



Excellence in Higher Education

AKSHAYA

COLLEGE OF ENGINEERING AND TECHNOLOGY

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AN AUTONOMOUS INSTITUTION



DEPARTMENT OF COMPUTER SCIENCE AND BUSINESS SYSTEMS

TECHNICAL MAGAZINE

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MESSAGE FROM HEAD OF THE DEPARTMENT

The department of Computer Science & Business Systems is committed to excellence and success. Our students gain vital technical skills and soft skills with analytical thinking that make them industry ready. We offer our students the best hands-on experience, intellectual collaboration, research prospects, social impact projects, industry linkages so that they get the best placements and also contribute to societal growth. Department offers industry-based curriculum and an innovative teaching-learning process. The department always strives hard in tuning the young minds into globally competitive individuals by high quality, state-of-the-art education in computer science.

I am very proud to share that students of the department are working on interdisciplinary projects, publishing papers in international journals and at the same time a student wishes to achieve some recognition in extra-curricular or co-curricular activities.

Our faculty members aim at delivering high education blending their rich research experience with classroom teaching. I invite you to be part of our efforts as we drive the department of Computer Science to ever-greater heights. I wish all the students to outshine with a successful and accomplished career.



Dr. M. Malini

Associate Professor & Head

Computer Science and Business Systems

VISION AND MISSION OF THE DEPARTMENT VISION OF THE DEPARTMENT

Achieve excellence in computer and business collaborations; develop technologically innovative and business transforming professionals.

MISSION OF THE DEPARTMENT

DM1: Provide a cutting-edge curriculum that blends computer science fundamentals with business insights.

DM2: Prepare students for diverse and dynamic career opportunities with quality teaching tools, infrastructure, or resources.

DM3: Provide a research-oriented environment that encourages faculty and students to engage in innovative projects.

DM4: Promote collaboration with industry and academic organizations to boost educational and research opportunities.

PROGRAM EDUCATIONAL OBJECTIVES (PEO)

PEO 1: Graduates will build successful careers in information technology and management-related fields by applying strong technical and professional competencies gained through outcome-based learning.

PEO 2: Graduates will pursue higher education in information technology and management sciences, leading to academic, research-oriented, or advanced professional careers.

PEO 3: Graduates will pursue higher education in information technology and management sciences, leading to academic, research-oriented, or advanced professional careers.

PROGRAM OUTCOMES (POS)

PO 1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO 3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental consideration

PO 4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO 6: The Engineer and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO 7: Environment and Sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9: Individual and Team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 11: Project management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO 1: Career-oriented skills will enable learners to compete effectively and develop reliable, secure, and high-quality computing solutions for complex computer science and business system problems using modern engineering practices and data-driven techniques.

PSO 2: Computational thinking, business domain integration, and placement-oriented soft skills will support higher education, centres of excellence, innovation, and improved organizational efficiency.

MESSAGE FROM THE EDITORIAL TEAM

Dear Readers,

I hope this message finds you well. I am excited to be contributing to this edition of our department's magazine. As we continue to navigate the fast-paced worlds of Computer Science and Business Systems, there are so many emerging trends and developments that are reshaping both industries. Our magazine provides an excellent platform to explore these topics, share knowledge, and showcase the incredible work of our department's students, faculties.

In this edition, we could highlight a variety of subjects—from breakthrough technologies in AI and machine learning to the evolving role of data analytics in business decision-making. We could also feature success stories of our graduates, upcoming research projects, and articles that bridge the gap between technology and business practices.

I believe our content should inspire curiosity, provoke thoughtful discussion, and provide insight into the ways in which the intersection of computer science and business continues to drive innovation and transformation. I look forward to collaborating with all of you on this exciting project, and I'm confident that together we can produce an issue that will engage, inform, and inspire our readers.

Best regards,

The Editorial Team

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1. Blog Application

This Application is a comprehensive web-based platform designed to facilitate the creation, management, and sharing of digital content in an organized and user-friendly manner. In the current digital era, blogging has become a powerful medium for individuals, businesses, and organizations to communicate ideas, share experiences, provide educational content, and promote products or services to a wide audience. This application is developed to simplify the process of publishing content online, ensuring that even users with minimal technical knowledge can efficiently create, edit, and manage their blog posts. It incorporates key features such as secure user authentication, role-based access for authors and administrators, content categorization, tagging, search functionality, and an interactive commenting system, which together enhance user engagement and content discoverability. The system employs a multi-tier architecture, separating the presentation layer, application layer, and data layer, which improves maintainability, scalability, and security. The backend is supported by a robust database management system that stores user information, blog content, and metadata, ensuring data consistency and efficient retrieval. Additionally, modern web technologies such as HTML, CSS, JavaScript, and responsive design frameworks are used to create an intuitive and visually appealing interface, while server-side technologies and secure coding practices handle the core processing, business logic, and data management.

