ASSET MANAGEMENT SYSTEM

Abhishek Sahu,Gopal Bhuyan,Bibhudatta Dehury

Department of Computer Science and Engineering, Gandhi Institute for Technology College, Bhubaneswar. (Affiliated to All India Council for Technical

Education (AICTE)) Mr. Priyabrata Nayak, Assistant Professor, Department of Computer Science and Engineering, Gandhi Institute for Technology College, Bhubaneswar. (Affiliated to All India Council for Technical Education (AICTE))

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ABSTRACT

This project proposes a web-based Asset Maintenance System (AMS) to revolutionize how organizations manage their physical assets. The system tackles challenges associated with manual asset tracking by offering a centralized platform for:

- **Comprehensive Asset Inventory:** The AMS meticulously records details of rooms, furniture (desks, benches), and equipment (bulbs, fans, AC units) within a secure database. This eliminates the need for scattered records and facilitates easy access to critical asset information.

- **Simplified Complaint Reporting:** Gone are the days of relying on verbal reports or email threads. Users can effortlessly submit complaints regarding malfunctioning equipment through a dedicated "Report Issue" section. This streamlined process ensures timely identification and addressing of maintenance needs.

- **Enhanced Work Order Tracking:** The AMS transcends basic work order creation. It offers a comprehensive tracking system that meticulously follows the entire maintenance process. This includes recording completed tasks, pinpointing outstanding work items, and identifying their current location (e.g., Financial Department, Electronics Department, Principal's office, Dean's office). This fosters accountability and empowers informed decision-making throughout the maintenance process.

The user-friendly AMS empowers organizations to transition from reactive maintenance to a proactive approach. By centralizing asset information, streamlining communication, and tracking work progress in real-time, the system fosters increased efficiency, cost savings, and improved equipment longevity.

Keywords: Web-based AMS, Asset Inventory Management, Complaint Reporting System, Work Order Tracking, Real-time Work Progress Tracking, Room Management, Furniture Management, Equipment Management.

Introduction

Maintaining an organization's infrastructure requires efficient management of its physical assets. This project introduces a web-based Maintenance Management System (AMS) designed to revolutionize how organizations track, report, and address equipment maintenance needs. This innovative system tackles the challenges of manual asset management by offering a centralized platform for:

● Comprehensive Asset Inventory: Moving beyond spreadsheets, the AMS meticulously records details of rooms, furniture (desks, benches), and equipment (bulbs, fans, AC units) within a robust database. This eliminates the need for scattered records and ensures easy access to critical asset information.

● Simplified Complaint Reporting: Gone are the days of relying on verbal reports or email threads. The AMS empowers users to effortlessly submit complaints regarding malfunctioning equipment through a dedicated "Report Issue" section. This streamlined process ensures timely issue identification and facilitates prompt maintenance intervention.

● Enhanced Work Order Tracking: The AMS transcends basic work order creation. It offers a comprehensive tracking system that meticulously follows the entire maintenance process. This includes recording completed tasks, pinpointing outstanding work items, and identifying their current location (e.g., Financial Department, Electronics Department, Principal's office, Dean's office). This level of transparency fosters accountability and empowers informed decision-making.

This user-friendly AMS empowers organizations to transition from reactive maintenance to a proactive approach. By centralizing asset information, streamlining complaint reporting, and providing real-time work order tracking, the system fosters increased efficiency, cost savings, and improved equipment longevity.

Objectives

Develop and implement a user-friendly, web-based Maintenance Management System (AMS).

Establish a centralized and secure database to manage a comprehensive asset inventory, including:

●Room details

●Furniture (number of benches and desks per room, number of computer systems)

● Equipment (bulbs, fans, AC units)

Streamline the complaint reporting process by providing a dedicated "Report Issue" section for users to submit equipment malfunction reports.

Implement a transparent work order tracking system that:

● Records completed maintenance tasks.

● Identifies outstanding work items and their current location (e.g., Financial Department, Electronics Department, Principal's office, Dean's office).

● Provides real-time progress updates for improved decision-making.

Enhance overall maintenance efficiency through centralized information, streamlined communication, and transparent work progress tracking

Scope

The project will focus on developing the core functionalities of the AMS, including asset inventory management, complaint reporting, and work order tracking.

The system will be web-based, and accessible from any device with an internet connection.
The scope encompasses user roles for both complaint submission and work order management (with appropriate access levels).

Security features will be implemented to ensure the confidentiality and integrity of asset data.

System Functionality

The web-based Asset Maintenance System (AMS) will offer a comprehensive suite of functionalities to manage an organization's assets effectively.

1. Asset Management:

● Search and View Assets: Users can search for specific assets (rooms, furniture, equipment) within the database using various criteria (room number, equipment type, etc.). Retrieved results will display detailed information about the asset.

● Create New Records: Users with appropriate permissions can add new assets to the system. This includes recording details like room layout, furniture quantities (desks, benches), and equipment specifications (bulbs, fans, AC units) for each room.

● Availability Check: The system will maintain real-time availability information for both rooms and equipment. This allows users to check if a specific room is occupied or if a particular type of equipment is readily available for use.

2. Complaint Reporting:

● Report Equipment Issues: Users can submit complaints regarding malfunctioning equipment through a dedicated "Report Issue" section. This

section will allow them to specify the equipment type, location (room number), and a brief description of the problem.

3. Work Order Tracking:

● Work Order Generation: Upon receiving a complaint, the system automatically generates a work order. This work order will contain details like the reported issue, equipment information, and the date/time of the report.

