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Infrastructure Facilities Information System (SISAPRAS) as a Monitoring of Educational Service Facilities

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A R T I C L E I N F O

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A B S T R A C T

The availability of supporting devices in the academic services of a university is inseparable from the location and placement and also the need for these devices. The need for operational equipment is a necessity in the running of business process activities at a university, therefore the types of operational devices and facilities provided are a benchmark for a university in providing the best service to the academic community in it. In a tertiary institution, the need for operational equipment plays an important role in carrying out the teaching and learning process, on the other hand, behind-the-scenes operations also play an active role in ensuring the learning and teaching process runs. The need for operational equipment for infrastructure and facilities will increase where if a university has a building or branch with a different location, with this condition new findings will appear, the types of operational goods proposed are not balanced between branches or the number of goods that will be served by each branch is not monitored. Therefore, an infrastructure information system was built to facilitate and monitor each branch of the university in managing the equipment and operational facilities and infrastructure at the branch of the college building.

1. Introduction

Higher education is in the form of an institution in a place of a group of people who have goals in carrying out education. To achieve success in food education activities, it needs to be supported by factors such as educators and educators, infrastructure, students, curriculum and support from environmental factors where if all the supporting factors are met and in harmony, then the success of an education will create excellent quality.

Facilities and infrastructure are one of the most important supporting factors for the success of education, because the existence of supporting equipment and facilities is the first step in starting the educational process itself. Therefore we need a policy and mechanism for maintaining infrastructure in order to maintain the continuity of educational activities [1]

The basic policies of Permenristekdikti Number 44 of 2015 and Permenristekdikti Number 50 of 2018 to Permendikbud Number 3 of 2020 all explain that facilities and infrastructure are a national standard as well as a minimum standard for the success of higher education. This is a demand for universities to continue to maintain and improve services and infrastructure in their environment. Constraints that arise are related to the lack of maintenance or lack of attention to the infrastructure owned resulting in damage to facilities and obsolete equipment that should have been scheduled for repair or renovation of a facility and infrastructure, not to mention the discovery of portable devices that are easily damaged until lost makes a disturbance. education service itself.

Conducting data recapitulation conventionally or manually is not sufficient in maintaining existing facilities and infrastructure, a reminder system and mechanism is needed or a reminder that the device needs

rejuvenation and maintenance. Building a flexible and efficient information system makes the form of infrastructure information data that is stored properly preserved and more effective in maintaining a facility.

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Seeing the benefits of implementing information systems for facilities and infrastructure in maintaining higher education quality standards and as a supporting factor that creates the quality of a college, the authors implement an information system for infrastructure (sisapras) as a monitoring of college service facilities so that it is expected to be able to relieve, be controlled and manage. quality assurance process in a university [2].

The purposes and objectives of writing are:

a. Designing information systems to accommodate higher education facilities and infrastructure.
b. Monitor and serve as an early warning system for a facility that needs to be renovated or given maintenance.
c. Support in making a decision in planning for the future improvement of infrastructure facilities at universities.

2. Literature Review

In Permenristekdikti Number 44 of 2015, Permenristekdikti Number 50 of 2018 and Permendikbud Number 3 of 2020 are stated regarding the national higher education standard (SNPT) which is outlined in the implementation of work related to the tridarma of higher education and its supporters [3].

Facilities and infrastructure are one of the many elements that drive the success of educational programs. In teaching and learning activities, accommodation is needed in the form of educational facilities and infrastructure, which is a standard that must be met and improved continuously along with the development of science and technology according to [4].

In the management and implementation of facilities and infrastructure at schools, there is a need for standardization that refers to government regulations and is integrated with a school-based management system according to [5].

In order to get the additional inventory required, several efforts are needed, first is submitting an entire inventory of all deficit instruments, then drafting these needs at certain time intervals (for example: one year or one period) of teaching activities, then aligning the school's budget. with the needs that have been compiled beforehand and the last is filtering the items that are priority based on the urgency of these items according to [6].

In the university environment there needs to be an expansion of the quality assurance information system, this must be completed so that the process of implementing the quality assurance system in a university can be carried out properly. Good or bad quality assurance information systems depend on the readiness of an accurate database and availability in every decision support. according to [7].