By
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2. College Event Management System

The College Event Management System is an intuitive and user-friendly platform designed to simplify the process of event registration, exploration, and communication for students and faculty alike. This website serves as a centralized hub where users can easily access and register for various events organized by the college, ranging from academic seminars and workshops to cultural and sports activities. The key features of the website include:

- Event Exploration:** A comprehensive catalog of all upcoming events, categorized by type (e.g., academic, cultural, sports, etc.), allowing users to browse and explore events that match their interests.
- Easy Registration:** A streamlined registration process that enables users to quickly sign up for events with minimal effort, ensuring a hassle-free experience for both students and organizers.
- Contact Us:** A dedicated section where users can reach out for more information, inquiries, or specific event details. The contact form ensures smooth communication between event organizers and participants.
- User-Friendly Interface:** The website is designed with an intuitive layout, making navigation and event discovery simple and efficient, even for first-time users.

This platform aims to enhance student participation in campus events, foster a sense of community, and ensure seamless event management, all while offering a responsive and engaging online experience.

By
Janani SS/II CS&BS
Sivasree R/II CS&BS

3.Hotel Room Booking System

The Hotel Room Booking System is a full-stack web application developed using the MERN Stack, which consists of MongoDB, Express.js, React.js, and Node.js. The primary goal of this project is to design and implement a modern, efficient, and user friendly online hotel booking platform \that automates the traditional room reservation process. This system eliminates manual booking errors, reduces paperwork, and provides a seamless experience for both customers and hotel administrators. In the proposed system, users can easily register and log in to the application, search for available hotel rooms based on selected dates, view detailed room information including price, amenities, and availability status, and complete room bookings through an intuitive interface. The frontend of the application is developed using React.js, which ensures fast performance, dynamic page rendering, and a responsive design that works across different devices such as desktops, tablets, and mobile phones. The backend of the system is built using Node.js and Express.js, which handle server-side operations, business logic, and secure communication between the frontend and the database. RESTful APIs are implemented to manage data flow for user authentication, room management, and booking transactions. MongoDB, a NoSQL database, is used to store user profiles, hotel room details, booking information, and transaction records in a flexible and scalable manner. Security is a major focus of this project. User authentication and authorization mechanisms are implemented to protect sensitive data and restrict access to authorized users only. Passwords are securely stored using encryption techniques, and role-based access control is used to differentiate between customers and administrators

By
P Balamani /II CS&BS
R Kavinaya/II CS&BS

4.Learn quest web development

The Learn Quest Web Development project is designed to provide practical knowledge and hands-on experience in creating modern, responsive, and interactive websites. The primary goal of this project is to apply fundamental web development concepts using HTML for content structure, CSS for styling and responsive layouts, and JavaScript for adding interactivity and dynamic behavior. The website is developed with a focus on usability, accessibility, and clean design to ensure a smooth user experience across various devices and browsers. This project also introduces learners to essential development practices such as modular coding, version control awareness, debugging, and basic performance optimization. By working on this project, learners gain a deeper understanding of the complete web development lifecycle—from planning and design to implementation and testing. Overall, the Learn Quest Web Development project helps bridge the gap between theoretical knowledge and real-world application, preparing learners for future web development challenges. Additionally, the project introduces fundamental development concepts such as clean code structure, basic debugging techniques, and performance optimization. Through this hands-on experience, learners develop problemsolving abilities and gain confidence in creating real-world web applications. The Learn Quest Web Development project ultimately serves as a foundation for advanced web development learning and prepares students for future challenges in the field of web tech.

By
B. Aatharsh/II CS&BS
S. Sri Rabin Mano/II CS&BS

5.Food Delivery Application

This project presents the design and development of a Food Delivery Application built using the MERN stack (MongoDB, Express.js, React.js, and Node.js). The application aims to provide a seamless platform for users to browse restaurants, explore menus, place orders, and make secure payments from the comfort of their homes. It incorporates features such as real-time order tracking, user authentication, responsive UI, and integrated payment gateways to enhance user convenience. The backend, powered by Node.js and Express.js, ensures efficient API handling and secure data transactions, while MongoDB manages dynamic and scalable data storage for users, restaurants, and orders. The frontend, developed with React.js, delivers an interactive and intuitive user experience. The system also supports admin functionalities for restaurant management, menu updates, and order monitoring. By leveraging the MERN stack's flexibility and scalability, this application demonstrates a robust, modern, and user-friendly solution for the growing online food delivery market. It can be further extended with features like AI-based recommendations, subscription meal plans, and multi-language support to cater to diverse user needs.

