

## Research Article

# UiTM E-College System

Nik Mohamad Shamim Nik Mohd Zainordin<sup>1,\*</sup>, Muhammad Afif Aiman Yaafar<sup>2</sup>, Danial Hakim Mohd Aizi<sup>3</sup>, Nur Mahirah Syajeedah Kisman<sup>4</sup>, Aina Nabihah Mohd Junaidi<sup>5</sup>, and Nur Syazwani Mohd Rabi<sup>6</sup>

<sup>1</sup> Universiti Teknologi MARA Cawangan Kelantan; nikshamim@uitm.edu.my;  0000-0003-0584-8409

<sup>2</sup> Universiti Teknologi MARA Cawangan Kelantan; afifyaafar1@gmail.com;

<sup>3</sup> Universiti Teknologi MARA Cawangan Kelantan; dnialhkim.0@gmail.com

<sup>4</sup> Universiti Teknologi MARA Cawangan Kelantan; nrmhirahsy@gmail.com

<sup>5</sup> Universiti Teknologi MARA Cawangan Kelantan; ainanabihah1472@gmail.com;

<sup>6</sup> Universiti Teknologi MARA Cawangan Kelantan; nursyazwanimohdrabi@gmail.com;

\* Correspondence: nikshamim@uitm.edu.my; +60148459852.

**Abstract:** The E-College System is a digital innovation to transform the college registration and merit tracking process at Universiti Teknologi MARA (UiTM). Traditional manual methods have led to inefficiencies, including time-consuming paperwork, lack of transparency, and administrative burdens on students and staff. This project introduces an integrated online platform that streamlines student registration, document submission, merit tracking, and fee payments, significantly improving accessibility and reducing processing errors. By digitizing these processes, the system enhances operational efficiency, minimizes paperwork, and aligns with sustainability efforts. The research explores user experiences, identifies pain points, and proposes solutions to modernize college management. Findings indicate that implementing a user-friendly, automated system increases efficiency, transparency, and satisfaction among stakeholders. The E-College System sets a precedent for digital transformation in higher education, ensuring seamless interactions between students and administrative bodies while fostering a more organized and sustainable academic environment.

**Keywords:** e-college system, online registration, e-merit system, automated notifications, paperless administration



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## 1. INTRODUCTION

Managing college administration and Merit at UiTM using traditional manual systems has become a significant challenge for both students and staff. The current processes of college, including registration and merit tracking, rely heavily on outdated, paper-based methods that are time-consuming and inefficient. Students often face frustration with unclear instructions, missed deadlines, and difficulty keeping track of their merit scores due to the use of physical coupons. At the same time, staff are burdened with manual data entry and repetitive tasks, which not only increase their workload but also lead to delays and errors. These issues highlight the urgent need for a more modern and user-friendly system that makes life easier for everyone involved.

To solve these problems, the proposed E-College System offers a fully digital platform designed to simplify and improve the overall experience for both students and staff. This system enables students to handle tasks such as registration, document submission, merit tracking, and fee payments, all from one convenient interface. Automated notifications ensure students stay on top of deadlines, while real-time updates provide transparency and peace of mind. For staff, the system eliminates repetitive tasks and reduces the risk of errors, freeing them up to focus on other work. Additionally, by going paperless, the system not only cuts costs but also supports sustainability efforts, helping the environment and modernizing operations.

By introducing the E-College System, UiTM will not only address existing inefficiencies but also set a new standard for digital transformation in higher education. Research shows that automated systems for hostel registration significantly reduce administrative workloads and improve operational efficiency, with digital platforms enabling seamless document management while eliminating manual errors (Adegun et al., 2019). The system promises to save time, reduce frustration, and improve the quality of interactions between students and administrative staff. Furthermore, it aligns with the university's long-term sustainability goals by minimizing paper usage and administrative overhead.

