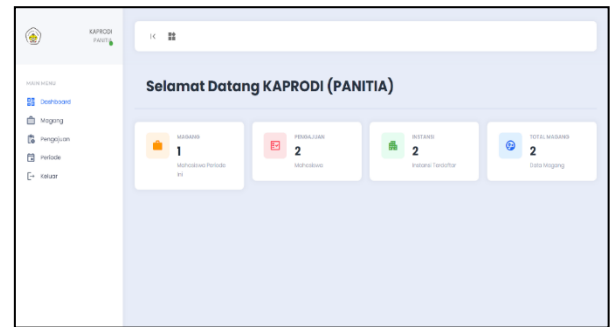
2.5 Committee Layout

Fig: 12 Panitia Layout

Tugas The duties and obligations of the committee are similar to those of admin but the scope is not within the entire existing system. Because the scope is only at the department level, the committee's duties include:

Assisting students in the internship registration process as well as monitoring student internship registration

Manage student internship periods

2.6 Supervisor Layout

In the Supervisory Lecturer section, the supervisory lecturer's job is only to monitor each student's activities during the activity, namely:
Supervise students with a list of student activity reports, which students will make every time an activity is carried out in Industry
Provide assessments on every student activitymahasiswa

Fig: 13 Supervisor Layout

2.7 Field Supervisor Layout

Fig: 14 Field Supervisor Layout

The roles of Field Supervisors and Supervising Lecturers are actually the same thing, the only difference is that the Supervising Lecturer is from the Academic side and the Field Supervisor is from the Industrial side.

- Supervise students with a list of student activity reports, which students will make every time an activity is carried out in Industry
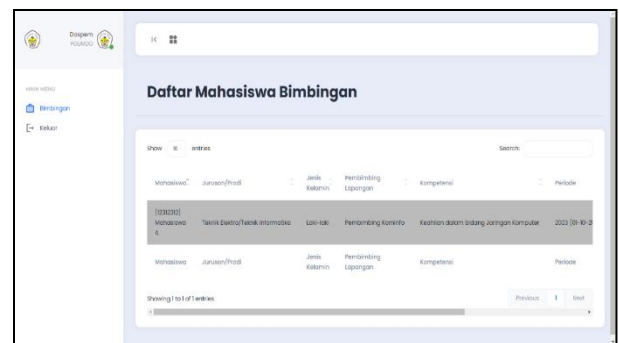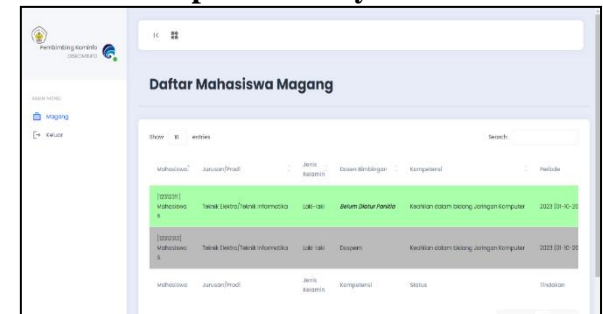- Provide assessments on every student activity carried out in industry

2.8 Students Layout

Students are the main target of this system because students are the main actors, the features on the student page include:

- A dashboard that has information on each page that makes it easier for students to get information about internships.
- On this page, students can also choose the desired internship location according to the competencies required by the industry
- Students are facilitated by the report activity feature which can be accessed via this website which makes it easier for the assessment and monitoring process from the delete party, because this report activity can be deleted and changed if there are errors.

Fig: 15 Student Dasboard

3. Test

Testing uses the Blackbox method which will test all the features in the application, whether they work as they should or not. The results of the test are displayed in the table below:

Table:1 Result of Testing

No	Testing	Expected results	Result
1	User Registration	Admin can add new users, by entering a form to set the user pass and user role	In accordance
2	User Login	Users who have registered can log in	In accordance
3	Internship Registration	Students can register in the desired industry or agency	In accordance
4	Selection of Prospective Internship Students	Industry can sort prospective interns according to their needs	In accordance
5	Internship Activity Report	Students can report the results of internship activities being carried out to the Supervisor and Field Supervisor	In accordance
6	Assessment of Internship Activities	Supervisors and Field Supervisors can directly assess the results of student work	in accordance
7	Completion of Internship Activities	Industry can directly report student internship results to the campus	Sesuai

4. CONCLUSION

In this research, an information system for managing internships for students majoring in Electrical Engineering at the Manado State Polytechnic has been designed using the Waterfall method in developing this information system, allowing the stages of analysis, design, implementation and testing of the system to be carried out in a structured manner. The results of the research show that the implementation of this system can help in overcoming several obstacles, especially students who are looking for a company can apply directly through the system and communicate through it, also the management of Merdeka Belajar based internships is more complete because it has the features needed. The test results were carried out based on scenarios with appropriate results.

5. ACKNOWLEDGMENT

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