iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 12 **Issue:** III **Month of publication:** March 2024

DOI: https://doi.org/10.22214/ijraset.2024.59345

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 12 Issue III Mar 2024- Available at www.ijraset.com

Student 360: Navigating Courses at your Fingertips with Student 360

M. Shiva Kumar[1], Rishab Agarwal[2], Akshith Akkali[3], P. Satwik[4], Dr. S. Kirubakaran[5]
[1]*Assistant Professor, Department of CSE, CMR College of Engineering & Technology, Hyderabad,*
[2, 3, 4]*UG Student, Department of CSE, CMR College of Engineering & Technology, Hyderabad, Telangana*
[5]*Professor, Department of CSE, CMR College of Engineering & Technology, Hyderabad, Telangana*

Abstract: ***In colleges and Universities, faculty face a lot of problems collecting information from students about the completion and choosing of Open Electives and Professional electives at the beginning of the semester. Also, most of the students select the subjects which were already attained by them, not realizing until the final semester. Thus, resulting in not satisfying the required credit score and taking an extra semester wasting their valuable time. Student360 is a project that focuses on students completing their Open Electives and Professional electives, faculty managing students academic profiles and admins adding subjects elected by students and also regarding their academics. The project works as a reminder for students to check their credit score and wrap up the subjects which were not completed by them previously.***
Keywords: Engineering Education Tools, Web-based Assistance, Efficiency Enhancement, Technical Information Retrieval, Enhanced Learning, Problem-Solving Acceleration, Innovative Learning Solutions.

I. INTRODUCTION

The current manual course registration system within the educational institution is beset with several challenges, hindering the seamless enrollment process for students. These challenges include Complex and Time-Consuming Process, The manual course registration process is intricate and time-consuming, involving multiple steps such as form filling, approvals, and data entry. This complexity often leads to errors and delays in the registration process. Limited Accessibility, Physical registration forms and records are difficult to access for both students and administrative staff. Limited Scalability, With a manual system, accommodating a growing number of students becomes increasingly challenging. The manual process cannot efficiently handle a large volume of course registrations, leading to bottlenecks during peak registration periods. The aim of implementing the College Management System is to use technology to make human work easier. Using this system as a tool, students can search and register for courses of their choice. All colleges can integrate this tool in their existing websites and applications and can make their existing systems faster and more efficient. It will also come in very handy to students and will be easy to use.

II. RELATED WORK

User Requirements Analysis, Identify the specific needs and requirements of educators, administrators, and students concerning student profile management. Determine the pain points and challenges faced in the current manual or digital systems. User Interface and Experience, Design a user-friendly interface that caters to the diverse user roles within educational institutions. Conduct usability testing and gather feedback to optimize the user experience. Performance and Reliability, Test the application's performance under various loads to ensure reliability during peak usage times. Develop strategies for data backup and disaster recovery.

A. An Online Registration System

This system was created so that students may sign up independently. Compared to several forms that students would have to manually fill out, the registration form is designed to be user-friendly and simple to fill out, saving time and money. After determining the project's technical viability, the software development team came to the conclusion that it could be completed given the resources and technology currently in use. While hardware additions may be needed during the implementation phase, the project is currently technically doable and should move forward. The offered remedy to the issue was deemed acceptable by the operational feasibility analysis. A three-tier application development architecture was used in the web application portal's design. The application's front end design is occupied by the presentation tier. It has to do with every object that the user communicates with. After receiving inputs and actions from the user, it routes this data through the application tier to the data tier for additional processing.

©IJRASET: All Rights are Reserved

B. Assess Data Accuracy and Integrity

Identify the specific needs and preferences of both students and administrative staff regarding the course registration process. Investigate the accuracy and integrity of student and course data processed through the automated system. Analyze Resource. Evaluate the utilization of human resources and physical space within the institution after implementing the automated system.

C. Examine Cost-Effectiveness

Conduct a cost-benefit analysis comparing the expenses associated with the manual system and the automated Course Registration System.