## **2. PROJECT OUTCOMES**

Characteristic in the E-College innovation is easy to access as this system can be accessed by the student anytime and anywhere without sticking to the office hour time whenever they wanted to submit any necessary documentation that is needed for the college. This also will make it easy for the college staff to check student information just through the E-College application. Moreover, students can use the apps to do payment, and report any issues or complaint just by the mobile app. This will reduce the waiting times for the face-to-face submission documentation, convenience and greater satisfaction with the college services for both parties, which are the students and hostel management staff.

Furthermore, by the innovation of E-College application it also can enhance operational efficiency where the hostel staff can reduce the workload on handling the room allocation, fee management and complaint. By using the systems, it can do automation for all the work. This will make processing times for all the documentation and registration faster; fewer mistakes will happen for documentation purposes and with that it will make better hostel management. Moreover, with the innovation of E-College registration it can reduce the cost of printing for registration material and make less mistakes of paperwork registration (Meghana et al., 2021). Other than that, it is also more convenient for the student where they can pay fees and report any issues or complaint through a mobile app or web portal and it in one place, they did not need to go to other google form to fill it about different things.

By the existence of the application the student can receive instant notification on everything about the E-College, especially about the room availability, payment reminders, maintenance updates and datelines on submission of any documentation for the hostel. With this innovation it helps the student to always keep informed and minimize the risk of missed deadlines for college registration or any announcement about the college (Diyaulu et al., 2024). Thus, making it easier for the college staff to always remind students about the deadlines to send all the forms needed for the college admissions process. Moreover, by this innovation student can have E-Merit and ability to scan E-merit that will shows on every

program that they attend, as merit is required for every student to have when they wish to stay in college for the next semester.

### **3. PROJECT CHALLENGES**

Main requirement to use the E-College application is internet connectivity. However, the innovation that will make the users can use the application functionally even in areas with poor internet connectivity and we will also make the apps able to offline access for certain things. Other than that, the challenge that needs to be managed is the monthly maintenance of the application to ensure the flow of the systems is still smooth for users to use. It is also hard to track the issues that have been solved by the college staff as it might be the staff forgetting to update about the issues that have been solved.

When the application receives a huge number of users at one time it might cause lagging to update about the room allocations or college event at that time. So, the student has an issue receiving the information late or having overlap about the room selection. This innovation needs to ensure that the E-College application can handle the growing number of users without having any performance issues, especially on the new students' intake. When the systems provide room selection for the students it can be one of the challenges as we need to make a system that can balance the room allocation based on the availability of the room (Adegun et al., 2019).

The most important thing when a system receives personal data information of the students, it has to have data protection laws and regulations to handle the information from being misleading or being used for bad things. So, it needs to have data security and privacy to protect the privacy of the students and also the staff. Besides that, we need to pay more attention to handling sensitive student information securely, for example personal details, payment data and more.

### **4. PROJECT SUCCESS INDICATORS**

The potential indicator that will help us to know that the innovation of the system will be successful is the most important things is feedback and surveys from students and hostel management on how they use it in it is achieve the satisfaction as user on using it or any dissatisfaction with the current college management systems that we need to have more improvement (Kerzner, 2022). When the demand wants to use the automation and digitalization in college administration especially when it a semester on receive new student intakes.

After receiving positive feedback from the students about the satisfaction of how comfortable and convenient it is for them to handle anything regarding college registration, payment and complaint tracking. Other than that, receive positive result from the testing or pilot project before it can be used to public. In addition, based on the analysis that showed that digitalization college administration and registration can reduce the administrative cost and error. This will cut costs on the printing and preparation of the college registration for both students and staff. To create the systems the most important thing is to have support from the college staff management and the institution where they show their interest in innovation and digital transformation. Their support is very important to make the systems successful and exist to use for the students that are always facing the problem every time they do college registration.