By
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R .Kanishka/II CS&BS

6.Router Configuration

A dual WAN static route configuration uses two separate internet connections on a router, where static routes are manually defined with specific destination networks, next-hop gateways, and route metrics to control how traffic flows across each WAN interface. By assigning lower metrics to a primary link and higher metrics to a secondary link, administrators can prioritize traffic, implement basic load distribution, or ensure failover in case one WAN connection goes down. This setup is commonly enhanced with policy-based routing to direct specific applications or users through a preferred WAN, and with monitoring tools such as IP SLA to detect link failures and trigger automatic rerouting. When carefully implemented, dual WAN static routing provides improved reliability, better bandwidth utilization, and greater control over network traffic, though it requires ongoing management to adapt to network changes. It also offers predictable routing behavior since paths are explicitly defined by the administrator. This predictability makes troubleshooting easier compared to dynamic routing protocols. However, scalability can be limited in larger networks due to manual configuration requirements. Security policies can be aligned with each WAN link for better traffic isolation. Overall, it is a cost-effective solution for small to medium-sized networks seeking redundancy and control.

By
Balamani P/II CS&BS
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7.College Event Management System

In today's increasingly digital world, cybercrime has become one of the most significant challenges facing individuals, businesses, and governments. With the widespread use of the internet, mobile devices, and online services, people are more exposed than ever to threats such as phishing attacks, identity theft, data breaches, online scams, and cyberbullying. Despite the growing number of cases, many internet users remain unaware of how to identify cybercrimes or where to report them. This lack of awareness often results in underreporting of incidents and continued victimization. The Cyber Crime Awareness Chat bot project is designed to address this issue by creating an intelligent, interactive chat bot that educates users about various types of cybercrimes and provides step-by-step guidance on reporting them. The chat bot leverages Dialog flow for natural language understanding, Python for backend integration, and SQLite for lightweight data management. It is deployed using the Telegram API, ensuring that users can access it easily through a familiar and userfriendly platform. The chat bot interacts conversationally with users, helping them recognize possible cyber threats, offering safety tips, and directing them to the appropriate cybercrime reporting portals or government websites. It also raises awareness by sharing preventive measures and cyber hygiene practices, thereby promoting responsible online behavior. Through this project, an accessible digital assistant has been developed that combines the benefits of automation, artificial intelligence, and user education. The Cyber Crime Awareness Chat bot not only supports individuals in reporting online crimes but also contributes to building a more informed and secure digital society.

By
K Abirami/II CS&BS
Vidhiya Sagar Pathak/III CS&BS

8.Hospital Management system

Our project Hospital Management system includes registration of patients, storing their details into the system, and also computerized billing in the pharmacy, and labs Our software has the facility to give a unique id for every patient and stores the details of every patient and the staff automatically It includes a search facility to know the current status of each room User can search availability of a doctor and the details of a patient using the id.The Hospital Management System can be entered using a username and password It is accessible either by an administrator or receptionist. Only they can add data into the database the data can be retrieved easily. The interface is very userfriendly The data are well protected for personal use and makes the data processing very fast. The report discusses the design methodology, system architecture, technologies used, and challenges encountered during development. It further evaluates the system's performance through user feedback and testing, demonstrating improvements in workflow efficiency and patient satisfaction. Overall, the Hospital Management System presents a significant advancement in healthcare management by integrating technology with hospital operations, paving the way for a more organized, transparent, and patient-centric healthcare environment.

By
B Aatharsh/II CS&BS
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S Sri Rabin mano/II CS&BS

9.Adaptive Intrusion Dection System via Transformer - Based Systems

In today's rapidly evolving cybersecurity landscape, traditional intrusion detection systems (IDS) often fail to detect novel and sophisticated attacks due to their static, rule-based approaches and high false-positive rates. To overcome these limitations, this project proposes an adaptive intrusion detection system leveraging Transformer-based models. The system utilizes CIC-IDS2017 and UNSW-NB15 datasets for training and testing, incorporating preprocessing techniques such as packet normalization and feature extraction. Unlike conventional machine learning approaches like PCA, SVM, and Random Forest, which struggle with scalability, computational cost, and adaptability, the Transformer architecture employs a self-attention mechanism to identify complex attack patterns and adapt to unseen threats in real time. The proposed model demonstrates high accuracy, low false- positive rates, and superior adaptability, making it a promising solution for modern network security. Future work will focus on edge device optimization, cross- network adaptability, and real-time attack visualization to enhance the practicality and robustness of the system.