III. PROPOSED METHODS AND ITS ARCHITECTURE

A. High-level Methodology

Student360 is a project that focuses on students completing their Open Electives and Professional electives, faculty managing students academic profiles and admins adding subjects elected by students and also regards about their academics. The login functionality allows users to access the system with specific roles, such as "Admin" or "Student." Upon successful login, the system checks the role and directs the user accordingly. If the user is an admin, they will be directed to the admin dashboard. If the user is a student, they will either see their dashboard or be prompted to register if they haven't done so already. For the student dashboard, the UI should provide an intuitive and user-friendly interface, displaying essential information. The main pages include "Courses Finished," where students can view their completed courses, and "Register Course," which offers a template for all semester courses. Electives are limited, and students can select them on a first-come-first-serve basis. An "Achievements Form" allows students to submit their accomplishments. The "Profile" page captures details like the academic year, password, name, date of birth, father's name, and more. After filling out the registration form, students can submit it, and the form approval process is directed to the admin. Appropriate filters ensure efficient processing. Upon admin approval, students receive an approved copy, and they can download it. This ensures transparency and a record of approved registrations .An "Announcement" page is included for disseminating important information to students. We have used MERN Stack to implement, the functionality of each technology goes like, In this project, MongoDB would be used to store student information, course details, achievements, and other relevant data. Collections could include "Students," "Courses," "Achievements," and "Forms," each storing data specific to its purpose. Express.js would handle routing, middleware, and server-side logic. It facilitates communication between the frontend (React) and the backend (Node.js), handling requests, and responding with the appropriate data or views. React is used for the frontend to create a dynamic and responsive user interface. The student dashboard, various forms, and pages, such as "Courses Finished," "Register Course," "Achievements Form," "Profile," and "Announcement," would be implemented using React components. React allows for the creation of a Single Page Application (SPA), enhancing the user experience by reducing page reloads. Node.js is used to build the backend server. It handles incoming requests from the frontend, interacts with the MongoDB database to retrieve or store data, and communicates with the frontend via the Express.js framework. Node.js supports asynchronous operations, making it suitable for handling multiple requests concurrently.

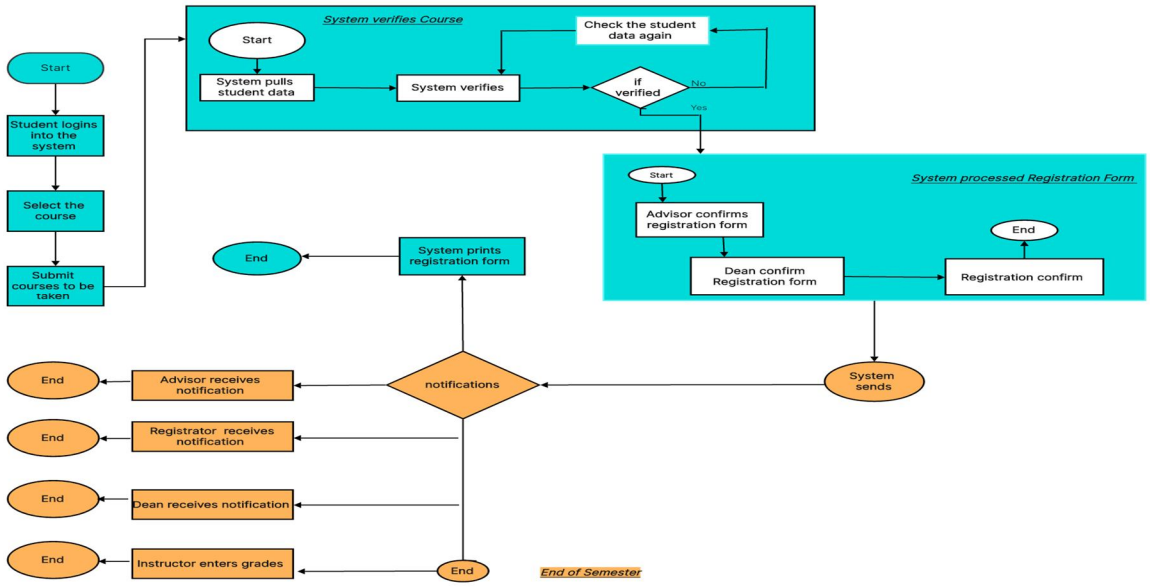


Fig1. Architecture of the Proposed Solution

Figure 1 - The architecture of the course registration system includes an easy-to-use interface that connects to a reliable back-end server. While student, course, and schedule data is managed by a central database, a secure authentication module guarantees safe access.

B. Users (Student, Admin)

Input credentials. The system validates the credentials. If valid, the system redirects the user to the respective dashboard.
Student is redirected to the Student Dashboard Page .Admin is redirected to the Admin Dashboard. If invalid, an error message is displayed, allowing re-entry of credentials.
Course Selection Page: Students view available courses categorized appropriately. Selection of desired courses by the student. Submission of the course selection. The system confirms the course registration. Admin Dashboard: Admin manages CRUD operations (Create, Read, Update, Delete) for courses, students, and faculty. Additions of new courses, updates to existing courses, and deletion of courses if necessary.

