



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

FACULTY OF COMPUTING
UTM Johor Bahru

SECP 1513: Technology Information System

Semester 01, 2024/2025

PROJECT PROPOSAL

UTMgpt

Team Name: Tech Debuggers

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Client Name:

1. EII ZHI HUI (student of UTM)

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1. Introduction

1.1 Need (N)

We have interview sessions with several students from University Technology of Malaysia and we notice that students often face inefficiencies in accessing critical resources about academic resources.

Some of the focus problems have three, the first problem is it was difficult accessing between multiple websites from different faculties or services to retrieve information such as course schedules, exam results, and academic policies. The second problem is that was wasting time on locating or receiving answers to common queries, such as procedural guidelines or course registration. The last problem is it was struggled to access tailored details about campus services, including food services, lecture history, extracurricular activities, and campus events.

Moreover, some consistent concerns were raised regarding universality staff. Staff need to spend a lot of time on handling repetitive inquiries and managing tasks that could be automated using the system. Besides this, the absence of integrated systems complicated data sharing and decision-making processes has led to delays and reduced productivity.

1.1.1 Evidence

Over 60% of students interviewed reported frustration with fragmented systems and slow responses to their academic inquiries. Some of the students highlighted the absence of a unified platform offering personalized guidance on navigating university services, learning about campus history, or discovering local resources. Administrative staff highlighted that approximately one-third of their workload involves responding to routine queries, diverting time away from higher-priority responsibilities.



1.2 Approach (A)

UTMgpt will be a centralized AI-enabled assistant which is accessible both from mobile applications and through a web portal. Utilizing innovative technologies such as big data, the solution will deliver more tailor-made, streamlined and scalable answers to their problems.

There are five key features including, the primary key feature is it was centralized access. UTMgpt collate all the university resources from different faculty or service centers like course materials, schedules, policies, event details in one single system, easy to use interface. The second key feature, UTMgpt has AI powered query resolution tool which has use natural language processing (NLP) to respond to common queries rapidly and precisely without human interactions from information on deadlines and application procedures to details about course availability.

Furthermore, it was personalized guidance. It utilizes big data analytics to learn about users and their behavior, providing personalized recommendations for academic, career and campus services. Fourth, repetitive tasks such as booking appointments, registering for events, and tracking academic progress can be done by system which is more effective when reducing manual effect and saving time. The last key feature is it can collect, processes, and analyze vast amounts of user and institutional data to identify trends, improve services, and support data-driven decision-making at the university level.

1.3 Benefit (B)

The UTMgpt system provides a lot of significant benefits, especially to the needs of UTM students and staff, it can enhance their overall experience from different aspects.

First at all, UTMgpt provides centralized access to all university resources, it is convenient for the user from eliminating visiting multiple websites to search for information. It ensures that the fundamental resources and tools can be accessed easily from a single platform and reduces frustration caused by navigating different systems. Secondly, the system offers personalized guidance tailored to individual user preferences. UTMgpt can understand the requirements and behaviors of each user, analyze and deliver customized recommendations solution, information or answer. This aim is to support users to make better decisions and access the resources most relevant to their goals.

Furthermore, this system saves time efficiently by providing quicker and more accurate and efficient resolutions to common queries. It can eliminate spending time on locating information or waiting for responses. This time saving feature allows students or staff to focus on their main work such as studying or research. Additionally, UTMgpt can automate repetitive and routine inquiries so it can help to reduce the workload for administrative staff. It frees staff to concentrate on more complex and difficult tasks. Lastly, UTMgpt enhances the utilization of data within the university. The system provides suggestions that can help users to do better decision-making at both individual and institutional levels by analyzing user questions and behaviors. This data-driven approach ensures that resources are allocated efficiently and that services continue to evolve based on actual user needs.

1.4 Competitor (C)

UTMgpt system is essentially different from other AI assistants in several keyways. The primarily keyways are due to its unique design on accessibility and concentrate on serving the specific requirement of Universiti Teknologi Malaysia (UTM) students and staff.

UTMgpt is exclusively accessible to UTM students and staff, it requires users to log in with their unique university ID code. For example, student can use Matric Number to log in. This restricted access ensures that only authorized individuals within the UTM community can utilize the system, maintaining a controlled environment for sensitive data by design. If data exposed to unauthorized parties, the misuse of information or even phishing maybe occur since the system resource involved personal and institutional data. Besides that, the reputation of university will be affected seriously and compromise the trust of its community. To address this problem, UTMgpt provides a secure platform to ensure the privacy and information security.

Unique database is another fundamental distinction of UTMgpt, which is built specifically to handle UTM-related information. The system processes, analyses, and manages a massive resource of data including the university's history, operations, and community interactions from its establishment to the present day. Thus, UTMgpt is uniquely supplied to manage detailed records that specific to UTM students and staff, unlike other AI assistants that work with broad datasets. For instant, the system can provide accurate and current information on class schedules for specific sections, facilitate administrative tasks related to residence hall commitments, and even support event planning by accessing historical data. The system's ability to retrieve, analyses, and manage specific data for university in real-time could

enhances productivity and do better decision-making on academic and administrative aspects.

In conclusion, UTMgpt is fundamentally different from other AI assistants due to its exclusive accessibility, which ensures privacy and security. Then, its specialized database that designed to provide for the unique requirements of UTM. These distinctions not only highlight the system’s innovative approach but also underline its role in fostering a secure, efficient, and well-supported environment for the university community.