## 5. FINDINGS

### 5.1 Rapid Prototyping

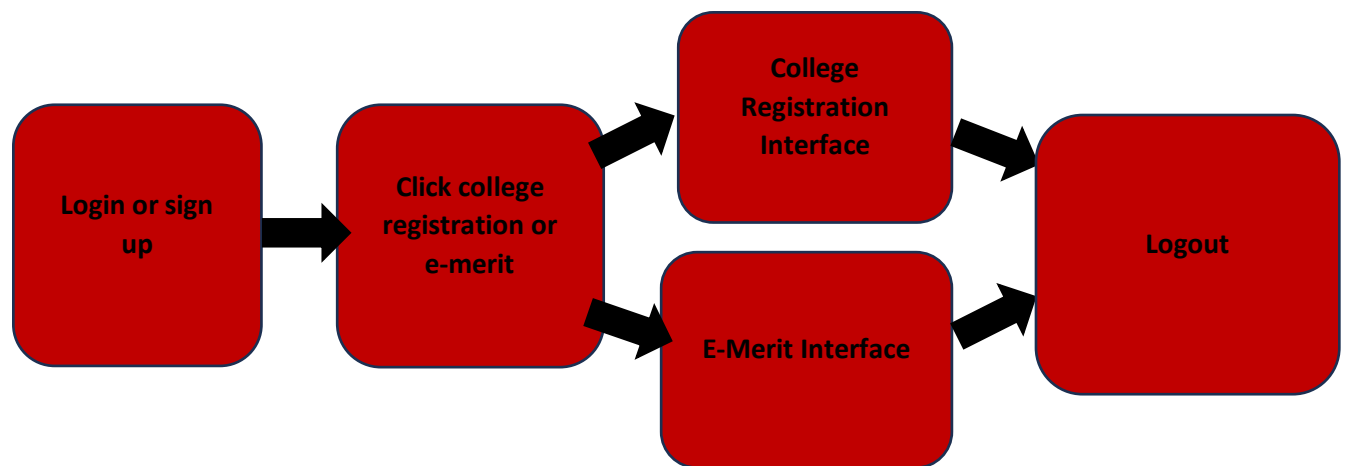


Figure 1: Rapid Prototyping

The step above represents a rapid prototyping model for an E-College system, outlining the workflow and functionalities of its key interfaces. It begins with the Login or Sign-Up process, where users, such as students, can access or create an account to proceed with their tasks. After logging in, users are presented with two main options which are College Registration or E-Merit Interface, depending on their requirement.

In the College Registration Interface, users can perform essential tasks to college application such as filling out application forms, submitting necessary documentation such as the copies of IC, parent's salary slip, current examination result and Current Semester Involvement Certificates. Users can check their status of applications, and complete payments for registration. This interface ensures a seamless registration process for college admissions.

The E-Merit Interface is designed to handle merit-related functionalities. Users can scan the merit code when attending any program to provide merit and check the status of their merit such as total merit, total of program attended, and history of program attended. This feature is particularly useful for tracking eligibility and merit rankings for academic opportunities.

Once the desired actions are completed, the system directs users to the Logout process, ensuring data security and the completion of their session. The rapid prototyping of this system enables quick and iterative development of the E-College platform, focusing on user interaction, functionality, and smooth transitions between key process.

## 6. DISCUSSION

The E-College system is an integrated digital platform designed to enhance the residential experience for students. It streamlines the administrative process by providing features such as document uploads, status applications and payment systems. Therefore, for students with e-merit status, they can see the amount of e-merit, join programs and history programs they have attended. This system ensures

smooth communication between students and hostel authorities through notifications popup. By centralizing information and automating routine tasks, the E-College system promotes efficiency, reduces paper, and improves accessibility, allowing students to be more satisfied while using the system smoothly and overall development.

Previously, college registration was done face-to-face where students had to submit college application forms, submit supporting documents such as Identity Card copies, family income slips, current examination slips and merit forms at the college office which was less efficient and used a lot of paper, it makes arranging face-to-face meetings with applicants difficult and time-consuming. This can be due to several forms being dropped and the process of deciding the proper ones is less thorough in the finalization process. To see the status of application and payment students must access different websites to see the results of the college application whether successful or not, this makes it more difficult for students to access two different platforms causing a lot of work to be done. With the introduction of the new E-College registration system for E-College registration, there are many benefits that students and staff can afford from the new system. One of the opportunities we can see with the E-College system can reduce the use of paper in college registration matters because students do not need to send hard copy documents such as college application forms, send supporting documents such as copies of Identity Card, family income slip, current examination slip and merit form.

