# CIP APP

Next generation campus information platform

XJTLU | SCHOOL OF LANGUAGES


**Group:** EAP041-31-G1
**Members:** Qiutian.Lan Jingyang.Wang Guangyu.Zhao Zecheng.Yin
**Mail:** Qiutian.Lan24@student.xjtlu.edu.cn


* All the concept design pictures below are our team's original creations

## Proposal Statement

The university should invest in establishing a new Campus Information Platform (CIP), which provides students with comprehensive updates on school activities, club academic events, class information, as well as details about restaurants and shops around the campus.

## Background

A university is an organic and integrated entity that requires the handling of a vast amount of information. In universities, an effective solution to this problem is highly desirable. With the development of the internet, school information systems have emerged as a means to manage this information. According to Hu, P. (2023), a smart campus management platform based on digital twin technology for XJTLU can manage and serve students, teachers, parents, and other aspects, achieving the mining and analysis of school big data.

XJTLU also has its own information system, called XJTLU App. However, it lacks simplicity and is not centralized enough for student to access. Students are bombarded with messages from numerous platforms, which increases the likelihood of them missing crucial events. Therefore, it is proposed that the school information system of XJTLU should undergo certain modifications.

### Lack channels to integrate all information

As noted by Alavi and Leidner (2001), who stated that the integration of disparate information systems is critical to ensuring that users can access relevant data without unnecessary complexity. To date, one problem at XJTLU is that students could not get all the information from it on time because of the complicated sources of information. This is especially troublesome for students who do not check all their email or the website or WeChat to search for useful information every day. It would therefore be important for them to get all the information in just one channel so that they will not miss useful information in other channel.

### The classified forum

A study by Burger and Nadirova (2013) highlighted how collaborative platforms in educational institutions improve student engagement and knowledge sharing. However, while such platforms facilitate general interaction, they often lack structured mechanisms for students to seek targeted academic or administrative support. For instance, if students encounter specific problems—such as course selection, assignment guidance, or university policies—they may struggle to find knowledgeable peers or staff to provide timely answers.

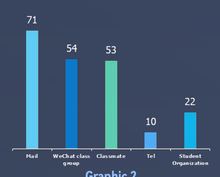
To address this gap, XJTLU should build a classified forum where students can ask and answer questions in an organized manner. This platform would not only improve information accessibility but also foster peer learning and a stronger sense of community. Moreover, by categorizing discussions (e.g., by subject, department, or student services), students can more efficiently find relevant guidance, ultimately enhancing their overall university experience.

## Survey results

### Proposal of the survey

To understand what students needed most in academic life, also get feedback about the draft of the APP, the survey was conducted (Appendix A). The survey used WenJuanXing (www.wjx.cn) to create the questioner, then, used Excel for the data analysis. The survey collected 75 valid responses.

Graphic 1



Graphic 2

### The current situation

Most students who answered the questionnaire are year 1 students [Graphic 1]. While 60% reported having fixed information channels [Graphic 4], the remaining students tended to verify information through peers or roommates.

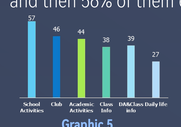
After deeper survey, the channels of students to get information are listed below [Graphic 2]. Almost all students choose to receive information by E-mail (94%), and 72% of them will get information from their DA (Development Assistant) by WeChat or just ask their roommates. In addition, 13% of them get information by telephone, then 29% get information by an organization on WeChat which are organized by students.

As a result of the complexity of information gathering methods, 18% of the students reported that they miss information serval time each day. Moreover, 16 miss out on information on a weekly basis. Although 57% stated that they seldom meet the problems, that is still a problem should be address. [Graphic 3].

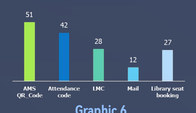
### The requirements from students

The information system that proposed is aimed to contain information which XJTLU students needed everyday, so [Graphic 5] shows what types of information is highly important for students. Most students (76%) are interested in school activities, and 61% are interested in club or academic activities. Another large group want to know about the class information and notice from their DA.

