

DEVELOPMENT OF WEB-BASED REPOSITORY SYSTEM FOR YOUTH SCIENCE CLUB (YSC) IN SENIOR HIGH SCHOOL X

Aishaa Lula¹, Rosalina²
Faculty of Computer Science
President University
Cikarang, Bekasi, 17550
aishaalula@gmail.com

Abstract—Youth Science Club (YSC) also known as *Kelompok Ilmiah Remaja (KIR)* is a youth club doing a series of research activities that produced scientific research work. YSC in Senior High School X is one of the prestigious extracurricular that always produce scientific paperwork every year. More or less 10 scientific papers work in a year produced. Total 90 scientific papers work collections currently they had since 2014. The number of scientific paper works will be increasing since this club is currently in great demand by students and has a good record of achievements. The result of scientific paper works YSC in SHS X mostly printed, then store at chemistry laboratory and library. Meanwhile for the digital files, only the club adviser and YSC members (who created scientific paper works) save the digital files on their respective devices. So, the digital files scattered across various devices make storing and finding files a tough process. Based on that problem, this thesis intends to solve the problem by developing a web-based repository system to help sustain the digital asset of YSC in SHS X.

Keywords- Web-Based, Repository System

I. INTRODUCTION

Youth Science Club (YSC) is a youth club doing a series of research activities that produced scientific research work [1]. YSC triggered students' curiosity to natural phenomena, teacher who has a role as YSC club advisor could have a better understanding about their student characters and has more added value for the school itself [2]. Based on the explanation before, we realized the existence of YSC had an important role at school. No wonder if schools fully support their YSC activities, they could have produced many scientific works and got a prize from a prestigious

competition. YSC in Senior High School (SHS) X has an important role to be students' place for sharing, reviewing, and get deeper knowledge on how to conduct research properly and create scientific paper works.

The scope of this thesis is to provide a repository system with several features such as manage files, upload files, view files, search files, download files, and reports. This repository program is only designed to store competition file of scientific paper works.

The limitation of this project is the repository system only can be accessed by the club member (private use) due to user preference and not yet prevention from cyber-attack.

The RAD Model will be used for this thesis methodology because the RAD Model suitable for short produce plans [7] and able to meet the needs of users who still do not completely understand what the technology needs are [8]. There are three phases of RAD that include both analysts and user in evaluation, design, and implementation [6]:

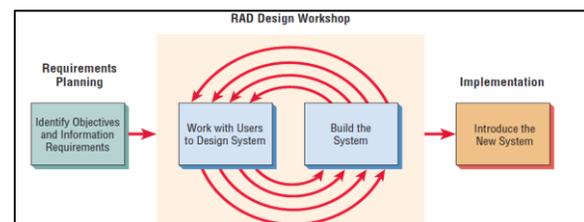


Figure 1. RAD Model Phases

1. Requirements Planning Phase

In this requirement planning phase, the analysts and users going to have intense involvement to identify the objectives of the system or applications and identify information requirements from the objectives. The aim of this phase is to solving the business problems and the emphasis will remain on the accomplishment of company goals.

2. RAD Design Workshop

This phase is design and-fixing. In this step, the user reacts to the system design that has been designed, if some do not fit the system analyst and programmer develop the system in compliance with the user's response.

3. Implementation Phase

If the system design phase of the workshop has been approved, the system will be implemented at this point to all users who will use the system later.

II. LITERATURE REVIEW

This section's aim is to illustrate the principles and approaches that would be used in this thesis

1. Youth Science Club

Youth Science Club (YSC) also known as *Kelompok Ilmiah Remaja (KIR)* is a Youth club doing a series of research activities which produced a scientific research work. Youth Science Club (YSC) is a group of students from the middle-high school, senior high school, boarding school, or equivalent who had age 12-21 years old. YSC is an open organization for students who had the same interest in science and technology. YSC in several schools planned only for gaining knowledge, in another school, YSC oriented besides gaining knowledge but also building character and join prestigious research competitions [1].

Youth Science Club (YSC) in schools have benefits for students, teachers, and schools. Janu stated in general the benefits of joining YSC could be grouped into points, coins, join, and tour. Points here mean a score or value that could help students' academics journey become easier, for example, help students to apply to the high-level educational school through scholarship. Then, coins refer to the prestigious prizes will receive if won the competitions. The term join is used in this statement to refer to the amount of networking that is gained when participating in the competition or during YSC activities itself. The last benefits stated by Janu is the tour, tour here means that by joining various YSC activities (including competition) make students might

visit any interesting place to learn more besides the school [9].