While the existing merit system uses a coupon system in the form of paper which is less efficient. The old merit coupon system makes it difficult for students and staff. This is because the coupons must be made manually using paper and distributed to students who attend the program. The manual process used is time-consuming because students have to physically obtain coupons, which involves distribute coupons individually, especially in programs involving many participants.. More worryingly, coupons are easily manipulated or forged, which can undermine the integrity of the merit system. The new E-Merit System by replacing paper coupons to a digital system the use of applications or online systems allows the process of recording and redeeming merit to be easier, faster, and more efficient. In addition, this system can reduce the cost and use of paper, thus being more environmentally friendly. Automation and integration with other systems, such as student registration, can improve the accuracy and transparency of records. Technologies such as QR codes can also speed up the process of registering attendance in the program. This digital system not only saves time and manpower but also provides a better user experience, in addition to providing data for analysis to improve the effectiveness of future programs.

### **Idea Expansion**

According to (Nawi et al., 2022), universities generally offer accommodation for students, particularly those from outside the local area. The E-College System fully aims to streamline and modernize the monitoring of student activities and college management operations while improving user experience and administrative efficiency. One of the most notable features is its extensive activity monitoring capacity. Using a simple interface, students can report their participation in extracurricular activities such as clubs, athletics, and community service. This tool tracks students' achievements and helps the college administration evaluate student involvement and contribution to campus life.

Furthermore, an automatic document upload and verification system would enable students to securely submit essential documents such as identification documents, supporting financial documents,

coupons merit, room registration slip, activity certificates, exam slip, electrical registration slip, and payment receipt. The system will automatically verify completeness and accuracy. Reducing errors and the requirement for manual intervention from college staff. Along with these essential functions, the system will provide students with real-time alerts and reminders, informing them of important dates for submitting documents, making payments, and assigning rooms. Students can monitor the status of their registration, payment, and room allocation using a user dashboard, which will increase openness and lessen misunderstanding. Additionally, the system will have a mobile-friendly interface that will guarantee that students may finish all necessary tasks from anywhere at any time using a smartphone or tablet.

## 7. CONCLUSION

To conclude, the E-College System was developed to overcome the inefficiencies and challenges faced by students and staff in managing college registration and merit tracking at UiTM. This project aims to modernize the existing manual processes by introducing a fully digital platform that streamlines tasks such as online registration, document submission, merit tracking, and fee management. By eliminating paper-based methods and automating repetitive tasks, the system enhances efficiency, transparency, and user satisfaction while aligning with sustainability goals.

The development of the E-College System was grounded in user-centred design principles, incorporating feedback from students and staff to ensure the solution is practical and user-friendly. The integration of features like real-time notifications, digital merit tracking using QR codes, and automated processes not only simplifies administrative tasks but also improves the overall student experience. The system's contributions are significant in reducing operational costs, minimizing errors, saving time, and promoting an eco-friendly approach to college administration.

Despite its advantages, the E-College System has limitations that must be acknowledged. The system's reliance on stable internet connectivity may pose challenges for users in areas with poor network access. Additionally, the need for regular maintenance and updates to ensure smooth functionality and handle user demands could require substantial resources. Future improvements could focus on enhancing offline accessibility, incorporating advanced data security measures to protect user information, and further integrating AI-based features like predictive analytics for student and staff needs. By addressing these limitations, the E-College System has the potential to become a model solution for digital transformation in higher education institutions, ensuring its scalability and long-term impact. Through this project, UiTM has the opportunity to lead in adopting innovative educational management solutions, setting a benchmark for other institutions while improving the quality of life for students and staff alike.

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