To make a more rounded system, it is not only the information system that is desired, but also the integration of other functions. The students were asked about the functions they needed, and the results are shown below [Graphic 6]. 61% of students used the XJTLU APP for scanning the QR code (AMS), and then 56% of them entered the code for class.



Graphic 5



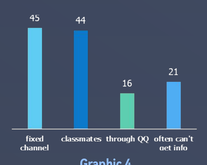
Graphic 6

### The feedback from students

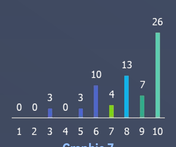
In the student survey on the comprehensive university information system, there was significant interest in the new software, and adjustments were made based on the feedback received. The survey results [Graphic 7] showed that 66% of the students scored the system 7 points or higher, which not only validates the need for the system, but also points out areas for improvement. motivating us to continue refining the system to meet the needs of the students.

The feedback from the students shows they like the new APP and it works, so we proposed the university to adopted it and make it bigger.

Graphic 3



Graphic 4



Graphic 7

Give feedback on our CIP App

## Conclusion

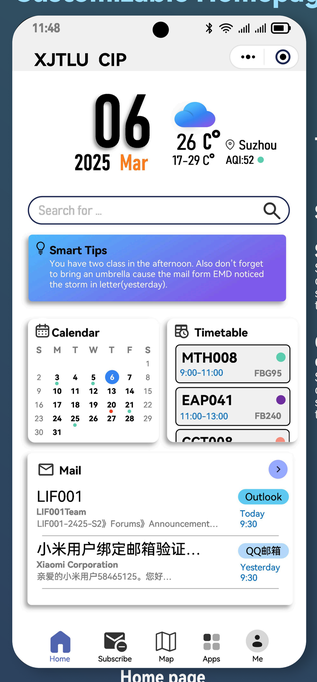
The proposed Campus Information Platform (CIP) for XJTLU represents a significant upgrade to the current system, integrating features such as customizable homepages, 3D maps, and AI-driven news updates to simplify campus services and enhance user engagement. These innovations aim to reduce information search time, boost event participation, and improve both academic and social experiences. While the platform may require an initial adjustment period after deployment, it is expected to demonstrate tangible benefits within one semester. Once the app becomes integrated into XJTLUer's daily life, they will experience enhanced accessibility to campus resources, fostering a more connected and efficient university environment.

However, challenges such as high implementation costs, ongoing maintenance demands, and cybersecurity risks must be addressed. To address these, outsourcing development tasks, optimizing database performance, and employing robust encryption protocols are proposed. Successful management of these issues will ensure CIP's potential to transform campus interactions.

Future enhancements will focus on refining system functionality through user feedback, expanding 3D campus modeling coverage, and maintaining seamless performance. By continuously adapting to evolving needs, CIP can evolve into a central hub for XJTLUer's life, transcending convenience to drive a smarter, more integrated academic community.

## Benefits - About the APP

### Customizable Homepage



Home page

**Today's weather**

**Smart Searching**

**Smart Tips**
Scans emails, timetables, and other info (authorized) to suggest smart scenarios and tailored tips.

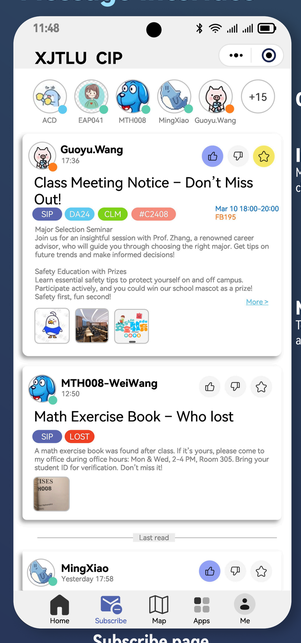
**Customizable components**
Scans emails, timetables, and other info (authorized) to suggest smart scenarios and tailored tips.

Components Library

The system adopts a modular design, allowing users to personalize their homepage configuration based on individual need which is a feature not offered by the existing one. Unlike conventional APP with rigid layouts, our solution empowers users to customize their dashboards for optimal productivity. Through an extensible component library, users can select from 16 core components , including an academic calendar, Timetable Plus, campus event centre, and unified communication mailbox.

