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DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING

Synopsis On

ISE CONNECT

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ABSTRACT:

The Information Science Connect web application is a centralized digital platform designed to streamline academic and administrative resources for students, faculty, and staff of the Information Science department. It features an overview page, a faculty and staff directory, and sections for timetables, academic calendars, class notes, study materials, and previous year question papers to support learning and organization. Additionally, the platform includes notices, exam dates, result links, and departmental activities and events to keep users informed and engaged. By integrating these essential features, the web app enhances accessibility, promotes effective communication, and ensures a seamless academic experience for the department.

INTRODUCTION:

In today's fast-paced academic environment, having a centralized and easily accessible platform for academic and administrative resources is crucial for students and faculty members. The Information Science Connect web application is designed to bridge the gap between students, faculty, and department administration by providing a unified portal for all essential academic and departmental information. This platform serves as a one-stop digital solution where users can access important resources such as the faculty and staff directory, class timetables, academic calendars, study materials, previous year question papers, and official notices.

In the digital era, seamless access to academic resources and department-related information is essential for an efficient learning environment. The Information Science Connect web application is designed to serve as a one-stop solution for students, faculty, and staff, providing easy access to crucial academic and administrative information. This platform centralizes resources such as faculty and staff directories, class timetables, academic calendars, study materials, previous year question papers, and important notices to enhance convenience and organization. Additionally, it includes features like exam dates, result links, and department activity updates to keep users informed about academic schedules and events. By integrating these essential functionalities, the web app improves communication, fosters collaboration, and ensures a well-structured academic experience within the Information Science department.

PROBLEM STATEMENT:

In the Information Science Engineering department, students, faculty, and administration face challenges in communication, resource accessibility, and academic management. Important announcements often go unnoticed, academic materials are scattered across multiple platforms, and tracking attendance, results, and placements is cumbersome. Additionally, students lack a centralized platform for accessing internship and job opportunities, while faculty and alumni interactions are limited. The absence of an integrated system for timetable management, event updates, and emergency alerts further adds to inefficiencies. To address these issues, a comprehensive web application is needed to streamline communication, provide academic and placement support, and enhance overall department coordination, ensuring a seamless experience for all stakeholders.

HARDWARE AND SOFTWARE REQUIREMENTS:

Hardware Requirements:

- **Processor:** Intel Core i5 / AMD Ryzen 5 or higher
- **RAM:** 8GB or more
- **Storage:** 256GB SSD (preferably SSD for better performance)

Software Requirements:

- **Operating System:** Windows / macOS / Linux (for development and deployment)
- **Programming Language:** Node.js (Express.js) / Python (Django/Flask) / Java (Spring Boot) / PHP (Laravel)
- **Database:** MySQL / PostgreSQL / MongoDB
- **Server:** Apache / Nginx / Node.js Server
- **Front-end:** HTML, CSS, JavaScript
- **Frameworks:** React.js / Angular / Vue.js
- **UI Library:** Bootstrap / Tailwind CSS / Material UI

- **Mobile App Development:** React Native / Flutter / Kotlin (Android) / Swift (iOS)

LITERATURE SURVEY:

1. Existing Systems and Their Limitations

Several educational institutions and universities use platforms like Google Classroom, Moodle, and Blackboard for academic management. While these platforms offer features such as course materials, assignments, and communication tools, they lack department-specific functionalities such as placement support, alumni networking, event management, and emergency alerts. Furthermore, many institutions rely on separate systems for attendance, results, and notifications, leading to inefficiencies and fragmentation in information access.

2. Research on Web & Mobile Applications for Educational Institutions

Studies have shown that an integrated web and mobile platform can significantly improve communication, student engagement, and academic resource management. Research in educational technology highlights the importance of features like real-time notifications, AI-powered chatbots, and cloud-based document sharing in improving student and faculty collaboration.

