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UTHM PAGOH RESIDENTIAL COLLEGE ASSET DECLARATION SYSTEM 2.0

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Abstract: *The return and acceptance form of the residential college assets at UTHM still uses the traditional method of using paper for each student in each new semester. This method is seen as causing a waste of time, financial and not user-friendly i.e. students. Before this semester, this study was done by several final year students of diploma in 2022 who received feedback and comments from the tester for the improvement of the system. This project focuses on the Pagoh Residential College and the students who live in the area. The research method used for the development of this system is a qualitative method, which is to interview the residential college to obtain information and also refer to feedback and comments from the current system. The system was developed based on the Agile model which involves six phases; analysis, System design, implementation, testing, deployment and maintenance using an Apache server, MySQL database, Brackets as the IDE, and HTML and PHP as programming languages. In the future, residential colleges and students will use this asset declaration system to reduce all problems for them from wasting time, money and energy. Improvements and additions to this project will be made if there are any necessary deficiencies.*

Keywords*: Asset system, Agile model, qualitative method*

1. Introduction

The Pagoh Residence College has used a physical form approach to track the state of assets in students' houses. For the comfort of the students, this procedure makes sure that lost, damaged, or incomplete assets can be reported and replaced. The form has two sections, one for the beginning of the semester and one for the end. It is organized into five sections: office usage, student information, reminder/action information, asset information, and asset received/returned declaration. In addition to their name, matric number, semester, session, phone number, and key number, students also give these

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details. Additionally, they describe the state of items like study tables, beds, mattresses, wardrobes, and shelves.

Students get the form from the college office at the beginning of the semester, complete the asset received declaration part, and return the form. The form is verified and signed by the staff. The asset return declaration part is also completed by students at the end of the semester and is then examined and verified by staff. The procedure permits the replacement of any damaged or missing assets and assures accountability.

1.1 Problem Statement

There are many issues with the existing asset flow of the process. Lack of time for students to visit the KKP office to pick up or return the asset declaration form is one of the issues that arise. Students waste their time and effort filling out the physical declaration form and sending it to the office to submit a piece of paper[1]. The second issue is the need to print thousands of copies of the paper to be given to students, which wastes paper, ink, electricity, and staff manpower. Staff have a hard time finding and sorting out asset declaration forms, which can be tedious and time-consuming.

1.2 Objectives and Target Scope

The goal is to develop an effective and user-friendly UTHM Pagoh Residential College Asset Declaration System 2.0 on the web. The Apache server, MySQL database, Visual Studio Code, HTML, PHP, and JavaScript will all be used in the system's development. To improve usability, the system will have a streamlined user interface and process. A MySQL database will be used to store and manage the data. To make sure the system meets user needs and offers a seamless experience, usability testing will be carried out. Functionality, effectiveness, and user happiness will be evaluated during the testing phase. The system has four target users: UTHM Pagoh students as declarers, supervisors as validators, PPAS as verifiers, and the system administrator as the boss. It was developed specifically for the residential college at UTHM Pagoh. The system is compatible with all browsers operating on Windows-based machines.

2. Literature Review

The creation of a website for an asset management system with the aim of improving user experience and reducing reliance on conventional means. Website design is important because it needs to strike a balance between several factors, including colour, flow, and purpose, to effectively engage the target audience. The asset declaration system, which focuses on residential colleges and students, is an illustration of the trend towards digitization and the importance of contemporary technology. To avoid user boredom and ensure market competitiveness, the website for asset system design should be modern, user-friendly and be like a formal system because it is involving some organizations such as Pagoh Residential College. It should include components of web design, colours or themes, User Interface (UI) and User Experience (UX) for developing the website[2]. There are several systems that have been developed that have functions and purposes that are almost the same as the system that is being done by referring to **Table 1** which is a review of a similar system.

Table 1: Differences between the existing projects

System	Purpose	Advantages	Disadvantages
UTHM Student's Event Management System[3]	Controls and manages the data associated with the many university events in a proper manner.	- Well-organized content for each page. - Simple and easy to understand -Big impact system for the university.	- Report or summary page not stated in page. - Interface is not interacted with the user for using it. - Do not have a dashboard page
Decision Support System: UTHM Pagoh Residential College Online Registration and Complaint[4]	Enable students to register their rooms, lodge problems, and get information about residential college events online.	- Content for each page is well-organized - Have a forgot password for login. - Interface is nice and minimalised colour used.	- Using a common methodology - The colour of the font is not suitable
Designing & Developing e-College (e-CRS) as a Web Based Application Tool)[5]	Calculate the number of students to make it easier for them to apply online. Administrative workers can effectively trace student records, making them easier to use in the future.	- Easy to understand the content. - Have complete functionality for this system	- Interface is not suitable for the educational system. - Too simple for each button

2.1 Observation of an existing system

The developer upgraded the existing system in order to establish a new system that is more user-friendly and efficient. User research is a vital element in this process since it assists designers in understanding consumers' needs, goals, and preferences[6]. The previous system used a simple colour scheme, but it was unappealing due to poor colour selection, particularly in the navbar[7]. Based on **Figure 1**, to capture the attention of users and build an appealing user interface, developers must exercise caution during the design phase.

