Minor Project Report

On

"ITME – Innovation and Trends in Multidisciplinary Engineering"

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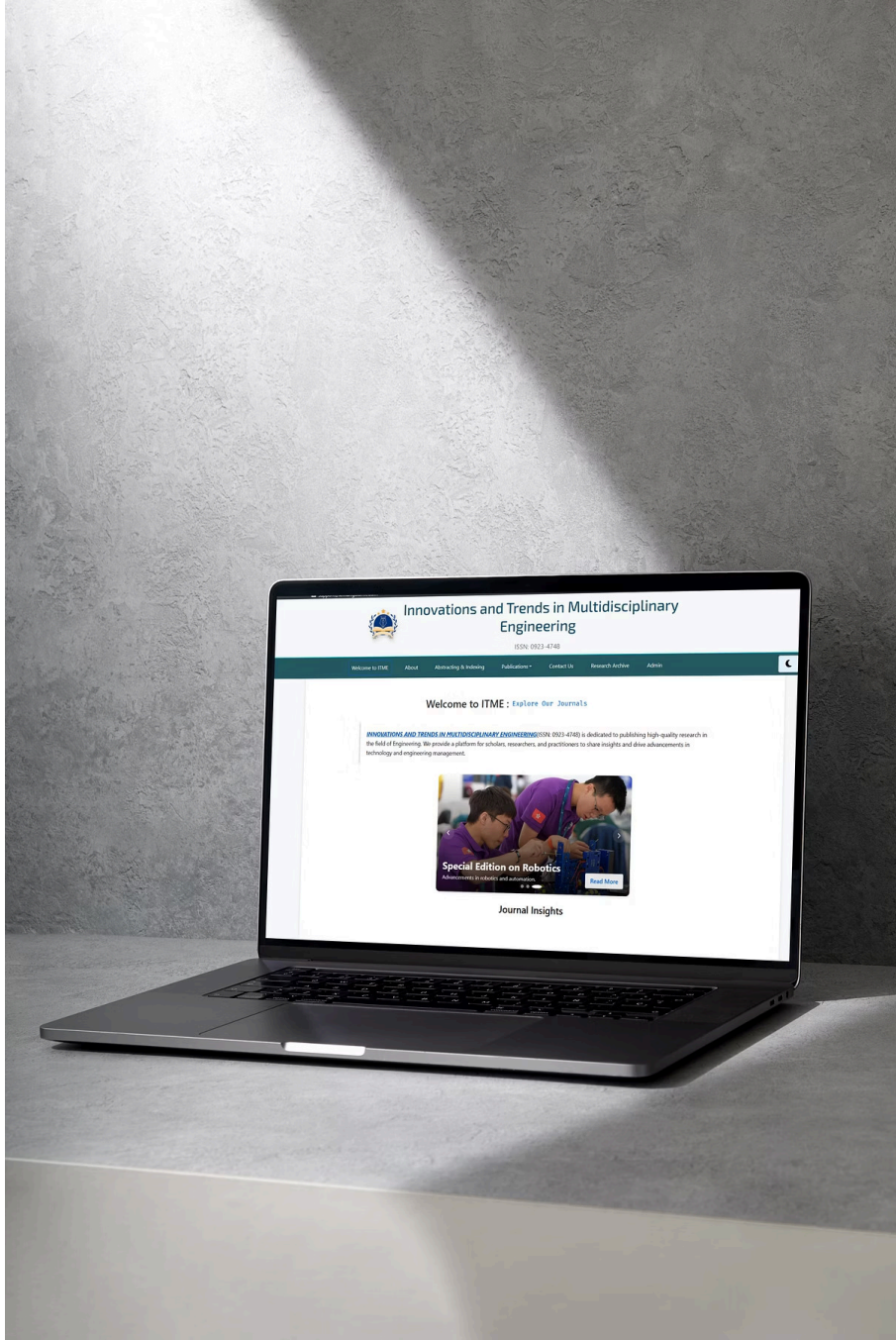
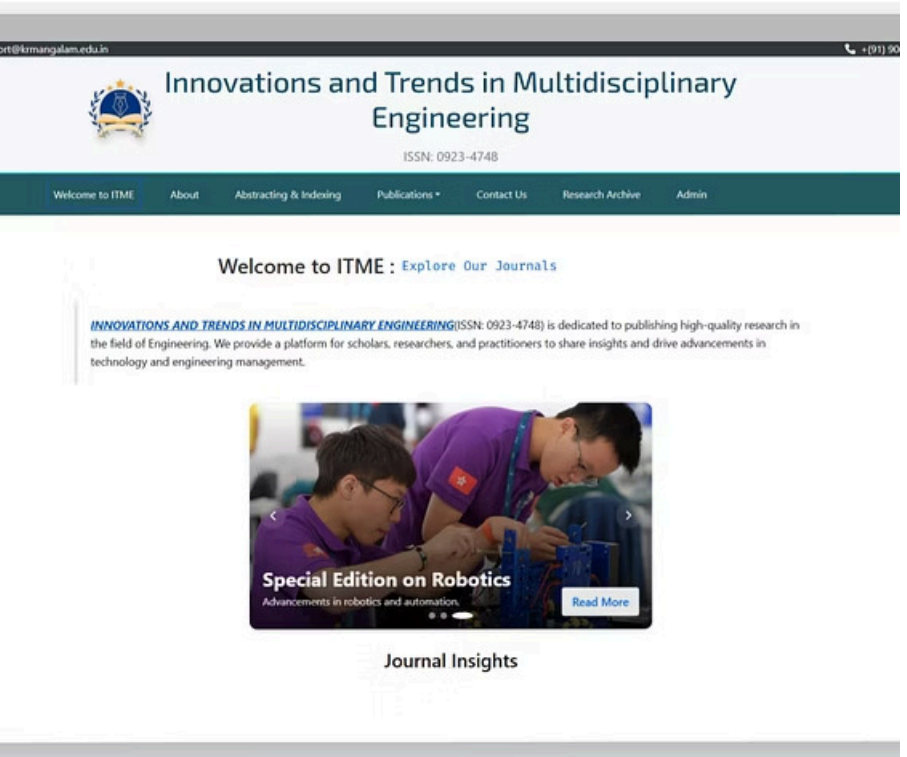
ITME Journal Publication Website Project Report

