AUDIOVISUAL EQUIPMENT LOAN AND MAINTENANCE MANAGEMENT SYSTEM

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ABSTRACT

This project develops a web-based Audiovisual Equipment Loan and Maintenance Management System to address delays and inconsistent record keeping in traditional equipment administration. The system centralizes loan/return transactions, real-time equipment status tracking, and maintenance reporting for the Faculty of Science, Chiang Mai University. Role-based access control is implemented with two user roles: faculty staff and administrators. Staff users record loan/return activities and maintenance issues, while administrators manage user accounts, permissions, and master equipment data. By consolidating equipment and maintenance information in a single platform, the system supports more efficient and accurate administrative operations and contributes to a streamlined digital management environment.

INTRODUCTION

Traditional manual management of shared audiovisual equipment can cause data errors, record loss, and difficulty in tracking equipment status. To address these issues, this project develops a web-based Audiovisual Equipment Loan and Maintenance Management System featuring role-based access control, real-time status tracking, and centralized maintenance reporting. The system streamlines loan/return workflows to reduce human error and improve operational efficiency.

TECHNOLOGY

React, CSS, Node.js, Express JS, MySQL, Sequelize, Visual Studio Code, docker

DESIGN

Core System Architecture

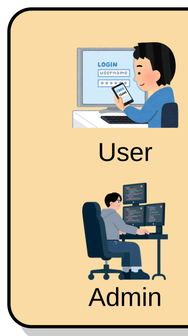
User Management
- **User :** Login via CMU Account
- **Admin:** Role & Permission Control

Equipment Management
- **User :** Browse & Check Availability
- **Admin:** Add, Edit & Update Status

Borrow & Return Process
- **User:** Submit Loan Requests
- **Admin:** Approve/Reject & Track Returns

Maintenance Reporting
- **User:** Report Damage & Evaluate Service
- **Admin:** Review, Update & Close Tickets

Reports & Statistics
- **User:** View Personal History
- **Admin:** Analyze Overall System Stats



System Design Principles
- Modular Architecture
- Role-Based Access Control
- Centralized Data Storage
- Real-Time Status Synchronization
- Scalable Web-Based Deployment

System Workflows

Equipment Borrowing Lifecycle

1. Request — User browses available equipment and submits a loan request.

2. Review — Admin verifies the request and grants or denies approval.

3. Usage — System logs the transaction and updates the item status to 'Borrowed'.

4. Return — User returns the item; Admin updates the status back to 'Ready'.

Maintenance & Repair Pipeline

1. Report — User submits a maintenance ticket for a damaged item.

2. Assess — Admin reviews the ticket and decides on internal or external repair.

3. Repair — Item status is updated to 'In Maintenance' while being fixed.

4. Resolve — Admin verifies the fixed item, user confirms, and the ticket is closed.

CONCLUSION

The web-based Audiovisual Equipment Loan and Maintenance Management System improves traditional manual equipment management by centralizing data, enforcing role-based access control, and enabling real-time status monitoring. The platform streamlines loan/return workflows and maintenance reporting, helping reduce administrative workload, minimize data errors, and improve the efficiency and reliability of resource management within the faculty.

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