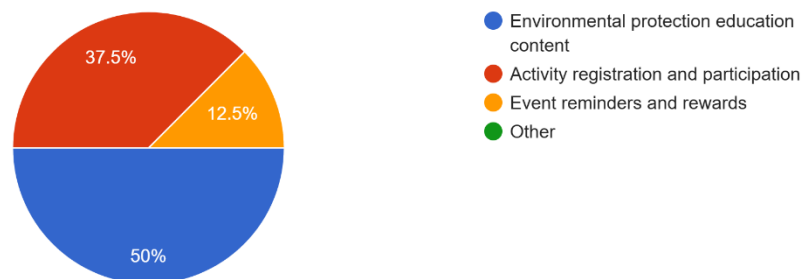


Item	Page No	Prepared by	Moderated by
1. Introduction		All member	
2. Existing Systems		Zhao Wei	
3. Proposed System		Liu Wanpeng	
4. Software Process Model		Bu Guoshun	
5. Project Schedule		Liu Ruoyang	

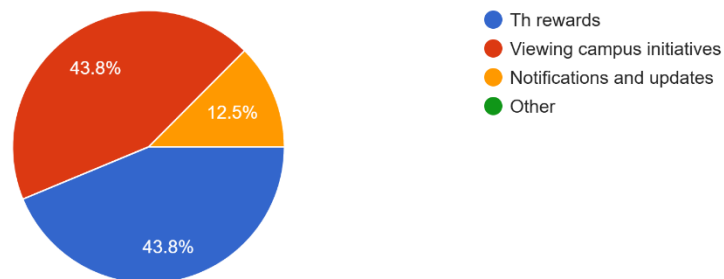
What features would you like to see added to your MYGreen UTM system?

(16 条回复)



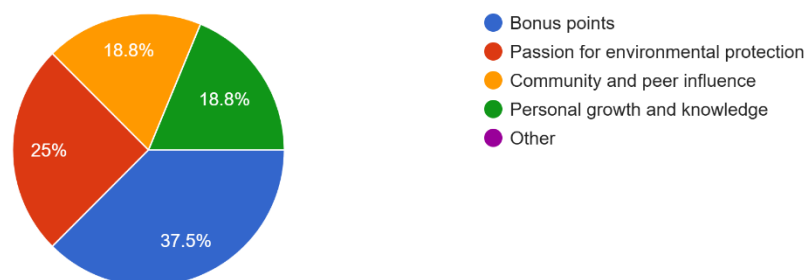
In the MYGreen UTM application, which feature do you find most helpful?

(16 条回复)



What motivates you most to participate in the activities listed on the app?

(16 条回复)



## 1. Introduction

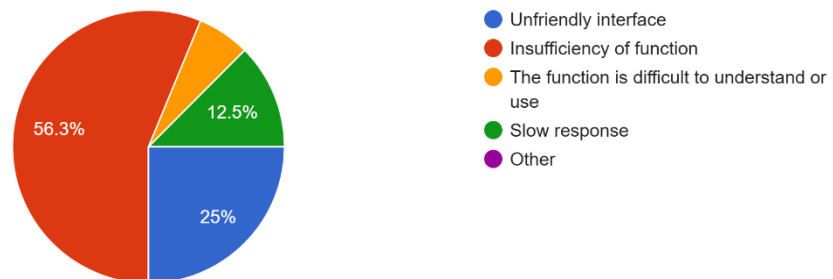
<b>Need (N)</b>	MYGreen UTM aims to fill this gap, drive the campus community to become more actively involved in environmental activities, and increase students' green awareness and campus sustainability.
<b>Approach (A)</b>	<p>The MYGreen UTM system was redesigned to adopt the form of a <b>mobile application</b> as the core platform. The mobile application can provide users with more convenient access and increase environmental awareness and participation in the campus community by integrating multiple functions.</p> <ol style="list-style-type: none"> <li><b>1. Environmental activities and points function</b>  <b>Function description:</b> Users can earn points by participating in campus environmental protection activities.</li> <li><b>2. Qr code scanning function</b>  <b>Function Description:</b> This module allows users to quickly scan the QR code when participating in activities and viewing resource monitoring data.</li> <li><b>3. Environmental education and information functions (New Feature)</b>  <b>Function Description:</b> This module provides users with the latest environmental information, green living tips and the introduction of campus sustainability projects.</li> </ol>
<b>Benefit (B)</b>	<p><b>Increase environmental awareness:</b> Through educational modules and activities, help users understand the importance of green living.</p> <p><b>Enhance community participation:</b> Encourage users to actively participate in campus environmental protection activities and create a green campus culture.</p>
<b>Competitor (C)</b>	<p><b>status quo:</b>  There are a variety of systems and applications dedicated to environmental management and sustainability on campuses and similar environments.</p> <p><b>Differentiation and Advantages:</b>  By showing significant advantages in functional design, user experience, technology integration and educational communication, MYGreen UTM not only effectively fills in the shortcomings of EcoCampus, but also provides a more attractive and efficient solution. Compared with EcoCampus, which focuses on institutional management, ignores personal experience, and has relatively limited user interaction and education functions, MYGreen UTM has more comprehensive functions that not only meet the resource management needs of institutions, but also provide personalized recommendations, interactive learning</p>

	<p>modules, and in-depth community functions. Integration considers the participation experience of individual users, further enhances the practicality and attractiveness of the system, provides more comprehensive services to higher education institutions and their teacher and student users, and demonstrates outstanding market competitiveness.</p> <p><b>The link for EcoCampus:</b>  <a href="https://www.ecocampus.co.uk/">https://www.ecocampus.co.uk/</a></p>
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## 2. Existing Systemss

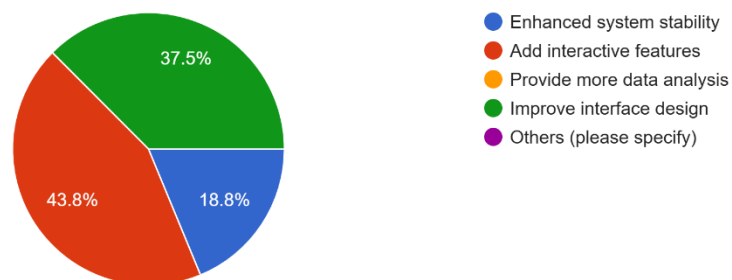
When you use the MYGreen UTM system, what features do you find inconvenient or unsatisfactory?