LITERATURE SURVEY ON : INFORMATION SCIENCE BRANCH CONNECT

SL NO	TITLE	YEAR	AUTHOR	ACCURACY	FEATURES	TECHNOLOGIES USED	LIMITATIONS
1	Academic Resource Portals	2020	Aytekın Tank	95%	Centralized access to study materials, timetables, and faculty details	Web-based portal with database integration	Requires regular content updates
2	Faculty and Staff Directories in University Portals	2019	Vedat Korn-CEO of forms App	90%	Provides faculty profiles, research areas, and contact details	SQL-based backend for faculty database	Limited interaction beyond static information
3	Automated Timetable and Academic Calendar Systems	2018	Tom Gonser.	95%	Reduces scheduling conflicts and enhances academic planning	Automated scheduling using algorithms in Python/Java	May struggle with last-minute changes
4	Study Material and Exam Paper Repositories	2021	Vadim Yasinovsky	92%	Digital archive of study resources and previous question papers	Cloud storage (AWS, Google Drive)	Requires periodic updates and high storage capacity
5	Departmental Notices and Events Notification Systems	2017	Court Lorenzini and Eric Ranft: Founded DocuSign	93%	Real-time notifications for academic deadlines and events	Push notifications via Firebase/Node.js	Users may ignore notifications, reducing engagement

Methodology

1. Requirement Analysis

- Conduct meetings with faculty, students, and administrators to gather requirements.
- Identify key features such as communication, academic resources, placement support, attendance tracking, and library management.
- Define system objectives, user roles, and expected outcomes.

2. System Design

- Architecture Design: Use a three-tier architecture (Frontend, Backend, and Database).
- Database Design: Choose an appropriate database (e.g., MySQL, PostgreSQL, or MongoDB) and design schemas for user data, academic resources, notifications, and event management.

3. Technology Stack Selection

- Frontend: React.js / Angular / Vue.js for web; React Native / Flutter for mobile.
- Backend: Node.js (Express.js) / Python (Django, Flask) / Java (Spring Boot).
- Database: MySQL / PostgreSQL / MongoDB.

4. Development Phase

- Frontend Development: Implement UI/UX using HTML, CSS, JavaScript, and Tailwind CSS.
- Backend Development: Develop RESTful APIs to handle user authentication, database interactions, and business logic.
- Database Integration: Establish connections between the frontend and backend for data storage and retrieval.

5. Testing & Debugging

- Unit Testing: Test individual components and APIs using Jest, Mocha, or JUnit.
- Integration Testing: Ensure proper communication between frontend, backend, and database.
- User Acceptance Testing (UAT): Gather feedback from students, faculty, and administrators to validate functionality.
- Performance Testing: Optimize load times, API responses, and database queries.

6. Deployment & Maintenance

- Deployment: Host the web app on AWS, Firebase, or DigitalOcean and release the mobile app on Google Play Store and Apple App Store.
- Training & Documentation: Provide training sessions for faculty, students, and admin staff on system usage.
- Continuous Monitoring & Updates: Monitor system performance and release updates with bug fixes and feature enhancements.

DATA FLOW DIAGRAM

OBJECTIVE OF THE PROPOSED WORK:

The primary objective of the proposed web application is to create a centralized, efficient, and user-friendly platform for the Information Science Engineering department, facilitating seamless communication, academic support, and resource management. The key objectives include:

1. **Enhanced Communication & Notifications** – Provide real-time announcements, notices, and discussion forums to ensure effective communication between students, faculty, and administration.
2. **Academic Resource Management** – Offer a structured repository of syllabus, lecture notes, and study materials for easy access and reference.
3. **Placement & Internship Support** – Assist students with job and internship opportunities through resume-building tools, job listings, and company connections.
4. **Attendance & Result Tracking** – Implement an automated system for tracking student attendance and exam results, improving transparency and accessibility.
5. **Library & Study Materials Access** – Provide a digital library system for students to browse, issue, and return books efficiently.
6. **Events & Workshops Management** – Enable students to register for seminars, hackathons, and other department events through an organized event management system.
7. **Feedback & Survey System** – Collect student feedback on courses and faculty to enhance teaching methodologies and academic quality.
8. **Timetable & Reminders** – Automate the class schedule and provide notifications for upcoming lectures, exams, and events to help students manage their time effectively.
9. **Faculty & Alumni Connect** – Establish a networking platform where students can interact with faculty and alumni for guidance, mentorship, and career growth.
10. **Emergency Alerts & Help Desk** – Implement a system for urgent notifications related to campus safety and provide a help desk for quick support and issue resolution.