● Work Progress Tracking: Authorized personnel can access and update work orders as the maintenance process progresses. This includes recording completed tasks and updating the status (e.g., "In Progress," "Awaiting Parts," "Completed").

● Location Tracking: The system will track the current location of each work order, indicating if it's pending at a specific department (e.g., Financial for budget approval, Electronics for repairs) or awaiting approval from higher authorities (e.g., Principal, Dean).

. **Data Management:**

●Update Asset Records: Users with editing permissions can update existing records within the asset inventory. This allows for maintaining accurate information about rooms, furniture, and equipment as their status or details change.

●Secure Data Storage: The system will employ robust security measures to ensure the confidentiality and integrity of all asset data stored within the database.

FUTURE ENHANCEMENT

Building upon the core functionalities of your AMS, here are some exciting future enhancements to consider:

1. Preventive Maintenance Scheduling:
●Implement functionalities to schedule preventive maintenance tasks for various equipment types based on usage patterns or manufacturer recommendations.

●Generate automated reminders and work orders for preventive maintenance tasks, ensuring timely upkeep and potentially preventing equipment failures.

2. Integration with IoT and Sensor Data:

●Integrate the AMS with Internet of Things (IoT) devices and sensors installed on equipment.

●Real-time sensor data can be used to monitor equipment health, predict

potential failures, and trigger automated work orders proactive maintenance. for
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3. Advanced Reporting and Analytics:

●Develop comprehensive reporting functionalities to analyze maintenance data.

●Generate reports on equipment performance, work order completion times, and maintenance costs.

●Leverage data analytics to identify trends, predict future maintenance needs, and optimize resource allocation strategies.

4. Mobile App Development:

●Develop a mobile application for the AMS, allowing users to submit improving equipment longevity, and reducing overall facility management costs. Remember to prioritize these enhancements based on your organization's specific needs and future growth plans.

5. Integration with Existing Systems:

●Explore the possibility of integrating the AMS with existing asset management systems or facility management software used by the organization.

●This integration can eliminate data silos and ensure a centralized platform for managing all aspects of facilities and assets.

6. Artificial Intelligence (AI) Integration:

●Consider incorporating AI capabilities for predictive maintenance. Machine learning algorithms can analyze historical data and sensor readings to predict equipment failures with greater accuracy.

●This can enable preventive maintenance interventions before breakdowns occur, minimizing downtime and associated costs.

7. User Roles and Permissions:

●Implement a more granular user roles and permissions system. This allows for assigning different access levels based on user responsibilities (e.g., view-only, create/edit work orders, approve budgets).

●Enhanced user access control strengthens data security and ensures authorized personnel manage specific aspects of the maintenance process.

8. Communication and Collaboration Tools:

●Integrate communication and collaboration tools within the AMS. This can facilitate communication between maintenance personnel, users reporting issues, and management for real-time updates and efficient problem-solving.

By incorporating these enhancements, you can transform your AMS into a comprehensive and intelligent platform, optimizing maintenance operations,

Quantities

Create Quantity

Showing **1-10** of **10** items.

#	ID	Roonnumber	Materialname	Quantity	
1	1	101	Bench & Desk	25	👁 ✏ 🗑
2	2	102	Bench & Desk	35	👁 ✏ 🗑
3	3	103	Bench & Desk	24	👁 ✏ 🗑
4	4	104	Bench & Desk	35	👁 ✏ 🗑
5	5	105	Bench & Desk	35	👁 ✏ 🗑
6	6	106	Bench & Desk	45	👁 ✏ 🗑
7	7	107	Bench & Desk	47	👁 ✏ 🗑
8	8	108	Bench & Desk	50	👁 ✏ 🗑
9	9	109	Bench & Desk	36	👁 ✏ 🗑
10	10	110	Bench & Desk	45	👁 ✏ 🗑

CONCLUSION

This project lays the groundwork for a robust and user-friendlyAsset Maintenance System (AMS)). By leveraging web-based technology, the AMS streamlines asset management, complaint reporting, and work order tracking, fostering increased transparency and accountability within the organization's maintenance processes.

The core functionalities empower users to:

● Maintain a centralized and comprehensive asset inventory.

● Submit and track equipment malfunction reports efficiently.

● Monitor the progress of maintenance requests in real-time.

This centralized approach not only enhances communication between personnel but also facilitates informed decision-making regarding maintenance activities.

Looking ahead, the potential for future enhancements is vast. Integrating with preventive maintenance scheduling, IoT sensor data, and advanced reporting tools can further optimize maintenance operations. Mobile app development and integration with existing systems promise greater accessibility and a unified data ecosystem. The potential for AI integration opens doors for predictive maintenance, enabling proactive interventions that minimize downtime and associated costs.

By implementing these future enhancements, the AMS can evolve into a truly intelligent platform, empowering your organization to achieve optimal asset utilization and cost-effective maintenance practices. Ultimately, this project serves as a foundation for a more efficient and proactive approach to managing your organization's physical assets, ensuring long-term sustainability and improved operational performance.

REFERENCE

Rakyta 2010 Rakyta, M. Total productive maintenance, system for assure performance, quality and safety. Management and maintenance of industrial company, 2010. Avaliable from:

<http://udrzbapodniku.cz/index.php?id=47&tx_ttnews[tt_news]=3586&tx_ttnews[backPid]=1261&cHash=e3ce3b239c. Snah 2009 Shah, M. and Littlefield, M. Asset Performance Management, November 2009, Aberdeen Group.