C. Faculty Flow: Faculty Dashboard

Faculty members view available courses they can teach. Selection of a course they want to teach. Confirmation of course allocation. End Flow: Users log out or perform other necessary actions. The system session concludes. Open Elective Course Selection: Students view available open elective courses. Criteria for selecting an open elective course: Credit Requirement: Minimum 'x' credits obtained in the previous semester. Attendance Requirement: Attendance in the previous semester above 75 percent. Selection limited to the first 40-45 students meeting the criteria. If criteria are met and the limit not reached, the student selects the desired open elective course. If criteria are not met or the limit is reached, the system provides a notification, prompting the student to select another course.

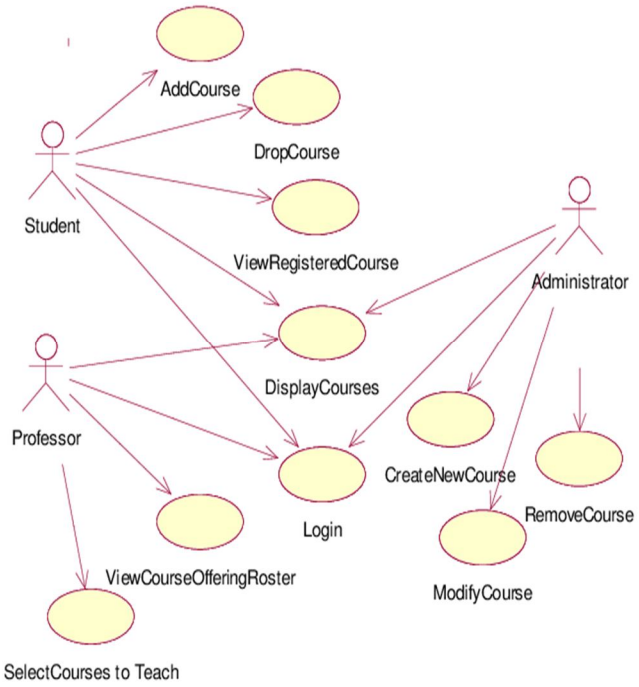


Fig 2. Use Case Diagram

IV. RESULTS AND DISCUSSIONS

The Online Student Course Registration System has streamlined and automated the course registration process, reducing administrative burdens, minimizing errors, and enhancing efficiency. The merits include enhanced user-friendliness and automation. However, there are challenges related to user proficiency and internet dependency.
The Student Registration System for universities maintains the personalized, face-to-face interaction between counselors and students, facilitating immediate problem resolution and guidance. This offers a unique merit in terms of a personal touch in the registration process. However, it has limitations in terms of data analysis capabilities and error-prone manual processes.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |

The College Course Registration System has introduced efficiency and accessibility, allowing students to register for courses online. This implementation simplifies the process, reduces the need for physical visits, and enhances the overall user experience. Nevertheless, challenges include technical expertise requirements, initial development costs, and data security concerns.
Challenges remain, particularly in the realm of technical proficiency. Some students and staff may find it challenging to adapt to the new digital systems, and additional training may be required to ensure a smooth transition. Furthermore, the initial development and ongoing maintenance costs can be a financial hurdle for institutions. The implementation of these online registration systems marks a significant step forward in improving efficiency and user experience in educational institutions.

A. Merits

1) *Efficiency and Accuracy:* The online system streamlines and automates various tasks related to student registration, admission, and course selection, leading to increased efficiency and reduced errors.
2) *Improved Accessibility:* Students can access the system from anywhere with an internet connection, eliminating the need for physical visits to the college, making it more accessible to a broader range of students.

B. Demerits

1) *Technical Challenges:* Implementing and maintaining the online system may require technical expertise, and some students and staff may struggle with using it.
2) *Initial Development Costs:* Developing the system, including software, hardware, and security measures, can be costly. Securing funding for the initial development and ongoing support can be challenging.

C. Challenges

1) *Data Privacy and Security:* Safeguarding sensitive student information from data breaches and ensuring data privacy is crucial and can be challenging.
2) *Customization:* Adapting the system to the specific needs and requirements of each college may be complex, as it may require customization and integration with existing systems.