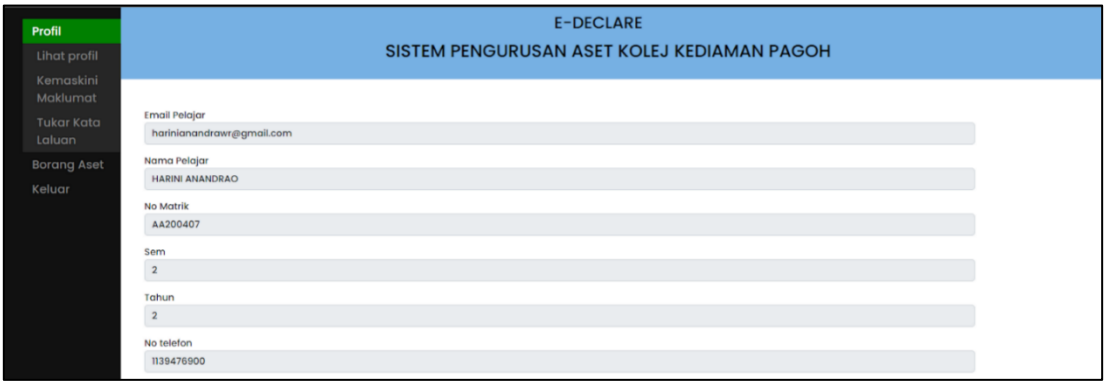

Figure 1: Student profile page

Jumlah pelajar yang mendaftar kolej kediaman: 1
Bilangan pelajar menghantar borang penerimaan aset: 1
Borang penerimaan aset dalam proses semakan dan pengesahan : 0
Bilangan pelajar yang tidak menghantar borang penerimaan aset: 0

Rumusan penerimaan

Aset	Patut ada	Ada (Baik)	Ada (Kurang baik)	Tiada
Tilam	1	1	0	0
Katil	1	1	0	0
Almari	1	1	0	0
Kerusi	1	1	0	0
Meja bersama rak	1	1	0	0

Figure 2: Report page for asset receipt form

The system's design should not only be functional but also suit the needs and expectations of the users. The old system had flaws, particularly in the implementation of interfaces for reports and overall data based on , requiring modifications in the new system to fulfil user expectations. Functionality is critical in system development, and interfaces should be straightforward, intuitive, and give users clear direction and feedback[8]. The previous approach was inefficient in terms of button functionality, such as not categorising instructions with a dropdown button based on Figure 1.

3. Methodology

Agile methodology focuses on iterative development and appropriate planning to develop the best system through collaborative customer feedback.

3.1 Project Limitation

Our project aimed to enhance the existing system at Pagoh Residential College by implementing a digital filing system for managing asset declaration forms. The transition from physical to online forms eliminated risks and challenges faced by students, such as loss, damage, and limited submission time. The administrative department benefited from easy access to student information through computer-based systems, reducing the need for manual searches through paper records[9]. The streamlined system simplified the process by requiring only the student's name and matriculation number for information retrieval. Overall, the project successfully improved the efficiency and effectiveness of the filing system at Pagoh Residential College.

3.2 Planning

In this phase, we were given 14 weeks to complete this project. We upgraded the first system to a more efficient system and named our project Pagoh Residential College's Asset Declaration system to version 2.0. Our vision is to incorporate user-requested features and improvements to improve system efficiency. In addition to taking feedback from users, we also always deal with the Pagoh residential college to ask what they want us to add to this system. By collecting their information data, we aim to deliver an upgraded system that addresses previous weaknesses and meets user expectations.

3.3 Requirement Analysis

During the requirements analysis phase, our project team collaborates closely with stakeholders to gather and document project requirements. We leverage insights from previous projects to enhance the system's efficiency and appeal, incorporating various features based on user feedback. We conduct interviews with the administrative department (KKP) to identify missing elements and gather ideas through surveys on the website. Additionally, we refer to research conducted by past students to develop a more practical system and incorporate user-friendly features. This phase allows us to evaluate and prioritize all necessary features and functions, ensuring ease of use for the end users.

3.4 Design

Our team focuses on creating a detailed blueprint plan for the product or solution by sketching the UI/UX and design using Canva and Figma. We convert the requirements into a system architecture and develop the user interface, drawing inspiration from past projects and incorporating user feedback to add new features.

3.5 Implementation

To ensure the success of our project, we employed a combination of five programming languages: HTML, CSS, PHP, SQL, and JavaScript. HTML was used for website structure, CSS for styling, PHP for dynamic web development, SQL for database interaction, and JavaScript for interactivity. Visual Studio Code served as our Integrated Development Environment (IDE), providing comprehensive coding features and plugins. We utilized XAMPP as a local web server for testing and debugging, and MySQL as the database management system for efficient data storage and retrieval.

3.6 Testing

The testing phase is the most important phase of the development process, as it determines what needs to be added, deleted, and what does not need to be in the system. Agile is a methodology that performs activities repeatedly to enable continuous improvement and adaptation[10]. The team has met and tested their program with important people such as KKP, FYP supervisors, and friends to ask for opinions and improvements. They have recorded all the feedback and corrected it in their system. By combining tests throughout the development process, the team can identify early issues, collect feedback, and improve their product continuously.

3.7 Review and Feedback

The review and feedback phase in agile methodology is essential for meeting stakeholder expectations and aligning with project goals. Pagoh Residential College has implemented a feedback form and conducted interviews to understand system usage and identify areas for improvement. This iterative process is essential for continuous system enhancement.

4. Results and Discussion

5. Conclusion

Acknowledgement

The study recognizes the encouragement and motivation provided by colleagues, which resulted in the successful completion of the UTHM Pagoh Residential College Asset Declaration System 2.0. Pagoh Colleagues' suggestions were much appreciated. Professionals' participation and evaluation at Pagoh Residential College were recognized, as was the opportunity provided by the Centre for Diploma Studies at the University Tun Hussein Onn Malaysia. The residential college hopes to use the asset declaration system for future convenience.

Appendix A (Optional)

Any extra data, equations or information that is beneficial to the discussion of the paper should be included here. More appendices can be added as deemed necessary.

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