By
Praneeth Kumar P/III CS&BS
Arul M/III CS&BS
S.Athiskumar/III CS&BS

10.Fake News Decetion

This project presents a fake news detection system that leverages machine learning techniques to automatically identify misleading or false news articles. The approach is based on TF-IDF (Term Frequency–Inverse Document Frequency) feature extraction combined with a logistic regression classifier, making it both efficient and interpretable. The model is trained on a labeled dataset containing news headlines and full article content, allowing it to learn linguistic and contextual patterns that distinguish fake news from genuine reporting. TF-IDF is used to convert textual data into numerical vectors by highlighting important and distinctive terms while removing common stop words that add little value. This representation helps the model focus on meaningful words that contribute to classification accuracy. Logistic regression is then applied to these vectors to predict the authenticity of unseen articles in a probabilistic and transparent manner. The system is lightweight, requiring relatively low computational resources, which makes it suitable for real-time or large-scale deployment. Model predictions and results are exported for further evaluation and analysis. The simplicity of the approach allows easy debugging and performance tuning. Additionally, the interpretability of logistic regression helps in understanding which features influence predictions. Overall, this solution provides a practical, scalable, and effective method for fake news detection. It is well-suited for real-world applications such as media monitoring, content verification platforms, and social media moderation systems.

By
Indhu A /III CS&BS
Prathiyuksha R /III CS&BS

11.Customer Churn Prediction: From Data to Decision

Customer churn poses a significant challenge to businesses as it directly affects revenue stability, customer lifetime value, and long-term growth. In highly competitive markets where customers have easy access to alternative products and services, retaining existing customers has become just as critical as acquiring new ones. This paper presents a comprehensive, data-driven framework for predicting customer churn using machine learning techniques. The proposed approach covers the entire pipeline, starting from data collection and preprocessing, including handling missing values, feature encoding, and normalization. Exploratory data analysis is performed to uncover patterns and key factors influencing churn behavior. Multiple predictive models—such as Logistic Regression, Decision Trees, Random Forest, and Gradient Boosting—are implemented to capture both linear and complex non-linear relationships in customer data. These models are evaluated and compared using standard performance metrics including Accuracy, Precision, Recall, F1-score, and AUC-ROC to ensure robust assessment. The experimental results show that ensemble-based methods, particularly Random Forest and Gradient Boosting, outperform individual models in identifying high-risk churn customers. The study also highlights the importance of feature importance analysis to interpret model predictions. Furthermore, the insights gained from churn prediction are mapped to actionable business strategies such as targeted retention campaigns and personalized offers.

By
R.Gowrishankar/IV CS&BS
S.kishan/IV CS&BS
B.Harshita/IV CS&BS
S.Elakiya/IV CS&BS

12.Color Detection from Images

Color detection from images is a fundamental task in computer vision with applications in object recognition, image segmentation, medical imaging, robotics, and automated inspection systems. This process involves identifying and classifying colors present in a digital image by analyzing pixel values within different color spaces such as RGB, HSV, or LAB. The proposed approach focuses on preprocessing the input image to reduce noise, converting it into an appropriate color space, and applying thresholding or clustering techniques to accurately detect and label colors. Preprocessing steps may include smoothing, denoising, and contrast adjustment to enhance color distinction. By leveraging efficient image processing algorithms, the system can reliably identify dominant and specific colors under varying lighting conditions. Advanced clustering methods such as K-Means or Mean Shift are often used to segment color regions more effectively. The method also incorporates adaptive thresholding to account for illumination changes and shadows. Post-processing techniques, such as morphological operations, help refine the detected color regions for better accuracy. Experimental results demonstrate that the method achieves high accuracy and robustness while maintaining computational efficiency, making it suitable for real-time and practical applications. Furthermore, the system can be extended to detect multiple colors simultaneously and can be integrated with object tracking for dynamic scenarios. Its lightweight design ensures compatibility with embedded systems and mobile devices.

By

Arul M,/III CS&BS
Prem amarnarayana,/III CS&BS

13.AI-Powered Movie Recommendation System

An AI-powered movie recommendation system aims to enhance user experience by providing personalized movie suggestions based on individual preferences and viewing behavior. Traditional recommendation methods often fail to capture dynamic user interests and complex patterns in large datasets. This system leverages artificial intelligence techniques such as machine learning, collaborative filtering, and content-based filtering to analyze user ratings, watch history, and movie attributes. By learning from user interactions, the model predicts relevant movie recommendations with improved accuracy. The proposed system adapts to changing user preferences over time and efficiently handles large-scale data. Hybrid recommendation techniques are also employed to combine the strengths of collaborative and content-based methods, reducing issues like cold-start and sparsity. Advanced algorithms such as matrix factorization, neural networks, and deep learning models help uncover hidden patterns in user behavior and movie features. The system can also incorporate contextual information, such as time, location, or device, to refine recommendations further. Experimental results indicate that the AI-driven approach significantly improves recommendation quality, user engagement, and overall satisfaction, making it suitable for modern streaming platforms and digital entertainment services.

By

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