By integrating these features, the proposed system aims to streamline academic and administrative operations, enhance student engagement, and improve overall efficiency within the department.

EXPECTED OUTCOME OF THE PROPOSED WORK:

The successful implementation of the proposed web and mobile application for the Information Science Engineering department is expected to yield the following outcomes:

1. **Improved Communication & Engagement** – A real-time notification and discussion system will ensure seamless interaction between students, faculty, and administration, reducing delays in information dissemination.
2. **Efficient Academic Resource Management** – Students and faculty will have centralized access to study materials, lecture notes, and syllabus, enhancing the learning experience.
3. **Enhanced Placement & Internship Support** – A dedicated module for job and internship listings, resume building, and company connections will increase student employability and career opportunities.
4. **Automated Attendance & Result Tracking** – The system will provide an easy and transparent way for students and faculty to monitor attendance and academic performance without manual intervention.
5. **Optimized Library & Study Material Access** – A digital library system will streamline book borrowing, returning, and searching, making study resources more accessible.
6. **Organized Event & Workshop Management** – The app will facilitate smooth event registrations, notifications, and reminders, increasing student participation in academic and extracurricular activities.
7. **Constructive Feedback System** – The feedback and survey module will provide valuable insights into course effectiveness and faculty performance, leading to continuous improvement in academic standards.
8. **Simplified Timetable & Reminders** – Automated schedules with reminders for lectures, exams, and assignments will help students manage their time efficiently.
9. **Stronger Faculty & Alumni Network** – A platform for alumni interactions and mentorship will strengthen industry connections and career guidance for students.
10. **Enhanced Safety & Support System** – Emergency alerts and a help desk will ensure students have quick access to urgent information and support when needed.

APPLICATION:

The web and mobile application for the Information Science Engineering department will have diverse applications, benefiting students, faculty, and administrators by streamlining academic and administrative processes. The key applications include:

1. **Student Communication & Engagement** – Enables students to receive real-time announcements, participate in discussion forums, and stay updated on department activities.
2. **Academic Resource Management** – Provides students with easy access to lecture notes, syllabus, study materials, and assignment submissions.
3. **Placement & Internship Assistance** – Helps students explore job and internship opportunities, build resumes, and connect with recruiters and alumni.
4. **Attendance & Academic Performance Monitoring** – Allows students and faculty to track attendance and exam results digitally, reducing paperwork and enhancing transparency.
5. **Library & Study Material Access** – Facilitates students in browsing, borrowing, and returning books via an integrated digital library system.
6. **Event & Workshop Registration** – Simplifies event participation by providing an organized platform for registering, receiving event updates, and reminders.
7. **Feedback & Surveys** – Helps faculty and administration gather feedback from students regarding courses and faculty performance for continuous improvement.
8. **Timetable Management & Reminders** – Automates and organizes class schedules, exam dates, and assignment deadlines, ensuring students are well-informed.
9. **Faculty & Alumni Networking** – Creates a platform where students can interact with faculty and alumni for mentorship, career guidance, and industry exposure.
10. **Emergency Alerts & Help Desk** – Provides a quick response system for urgent announcements, safety alerts, and access to department support services.

CONCLUSION:

The proposed web and mobile application for the Information Science Engineering department aims to create a centralized, efficient, and user-friendly platform that enhances communication, academic resource management, and administrative operations. By integrating features such as real-time notifications, academic resources, placement and internship support, attendance tracking, library access, event management, feedback systems, and emergency alerts, the application will streamline processes and improve user experience for students, faculty, and administrators.

With the implementation of this system, students will have seamless access to learning materials, job opportunities, and important updates, while faculty and administrators will benefit from an automated and structured approach to handling academic and departmental activities. The platform will also foster better engagement between students, faculty, and alumni, enhancing career growth and mentorship opportunities. Overall, this application will significantly improve academic efficiency, student engagement, and faculty coordination, making it a valuable digital solution for the Information Science Engineering department. Future enhancements may include AI-based chatbots, predictive analytics for student performance, and integration with external learning platforms to further enhance functionality.

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