(16 条回复)



Do you have any specific suggestions for improving the look and feel of the MYGreen UTM system?

(16 条回复)



According to the survey report, we found several problems with the current system

**Problem 1:** Lack of real-time data tracking and analysis

Existing environmental applications and manual systems are generally unable to monitor campus resource use and waste management in real time. This leads to waste of resources and inefficient management.

**Problem 2:** Low user engagement and lack of personalized experience

The interface and function of the system are not attractive, which fails to effectively stimulate the user's interest in participation.

Lack of personalization to recommend relevant activities or educational content based on user preferences and historical behavior.

**Problem 3:** Lack of clear guidelines on scanning QR codes

In the existing MYGreen UTM system, users often need to scan QR codes when using various functions, such as participating in environmental activities, signing in, and obtaining points. However, user feedback pointed out that the system lacked clear guidelines for the operation of scanning QR codes in each functional module, which could lead to confusion and inconvenience for users during use.

### 3. Proposed System

The **MYGreen UTM** system is designed to address the identified gaps and overcome challenges in current environmental management applications. By integrating modern technology, MYGreen UTM will actively promote sustainability practices within the campus while improving user engagement and efficiency.

#### Features of the Proposed System

**1. Real-Time Data Tracking and Analysis**

**Smart Monitoring:** Sensors integrated across the campus for real-time tracking of resource usage (e.g., energy, water) and waste generation.

**Data Visualization:** A dashboard displaying real-time statistics and trends to enable informed decision-making.

**Predictive Analytics:** Tools for analyzing data patterns to forecast resource demands and identify areas for improvement.

**2. User-Centric Design and Personalization**

**Engaging Interface:** A visually appealing and interactive user interface

to maintain interest.

**Activity Recommendations:** Personalized suggestions for green activities and events based on user preferences and history.

**Gamification:** Points and rewards system to encourage participation in green activities.

### 3. Educational Modules

**Interactive Learning:** Modules on sustainability topics with engaging content (e.g., videos, quizzes).

**Certification:** Users can earn certifications for completing modules, boosting their green credentials.

### 4. Community Engagement

**Event Coordination:** Tools to organize and manage sustainability events.

**Social Sharing:** Features to share green achievements and activities within the campus community.

**Feedback Mechanism:** Easy channels for users to provide feedback on initiatives and system improvements.

### 5. Resource Management

**Waste Management System:** A tracking system for waste segregation and disposal status.

**Energy Optimization Suggestions:** Tips and guidelines to optimize energy use across the campus.

## Advantages of the Proposed System

**Efficiency:** Automated real-time data tracking ensures timely and precise resource management.

**Engagement:** Interactive features foster greater participation and long-term involvement in sustainability.

**Awareness:** Educational content raises awareness of green practices and fosters a sustainable mindset among users.

**Scalability:** The system design allows for scalability to include additional features or integrate new technologies as needed.

## Architectural Overview

The system will consist of:

**Backend:** Cloud-based data processing and storage for efficient management.

**Frontend:** A web and mobile application for easy access and interaction.

**Integration:** APIs for real-time communication with sensors and external systems.

#### 4. Software Process Model

We chose **Waterfall Model** as the development model for MYGreen UTM system for the following reasons:

1. **Requirements are clear and stable:** they don't change much during development. The waterfall model is suitable for such projects with stable requirements.
2. **Strong structure and sequence:** there will be no major changes in the development process. The waterfall model is suitable for such projects with stable requirements.
3. **Detailed documentation support:** The Waterfall model focuses on documentation, which can improve transparency and communication efficiency, facilitate project management and post-maintenance.
4. **Low requirements change risk:** Due to strict project timelines, requirements change increase development risk. The waterfall model identifies requirements at an early stage, reducing the likelihood of requirements changes at later stages and keeping the project on schedule.

#### Waterfall model flow

1. **Planning**  
Prepare project proposal
2. **Requirement Analysis**  
Analysis the existing system
3. **System Design**  
Identify improvements needed in existing system  
System design  
GUI design
4. **Implementation**  
Finalize definition of data structures



In this phase, the technical components of the system are developed, including defining data structures, creating database tables, and implementing program coding. The deliverable is a functional system prototype.

### **System Testing Phase**

System testing will ensure that the implemented features function correctly and align with the specified requirements. A final project report will summarize the results of the testing phase.

### **Maintenance Phase**

This phase involves releasing a trial version of the upgraded system and collecting user feedback to address any remaining issues. The deliverable is the feedback report, which informs any final adjustments before full deployment.

## **6. References**

- [1] Sommerville, I. (2016). "Software Engineering", 10th Edition, US: Pearson.

## **Appendices**

Google Survey Links:

<https://forms.gle/BrWFmW2GZKyZ1nFp9>

AI assist link:

<https://chatgpt.com/share/673ac71f-2d98-8005-935d-722ed46b5791>