e-UIDM System (EMS) for Polytechnic Community

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Abstract:

e-UIDM System (EMS) serves as a comprehensive solution addressing the challenges faced by the Unit for Instructional Development & Multimedia (UIDM), Politeknik Ungku Omar (PUO) in managing multimedia requests. The primary objectives of the EMS are; to notify user on their request status through email and notify UIDM staff (PIC) on their assigned task; to develop a system that can make MAROs work easier by identifying work weight of PICs before assigning them and to create a service/equipment requesting system that can make head of unit and Multimedia and Resources Officer (MARO) view the current status of the request. By enhancing the multimedia request process, it not only streamlines operations but also endeavors to create an organized, transparent, and responsive workflow for the staff at Politeknik Ungku Omar.

Key words: UIDM, PUO, system, web-based, services.

Introduction

As technology continues to advance, the demand for multimedia resources within educational institutions like PUO has grown exponentially (Abdulrahaman et al., 2020). With this in mind, came the idea to develop a user-friendly platform that empowers PUO's staffs to efficiently request and manage their multimedia services. Introducing the EMS for UIDM PUO. It's a best solution designed to streamline and simplify the process of requesting multimedia service. This system aims to enhance communication and efficiency by providing a web-based platform where users can submit, track their request status. It is also useful to the UIDM to manage requests, ensuring timely delivery of multimedia service for various projects. Together, let's elevate the requesting experience for Politeknik Ungku Omar's community and pave the way for seamless multimedia resource management.

Research Methodology

This project adopts Agile methodology (Bergmann & Karwowski, 2019) and adapt it in the steps taken to complete it (Figure 1). Here the explanation of the steps:
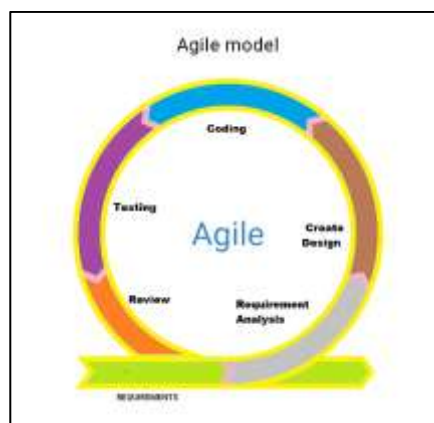

Figure 1: Agile Methodology

i. Requirements - Engage with UIDM team to understand their specific needs and expectations. Identify the lack in the current service request system and understand their expectations

ii. Design - Design the user interface with a focus on user-friendliness and a seamless requesting system data recording and incorporate feedback from UIDM and potential users, refining the design to align with their preferences.

iii. Develop - Develop web-based system with functionalities for each level user (main user, MARO, KU, PIC) Create a real-time data recording for MARO to assign tasks.

iv. Test - Conduct thorough testing of the system on its functionality, ensuring accurate data transferring. Test the user interface for ease of use and effectiveness in real-time environment.

v. Review - Deploy the completed system for the use of UIDM in real-time.

Table 1 shows the differentiation among the existing system which discovered through literature review. From the features, EMS will develop to increase the features that already offered by other system previously.

Table 1: Comparison study

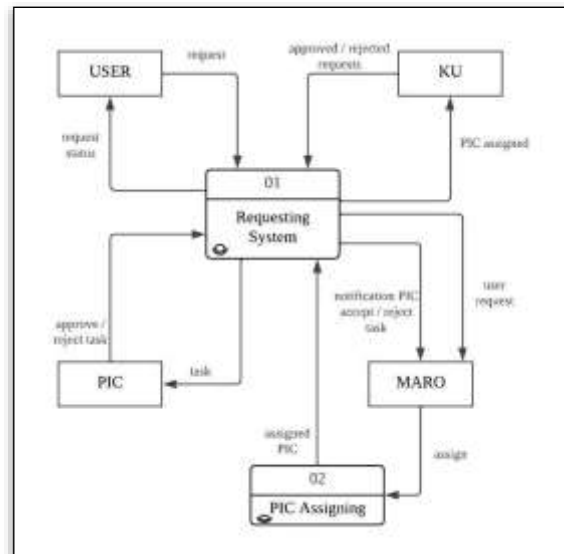| Web system/ Features	Borang permohonan perkhidmatan UIDM (googleForm)	Web based solution for sharing and borrowing used books (Kim, 2019)	Web based application for borrowing inventory items (Muchaendepi et al., 2019)	Hospital emergency system via mobile-based requesting services (Al-khafajiy et al., 2019)	Room borrowing request information system website based (Putri Suhara et al., 2024)
User registration and authentication		√	√		√
Service equipment room inventory listing	√	√	√	√	√
Requesting management	√		√	√	√
Calendar view					√
User Profile			√	√	√
Admin Panel				√	√
Role-based access control				√	√
Payment Integration			√		√
Notification		√	√	√	√
Feedback and review		√		√	√
Status Tracking				√	√
Security and Privacy		√	√	√	√
Verification and authentication by head of unit	√		√		
Search and filter			√	√	
Offline access				√	
GPS location tracking				√	