This flexible design helps users work more efficiently by minimizing unnecessary clicks and page switching. For example, they can prioritize the most important components, like mail box, at the top, making key information instantly accessible. By doing this, the system ensures users see what matters most right away, also focus on their tasks instead of searching for tools across different screens.

### Message Interface



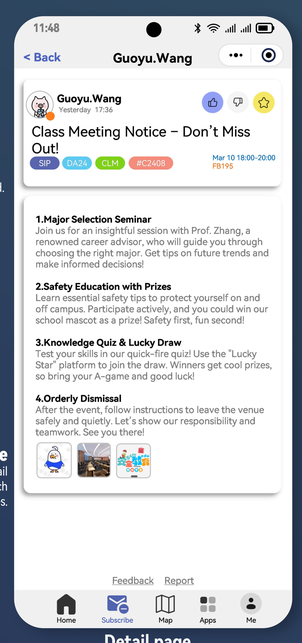
Subscribe page

**Channels**

**Info Cards**
Messages from the channels you subscribed.

**Multi-media**
Text, Picture, Video are accept.

**Detail page**
Show about the detail information of each messages.

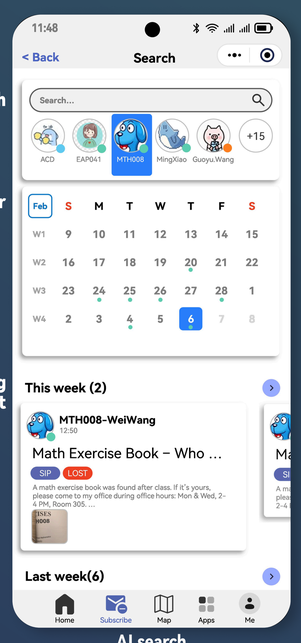


Detail page

**Smart search**

**Calendar**

**Searching result**



AI search

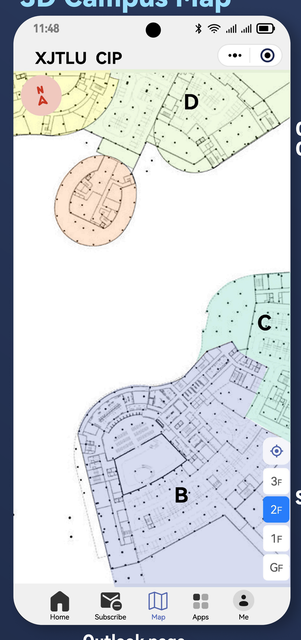
CIP manages information through a subscription system.

At the top, a subscription bar shows new messages from channels that users follow. To minimize fake news, each channel uses color-coded badges to show credibility (admin = blue, lecturer = green), making it easier for users to trust the content or not.

The middle is the detail information, which displays messages with timestamps, category tags, and like/share/favourite options. Users can add attachments (photo, video etc.), so it will be easy for lecturer to distribute the PPTs or PDFs for class.

To prevent information overload, CIP have an AI powered filters, that accept natural language command (e.g., "academic lectures next Wednesday afternoon"). Unlike traditional ones, even though the detail is unclear, the filter can still get relevant information.