2. Institutional Repository (IR)

Etymologically, a repository may be described as a place to be store. In the meantime, institutional means those owned by institutions such as universities or other institutions [12]. One of the most cited definitions of Institutional Repository (IR) was stated by Clifford A. Lynch. According to Lynch [13], Institutional Repository (IR) is a collection of services provided by the university to members of its society for the management and distribution of digital materials produced by the institution and its community members.

The establishment of institutional repositories in Indonesia especially for university libraries has begun to be encouraged. The presence of institutional archives is rather strategic since it is not just the preservation of research works, but also the means of scientific contact for internal and external academics [14].

III. IMPLEMENTATION AND RESULT

This section will explain the system development process and show the result of the user interface.

1. System Analysis

This section aims to explain the analysis of the program functions and behaviours based on the prescribed requirements in order to identify its goals and purpose.

1.1 System Overview

Repository for YSC in Senior High School X designed as the digital main storage for storing scientific paper works files, especially the research that has been joined a scientific paper competition. This application will collect all scientific paper works into one main storage that previously scattered across various places and devices. The repository consists of 3 type of user such as admin, teacher and student. All user can easily access this application via the internet using a web-browser because this is as a web-based repository application.

1.2 Use Case Diagram

Use case diagram might be seen as a straightforward explanation of what a user expects from a system during the interaction [19]. The illustration in figure 3.4.1 describe the interaction happened on the repository. There are

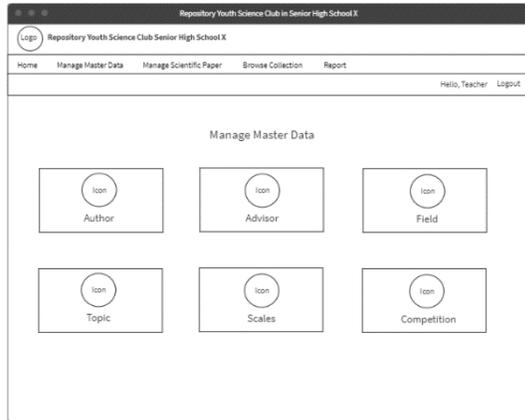


Figure 7 Teacher – Manage Master Data

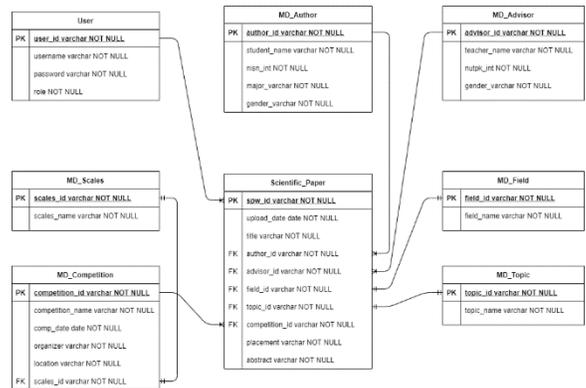


Figure 10 Entity Relationship Diagram

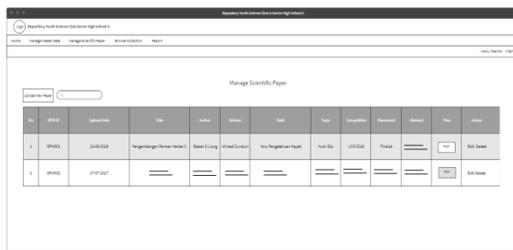


Figure 8 Teacher – Manage Scientific Paper Works



Figure 9 Teacher - Report

VI. EVALUATION

In the evaluation section, the finished program is tested again from start to finish and all the features that are tested, to check whether the program still has errors or has bugs.

Table 1 Evaluation

| Scenario | Expected Result |
|-----------------------|-------------------------|
| Admin | |
| Add User | Data successfully added |
| Add Scientific Paper | Data successfully added |
| Teacher | |
| Add Scientific Paper | Data successfully added |
| Student | |
| View Scientific Paper | Data successfully added |

V. CONCLUSION

Several insights can be drawn from the Development Web-Based Repository for Youth Science Club in Senior High School X based on the preceding chapters' descriptions and discussions:

- This repository helps the user to collect all digital files of the scientific paper works so they can be stored in one main storage place. Not scattered on multiple devices anymore like before.

2.2 Entity Relationship Diagram

Entity Relationship Diagram or commonly called as ERD is a database modeling design that shows the relationships between each entity in the system. In the Figure 15 is the illustration of the ERD that implemented to develop this system.

-This repository helps the user to maintain their digital asset and give insight about total collection file scientific they had.

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