Colleges and educators can handle routine duties like advertising, student enrollment, admissions, course registration, etc. with the help of a college management registration system. The most important step in the admissions process is registering for classes since it sets the stage for the entire semester. It would be very difficult to accurately provide this information to thousands of pupils by hand. Therefore, an online college management system that lists courses based on the semester a student chooses and provides information about the courses they have chosen is required.
Many colleges can use this system as an integrative tool, and it can be tailored to meet their specific needs.
Below Figure 3-5, you'll find a series of images showcasing our innovative web project in action. These visuals provide a glimpse into the user interface, features, and functionality of our web application. Take a moment to explore and discover how our project can revolutionize your online experience. From streamlined interactions to intuitive design, witness firsthand the power and potential of our creation. Dive in and envision the possibilities with our web project.

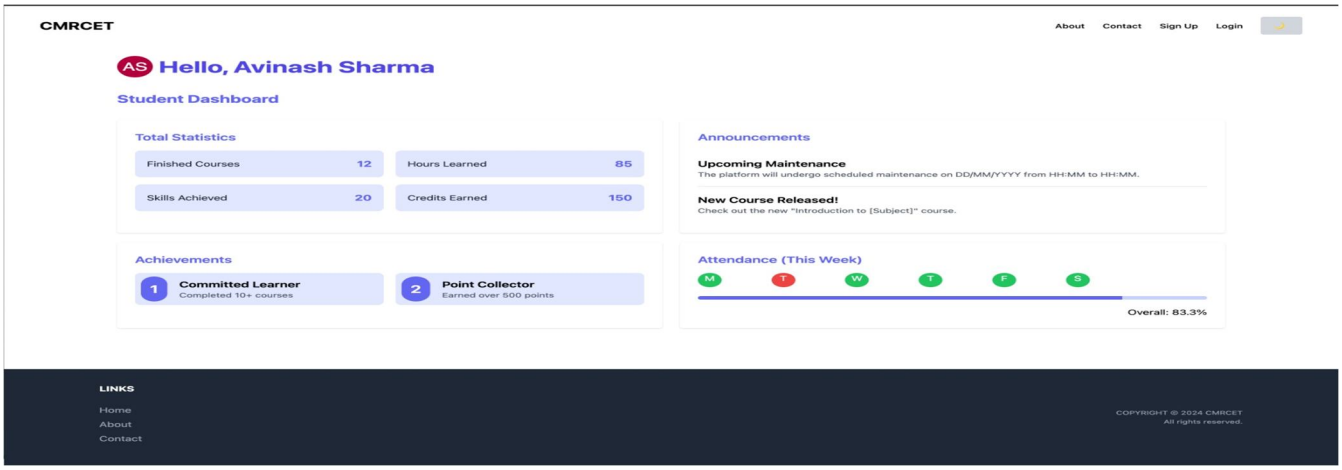


Fig 3. Student Dashboard

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 12 Issue III Mar 2024- Available at www.ijraset.com