Figure 2: Logical Design for EMS – Level 0

Figure 2 shows the flow of EMS in general. Functional Requirements for EMS:

i.   User Registration and Authentication:
- The system allows users (lecturers, unit heads, MAROs, and secretaries) to register and authenticate securely.
- Each user should have a unique username and password for accessing the system.

ii. Request Submission:
- Provide a form for staff members to submit multimedia service requests.
- The form should include fields for specifying service type, date needed, location, description, and any additional requirements.

iii. Request Management:
- Unit heads should be able to review and approve/reject requests.
- MAROs should have access to a dashboard displaying pending requests for PIC assignments.

iv. Email Notifications:
- Automatically send email notifications to users upon request submission, approval and rejection.
- Notifications should include relevant details such as request status and details.

v.   Task Assignment:
- Allow MAROs to assign personnel (PICs) to approved requests.
- Enable assignment based on workload considerations and availability of personnel.

vi. Task Status Tracking:
- Provide a dashboard for MAROs and PICs to view the status of assigned tasks.
- Update task statuses (e.g., in-progress, completed).

vii. Workload Management:
- Display workload metrics for MAROs to monitor task distribution among personnel (PICs).
- Allow reassignment of tasks to balance workload as needed.

Analysis and Discussion

In order to evaluate the system (EMS), all the stakeholder (PIC, MARO, KU and user) will be given a testing form. From the testing, here the result which summarize the function in EMS:

i.   Streamlined Process: The new system streamlines the equipment borrowing process, making it more organized and efficient. By replacing Google Forms with a dedicated website, it ensures all requests are centralized and tracked systematically.

ii. Automated Notifications: Automated email notifications for approvals, rejections, and task assignments keep all stakeholders informed without manual follow-ups, reducing communication gaps and delays.

iii. User Authentication and Security: Implementing IC number and password login enhances security and ensures that only authorized staff can make requests. First-time login procedures with mandatory password change improve account security.

iv. Accountability and Tracking: Assigning specific roles to MAROs and unit heads introduces accountability. Each step of the process is logged, allowing for better tracking and management of requests.

v. Task Management: The system not only approves requests but also manages task assignments, ensuring the person in charge is notified and can accept or decline tasks, adding a layer of responsibility and clarity.

vi. Reduction of Manual Work: The automated workflow reduces the need for manual paperwork and follow-ups, making the process more efficient and less prone to human error.

vii. Efficiency Improvement: User-friendly interface that enables users to submit detailed multimedia requests efficiently, reducing the time and effort required to initiate and manage requests.

viii. Resource Optimization: Enable the PIC to prioritize and allocate resources effectively by providing insights into the volume and nature of requests, ensuring optimal use of creative resources and meeting project deadlines.

ix. Communication Enhancement: Facilitate seamless communication between users and MARO, PIC, and unit head by providing a platform for clarification, and updates to ensure the delivered multimedia aligns with project requirements.

As for analysis, the result of this testing supports the objectives of the system. All stakeholders agreed that each role is functioning and the system can perform very effective way.

Conclusion and Recommendation

The system's design reflects a commitment to improving communication, efficiency, and overall user experience within the institution (Kirichek, 2020). Embracing the future of multimedia request management, the EMS is tailored to meet the dynamic needs of UIDM, ushering in a new era of enhanced multimedia resource utilization. Furthermore, the introduction of accountability and traceability through the maintenance of detailed records for requests, approvals, and deliveries contributes to project management. This functionality provides valuable insights into resource usage patterns, facilitating better planning and resource allocation for PUO's future multimedia needs.

In summary, the EMS serves as a comprehensive solution addressing the challenges faced by the PUO multimedia unit in managing multimedia requests. By enhancing the multimedia request process, it not only streamlines operations but also endeavors to create an organized, transparent, and responsive workflow for the staff at Politeknik Ungku Omar. The system's design reflects a commitment to improving communication, efficiency, and overall user experience within the institution. Embracing the future of multimedia request management, the EMS is tailored to meet the dynamic needs of UIDM, ushering in a new era of enhanced multimedia resource utilization. Furthermore, the introduction of accountability and traceability through the maintenance of detailed records for requests, approvals, and deliveries contributes to project management. This functionality provides valuable insights into resource usage patterns, facilitating better planning and resource allocation for PUO's future multimedia needs.

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