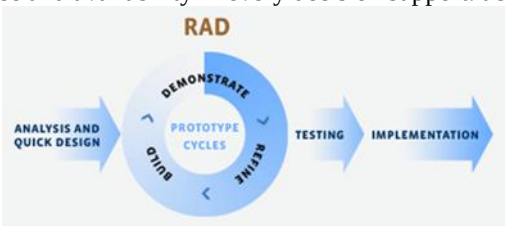

Fig 1. The RAD method

Rapid Application Development (RAD) is a system improvement technique which includes software improvement techniques using object-based methods. RAD has the goal of trying to meet the demands of a business that is constantly changing rapidly by cutting time in the life cycle of developing information systems that are built using traditional methods. According to [8].

For a relatively short implementation time, the Rapid Application Development Software Development method is a very appropriate solution, because this method is incremental [9].

ICT design, determination of leadership and commitment, expansion of ICTs, synergized operations, and ensuring constant maintenance are basic principles that must be met to realize National ICT Governance [10].

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3. Methods

The author uses two research techniques that are used to simplify the creation and collection of data intended for this research, the techniques are as follows :

3.1. Data collection technique

In order to collect data for research, the authors make the following efforts:

a. Observation
The author's observations were made by conducting direct observations of the higher education quality assurance auditor unit which is the object of research.

b. Interview
interviews are carried out by meeting directly with representatives of the quality assurance unit as executor, this is done in order to collect accurate data and information and guarantee its credibility.

c. Literature review
In order to strengthen the objectivity of the research, the researcher collected data through references related to the quality of quality assurance and how to build a relevant information system using the RAD approach.

3.2. System Development Model

a. The methodology that is implemented in system development is by using the RAD technique. Where there are three phases in RAD (Kendall & Kendall, 2011), namely:

b. Requirement Planning, in this initial phase we need to know what the system needs are by identifying needs, system limitations, problems and also solving these problems.

c. Design Workshop, at this stage the author uses the Unified Modeling Language (UML) tools. These tools are used to identify problem solutions and choose the best problem solving, then prepare a business process design and programming design for the data that has been obtained and modeled in the information system architecture.

d. Implentation, the last phase is implementing the data into a form that is understandable by a machine (coding) then presenting the system into an interface that is understandable to humans so that it can be operated optimally.

4. Results and Discussion

Website is a medium that is used to display digital information, where the information it displays can be in the form of text, images, sound or video. To build a website, tools such as Notepad ++ or other applications are needed. In order for the information to be conveyed to be enjoyed by a wide audience, efforts are required to upload the information (content) to the hosting service provider.

4.1. Business Actor

Business actors are actors in information systems that are closely related to business interactions. Business actors are described in the form of people, in general, business actors are grouped into three, namely:

In this website generically contains 3 business actors, namely:

a. Visitors, namely people who want to get information by visiting website pages.

b. buyers, namely people who make purchases through the website.

c. Admin, namely the person in charge of adding, deleting, changing data and controlling the state of the website and simultaneously updating the information on the website.

4.2. Business Use Case

Business Use Cases are used to show the functionality provided by an organization in totality and are used intensively to unify the context of the system and create guidelines for making use cases. the activities described by the Business Use Case are:

a. Login. This activity is carried out by the admin who has been recorded to enter the management room.

b. Input Output Transaction. The activity of adding or deleting an archive is carried out by the manager.

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4.3. Business Object Model

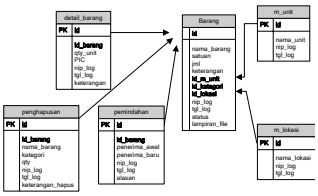

Fig 2. Business Object Model

The picture above is a detailed description of a SISAPRAS use case that identifies the processes and correlations that occur in each process.

4.4. Use Case

Use cases are descriptions of functions from a user perspective system. Use cases consist of several objects, including:

Actor : Admin, visitor, management

use case : View web content, carry out purchase transactions, change and add data

Fig 3. Use Case

4.5. Statechart Diagram

Statechart diagram is a description of the state of an object that changes due to the influence of activities that come from internal and external

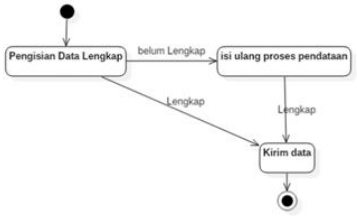

Fig 4. Statechart diagram of data entry sisapras

4.6. Activity Diagram

Activity Diagram is a vertical depiction of a series of processes occurring in a system