### 3D Campus Map

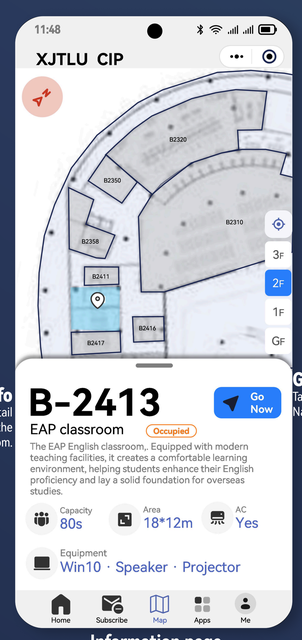


Outlook page

**Overview of Campus**

**Key Info**
Show about detail information of the selected room.

**Select Floor**



Information page

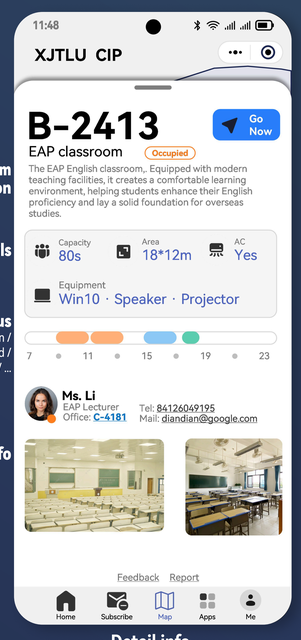
**Go now**
Tap to Start Navigation

**Room introduction**

**Room Details**

**Room Status**
Class in Session / Reserved / Available / ...

**Teacher Info**



Detail info

CIP contains a campus digital twin platform, integrating SIP and TC campus building data to achieve high-precision modeling of indoor and outdoor spaces. The system stores key details like classroom capacity, equipment availability, and past usage records. Color-coded indicators show real-time room availability, while instructor information helps users quickly contact staff. Visitors can use the built-in 3D navigation for step-by-step directions across different floors.

This system helps students easily find and book study spaces while improving the school's space management. Teachers and visitors who unfamiliar with campus layouts will be benefit from room details and guided navigation. Beyond practical use, the platform showcases our school's commitment to modern technology, enhancing our reputation as an innovative institution and demonstrating smart campus capabilities to visitors and peer schools.

### Potential problems

In designing, several potential challenges that may happen are identified:
Firstly, the issue of cost is a non-negligible challenge, encompassing the expenses of outsourcing, the initial development costs of the system, and the subsequent operational costs. This finding aligns with the research by Sprenger, Klages and Breitner (2010), who emphasize that software project costs need to consider development, implementation, and operational phases, and propose the use of function point analysis for accurate estimation.

After launch, maintaining the platform will require long-term effort, particularly in checking the forum posts. To sustain a reliable and trusted system, XJTLU should establish a dedicated moderation team capable of monitoring discussions and addressing critical issues promptly. If the team members are unavailable during the initial phase, just hire the XJTLU students—who are both numerous and eager to support the university—could serve as a viable interim solution.

Lastly, security concerns can't be overlooked, especially the risk of password leaks in Single Sign-On (SSO) systems, which could pose a threat to the personal information security of students. Consequently, it is proposed to devise stringent security measures to guarantee the system's integrity and prevent data breaches from occurring.

## Next steps

After completing the stages of requirement collection, functional design, and conceptual interface design, it is proposed to proceed with the following key areas for the next phase of development:

**High-Precision Campus Modeling**
Our solution employs drones equipped with LiDAR, RTK positioning, and 3D scanning, based on Marie's (2024) techniques, to achieve accurate campus modeling while protecting privacy. Exterior and interior spaces are scanned comprehensively, excluding sensitive areas to comply with privacy regulations, ensuring both precision and privacy.

**School Database Optimization and Accessibility**
The existing database may require partial redesign for improved efficiency and faster access, including optimized data retrieval and app compatibility. A better map server will be integrated for navigation services, with potential collaboration with the School of Advanced Technology (XJTLU) for expertise.

**Application Development**
Development will begin after finalizing requirements, specifications, and design guidelines based on mockups. Collaboration with an external agency will prioritize efficiency and implementation ease, ensuring a streamlined timeline without compromising quality.

## Reference


**1. Alavi, M. and Leidner, E. (2001).** Review: Knowledge Management and Knowledge Management Systems: Conceptual Foundations and Research Issues.

**2. Burger, J. and Nadirova, A. (2013, p.17).** From Data Poor, Information Poor to Data Rich, Information Rich Decision-Making: Design and Implementation of a Student Information System.

**3. Hu, P. (2023).** Investigation on Smart Campus Management Platform Based on Digital Twin

**4. Marie (2024).** Optimize Point Cloud to 3D Model Workflow

**5. Sprenger, Klages and Breitner (2024, p.7).** Cost-Benefit Analysis for the Selection, Migration, and Operation of a Campus Management System