This presentation provides a comprehensive overview of the ITME Journal Publication Website, designed to modernize and streamline the scholarly paper submission and review process in engineering disciplines. Developed as a full-stack web application, the project integrates secure authentication, intuitive dashboards, and automated communications to enhance user experience and administrative efficiency.

Our goal is to deliver a robust platform fostering transparency and collaboration in academic publishing, aligned with innovations in engineering research management.





Project Overview and Core Objectives

Project Introduction

The ITME Journal Publication Website, formerly known as PEI, is aimed at providing a seamless platform for managing the submission, review, and publication lifecycle of engineering research papers. It supports multidisciplinary engineering domains with a user-friendly and secure web application.

Main Objectives

- Develop a responsive full-stack site with security as a priority
- Enable researchers to submit PDFs with ease
- Automate review notifications and email communication
- Provide an admin dashboard for efficient submission management
- Implement OTP-based user authentication for secure access

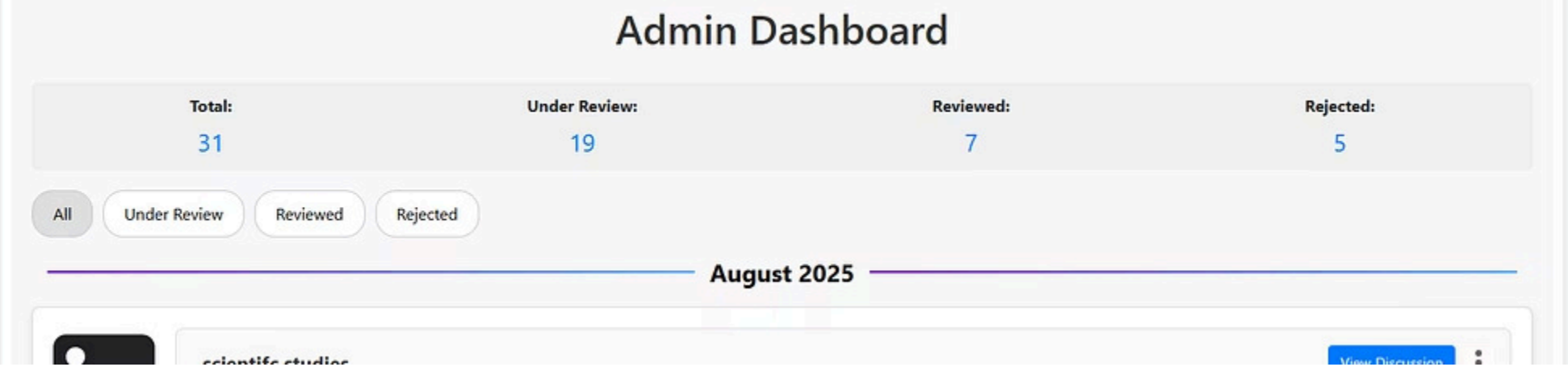
System Architecture and Technologies

System Architecture

A classic client-server model connects users via a React frontend to a Node.js Express backend. The backend communicates with a MongoDB database, manages file uploads, and integrates an SMTP email service for notifications, forming a cohesive and scalable system.

Technology Stack

- Frontend: React.js with Tailwind CSS for responsive UI
- Backend: Node.js and Express.js for RESTful API
- Database: MongoDB Atlas with VPS hosted instances
- Authentication: JWT and OTP for secure login
- File Handling: multer for PDF uploads
- Email: Nodemailer implementing SMTP protocol
- PDF Preview: PDF.js enabling browser-based viewing



Key Features and Workflow

1 User Authentication

Secure OTP-based login with temporary user tracking, supplemented with JWT session tokens to ensure persistent and safe access.

2 Author Dashboard

Authors can submit new research manuscripts in PDF format, track submission histories, and monitor review progress in an intuitive interface.

3 Administrative Control Panel

Allows admins to view all submissions, update statuses such as “Under Review” or “Reviewed,” and automate email notifications tied to status changes.

4 Real-Time PDF Preview

Integration of PDF.js affords in-browser previewing of manuscripts for both authors and admins, improving accessibility and review efficiency.

Project File Structure and Organization

Backend Structure

- Controllers managing business logic
- Routes defining API endpoints
- Models for MongoDB schema definitions
- Server initiation file: server.js

Frontend Structure

- Src folder containing React components and pages
- Central app logic in App.jsx
- Tailwind CSS for styling
- Uploads and PDFs stored for user access

The well-structured codebase ensures modularity, ease of maintenance, and scalability. Separation of frontend and backend concerns supports efficient development workflows and team collaboration.

Project Outcome and Technical Learnings

Project Achievements

Successfully delivered a full-stack web platform promoting academic digital transparency. Automated communication and secure workflows enhanced author and administrator experience appreciably.

Technical Skills Gained

- Mastery of JWT and OTP authentication techniques
- Practical experience with file uploads and server-side storage
- Handling asynchronous email notifications using Nodemailer
- Real-time PDF rendering within modern web browsers

Summary and Future Directions

Summary

The ITME platform fosters streamlined academic publishing workflows through secure, responsive web technologies and automated communication, significantly improving operational efficiency.

Next Steps

- Enhanced role-based access control for finer permission granularity
- Integration of AI-assisted paper review and plagiarism detection
- Mobile app extension for on-the-go access and notifications
- Analytics dashboards for detailed submission and reviewer insights

Ongoing development will continue to focus on innovation, security, and user experience, keeping the platform aligned with evolving academic and technological demands.