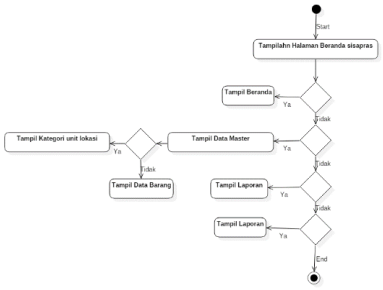

Fig 5. Activity diagram of the sisapras

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4.7. Deployment Diagram

A system consists of several nodes, where the node is a representation of computer resources which is represented as a cube. between one node and another has a connecting line which indicates a correlation between nodes. Deployment diagrams are used to visualize the processes that take place at a node and the correlation that occurs between one node and another.

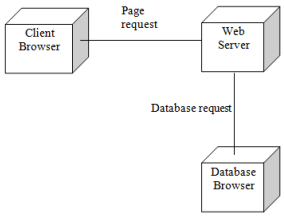

Fig 6. Deployment Diagram

4.8. Program design

The following is a display that is embodied in the formation of the sisapras application:

a. Login page

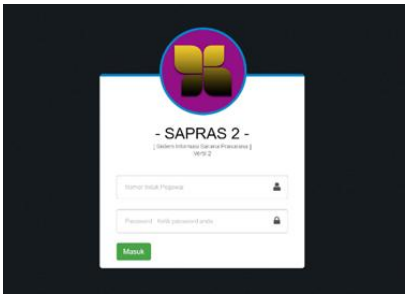

Fig 7. Sisapras Login Interface

b. Home page

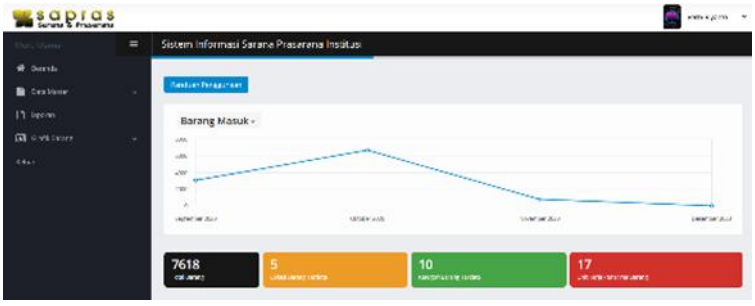

Fig 8. Sisapras Home Interface

c. Reference Master Pages

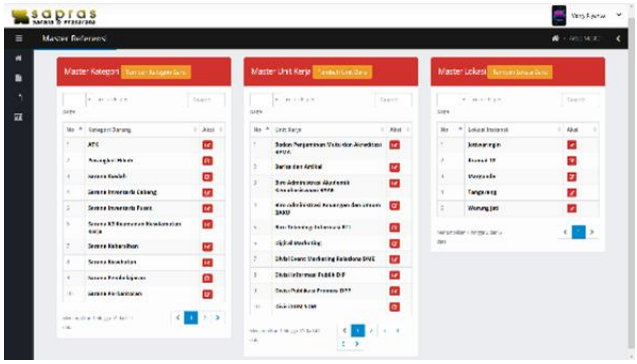

Fig 9. Sisapras Master Interface

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d. Report page

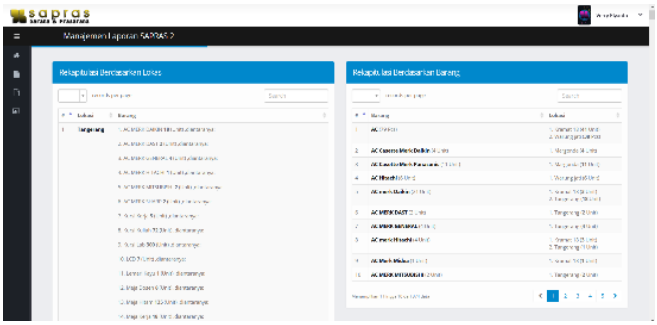

Fig 10. Sisapras Report Interface

e. Item Graphics page

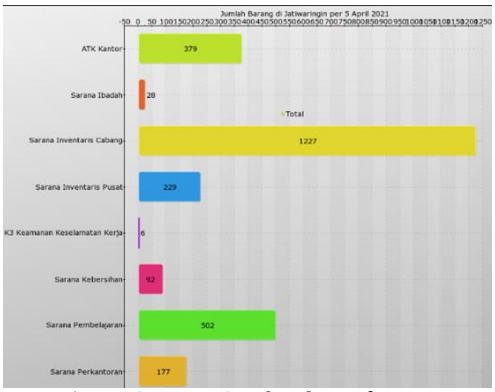

Fig 11. Sisapras Graphical Interface

5. Conclusion

From the explanation that has been submitted by the author, it can be concluded that:

a. The RAD method greatly contributes to realizing a web base application, where each system development and implementation stage is structured and neat, so that programmers can work more effectively and efficiently.
b. The Infrastructure Information System (SISAPRAS) has several advantages, as follows:
   1) Can be visited from anywhere and anytime via the internet channel.
   2) Increased efficiency and effectiveness of data management processes and data monitoring can be presented in real time
c. Quantity data filing systems that have used applications in data recapitulation so that there are very, very small errors that appear in data processing
d. Creating goods reports made easy.
e. PHP can be made a priority in realizing web-based applications because of its many advantages and conveniences.
f. MySQL has easy integration into various web applications (especially PHP) so it is very helpful in developing sales information systems.
g. there is an early warning system when a device or facility can be given maintenance or rejuvenation.

6. References

[1] Prastyawan, "MANAJEMEN SARANA DAN PRASARANA PENDIDIKAN Prastyawan 1," *AL HIKMAHJurnal Stud. Keislam.*, vol. 6, 2016.
[2] J. A. Prestysa, "STANDARDISASI SARANA DAN PRASARANA DALAM PENGEMBANGAN SEKOLAH DI SDIT MUHAMMADIYAH AL-KAUTSAR," pp. 1–27, 2017, [Online]. Available: https://ci.nii.ac.jp/naid/40021243259/.
[3] Permenristek, "Permenristekdikti Nomor 50 Tahun 2018 tentang Standar Nasional Pendidikan Tinggi," no. 0411,

2018, pp. 586201–586202.
[4] Awaludin and E. Saputra, "Sistem informasi manajemen sarana prasarana Sekolah (Studi Kasus : Dinas Pendidikan dan Kebudayaan Kabupaten Siak)," *J. Rekayasa dan Manaj. Sist. Inf.*, vol. 2, no. 12, pp. 6–13, 2016.
[5] N. Fatmawati, A. Mappincara, and S. Habibah, "Pemanfaatan Dan Pemeliharaan Sarana Dan Prasarana Pendidikan," *PEMBELAJAR J. Ilmu Pendidikan, Keguruan, dan Pembelajaran*, vol. 3, no. 2, pp. 115–121, 2019.
[6] Trisnawati, C. Z. Harun, and N. Usman, "Manajemen Sarana Dan Prasarana Pendidikan Dalam Meningkatkan Mutu Pembelajaran Di Sd Negeri Lamteubee Aceh Besar," *J. Adm. Pendidik. Progr. Pascasarj. Unsyiah*, vol. 7, no. 1, pp. 62–69, 2017.
[7] Y. Nuraeni, "Perancangan Sistem Informasi Penjamian Mutu Perguruan Tinggi Bidang Sumber Daya Manusia," *J. Informations Syst.*, vol. 6, no. 1, pp. 32–43, 2010.
[8] K. E. Kendall and J. E. Kendall, *SYSTEMS Analysis and Design*. 2011.
[9] O. Irnawati and G. B. A. Listianto, "Metode Rapid Application Development (RAD) pada Perancangan Website Inventory PT. SARANA ABADI MAKMUR BERSAMA (S.A.M.B) JAKARTA," *Evolusi J. Sains dan Manaj.*, vol. 6, no. 2, pp. 12–18, 2018, doi: 10.31294/evolusi.v6i2.4414.
[10] Fatmawati, R. Irviani, E. S. Rachman, I. Putu, I. P. A. A. Sinthiya, and M. Kristina, "Tata Kelola Teknologi Informasi Sebagai Implementasi E-Government Pada Kabupaten Pemekaran Untuk Meningkatkan Potensi Daerah," *J. Teknol. Informasi, Proseding Senapati*, vol. 2015, no. Senapati, pp. 249–257, 2016.

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