Fig4. Admin Dashboard

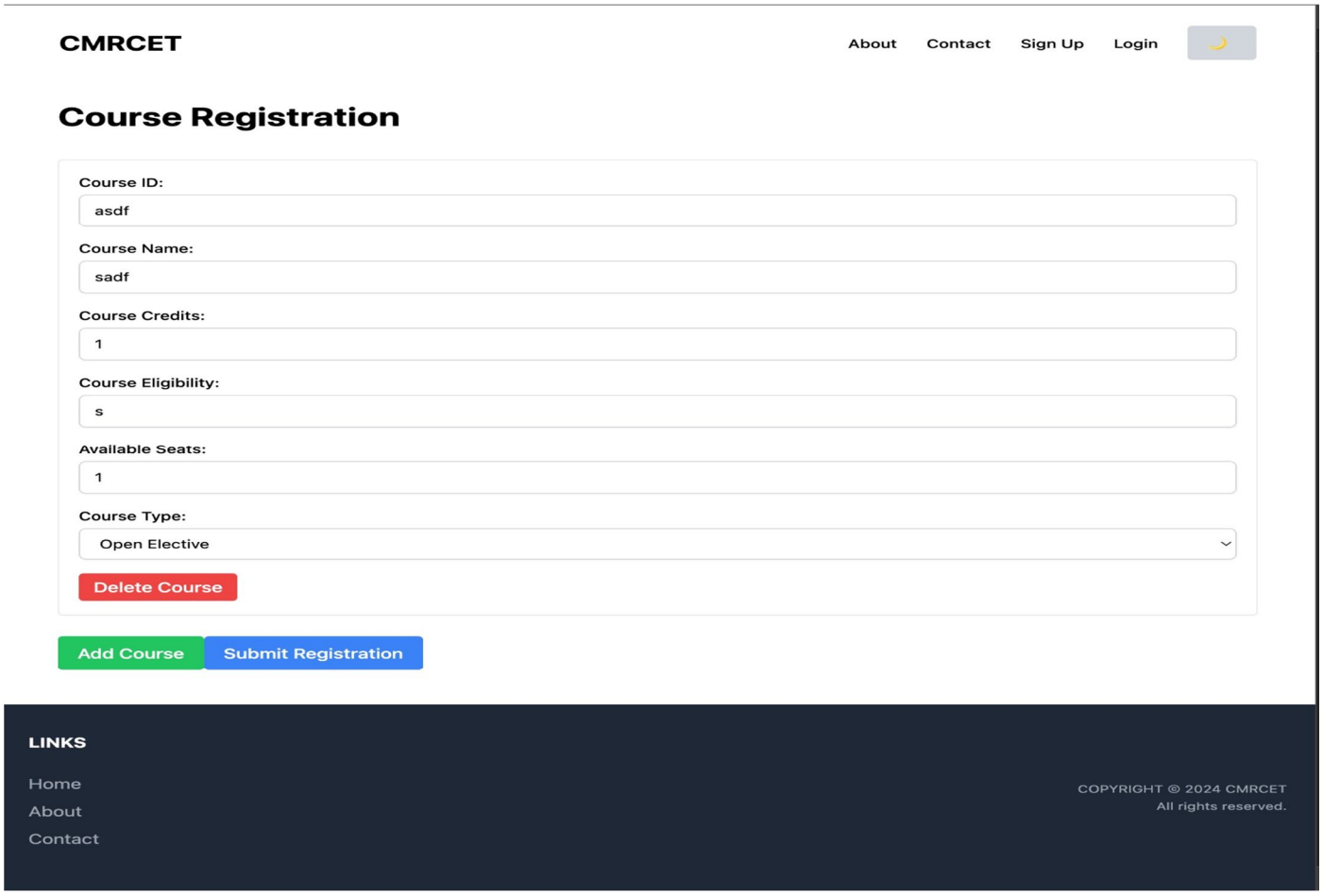


Fig 5.Course Registration User Interface

V. CONCLUSION

The Problem: Colleges and universities encounter challenges in gathering elective information from students. Students often unintentionally choose previously completed subjects.

Our Solution: The project works as a reminder for students to check their credit score and wrap up the subjects which were not completed by them previously.

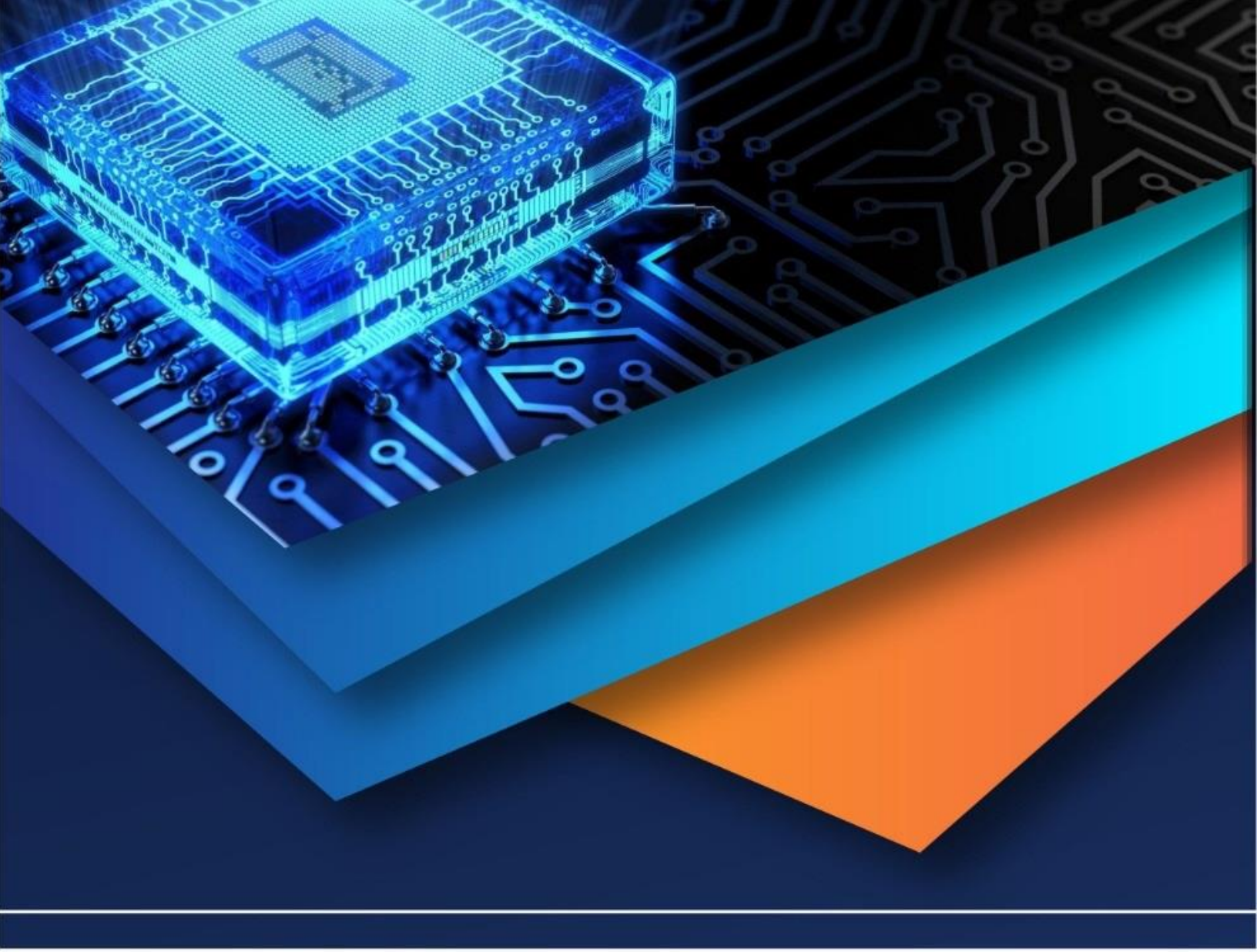
The Impact: Our solution streamlines elective selection, reducing resource wastage and enhancing academic efficiency.

The online student course registration system has made the registration process simpler. In the past, students had to knock on doors to get the relevant officials to accept their documents; however, the newly designed method provides a more effective means of carrying out these tasks. Students can use a computer or a smartphone to visit the registration portal online, fill out the required forms, and submit them for additional review. We are able to access this web application with ease and it is transparent. However, from the perspective of the organization, it supports easy maintenance, data accessibility, uniformity, and openness. When the suggested system is put into place, everyone's workload will be reduced because data can now be managed properly with authorization and authentication rather than being hard copied and available to everybody.

This has significantly reduced the time required for process completion. Upon registration, the database is automatically updated at the conclusion of the process, relieving department officials from the manual data entry burden. Utilizing MongoDB for database management ensures the elimination of data duplication, thus minimizing the likelihood of errors. The system allows for easy retrieval, editing, and printing of data as needed. The authentication-based access system enhances security compared to a manual system. All data is centrally stored, distributed among different departments as required, and backed up on separate servers. Access to the database is strictly authorized, preventing viewing or editing by unauthorized individuals. In summary, this automated and computerized system stands out for its safety, speed, and user-friendly interface.

REFERENCES

[1] Shafie, E., Al-Ajlan, A., Aldrawiesh, K., Bajahzar, A., & Al-Saawy, Y. (2011, January). “Online registration system”. In Advanced Computer Control (ICACC), 2011 3rd International Conference on (pp. 174-179).
[2] E. Hart-Baldridge, “Faculty Advisor Perspectives of Academic Advising,” NACADA J., vol. 40, no. 1, pp. 10–22, 2020.
[3] M. N. Esraa Afify, “A Proposed Model for a Web-Based Academic Advising System,” (International J. Adv. Netw. Appl. (IJANA, vol. 9, no. 2, pp. 3345–3361, 2017.
[4] L. Keston and W. Goodridge, “AdviseMe: An Intelligent Web-Based Application for Academic Advising,” Int. J. Adv. Comput. Sci. Appl., vol. 6, no. 8, 2015.
[5] Huang Jiancheng Li Weiwen He Qubo Zhang Wanmao, “Design and implementation of the management system of college students' registration and tuition payment,” no. 5, vol. 25, China Medical Education Technology, Xi’an, 2011, pp. 535–537
[6] https://react.dev/learn/adding-interactivity
[7] https://www.mongodb.com/docs/manual/crud/
[8] https://nodejs.org/docs/latest/api/module.html



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)