2. Existing Systems

Several AI-powered tools are widely used for information retrieval, query resolution, and task automation. These systems provide valuable insights into how artificial intelligence can enhance user experience and efficiency. However, they are predominantly designed for general-purpose use, which limits their ability to cater to specific institutional needs like those at UTM. While these tools showcase advanced capabilities in natural language processing, multimodal support, and integration with external platforms, they lack the customization and security features required to handle university-specific operations, data, and workflows. This creates a gap in addressing the unique challenges faced by students and staff within academic environments.

There are a lot of AI assistant tools that already exist and are being used worldwide. For example, Chatgpt. Chatgpt was created by OpenAI, and the first version was launched in November 2022. It is a high-capable chatbot that uses machine learning algorithms to process and analyze large amounts of data to generate responses to user inquiries [1]. The second competitor is Google Bard. They primarily focus on generating creative and informative text, with real-time access to the internet for up-to-date information [2]. Next, Gemini was developed by Google DeepMind, it can generalize and seamlessly understand, operate across and combine different types of information including text, code, audio, image and video [3]. The last competitor is Microsoft Bing Chat which is powered by OpenAI's GPT-4, it integrates directly with the Bing search engine for a blend of conversational AI and search capabilities [4].

Features	ChatGPT [1]	Google Bard [2]	Gemini [3]	Bing Chat [4]
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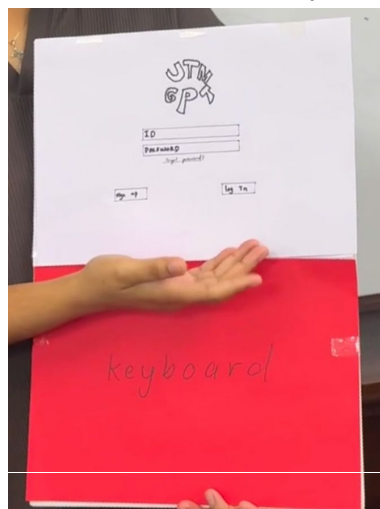
Natural Language Processing	Yes	Yes	Yes	Yes
Multimodel Capabilities	No	Limited	Yes	Limited
Real-Time Internet Access	No	Yes	Yes	Yes
Academic Personalization	No	No	No	No
Secure Institutional Access	No	No	No	No

3. Proposed System

3.1 Prototype

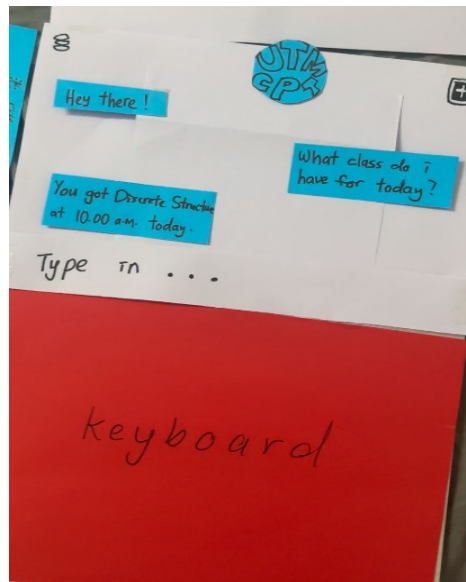
UTMgpt can be accessed via mobile applications and websites such as Google Chrome. The prototype has clearly stated the features and functions of the system. The picture below shows the UTMgpt that is accessed through website by laptop.

The picture above has shown the logo for the UTMgpt and the user can login to the system through their ID and password. For first-time users, they need to sign up via their UTMID and

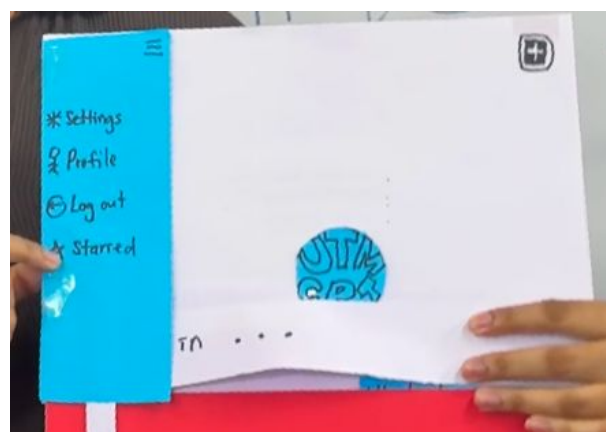


set a high secure password. This will ensure the privacy and information security of user.

Besides of these, if the user forgot the password, user could click the button “forgot password?” to help to recover or create a new password, but user need to verify their identity through a verification code.



After login, user will enter the AI Chatbot page. Use can ask the question, and it will response immediately based on user preference.



After the user presses the hamburger menu on the top-left corner, it will open the navigation menu which includes “Setting”, “Profile”, “Log out” and “Starred”. User can change the setting of interface at “Setting” function based on user preferences. All the basic user information will display at “Profile” function. Moreover, user can highlight the information by using the “Starred”

function. Thus, users can save their important or current use information without asking repeatedly.

3.2 Project Schedule

TIMEFRAME	TASK
3 NOVEMBER 2024 - 9 NOVEMBER 2024	<ul style="list-style-type: none"> Brainstorming ideas among group members about the project, focusing on bit data. Conduct interviews with the client to discuss the problem they have been facing about the existing system, especially on their desired improvement of the system.
10 NOVEMBER 2024 - 16 NOVEMBER 2024	<ul style="list-style-type: none"> All group members took part in sharing ideas on how the system could be improved. Start to design the project, determine the project title, features and functions.
17 NOVEMBER 2024 - 30 NOVEMBER 2024	<ul style="list-style-type: none"> Conduct a consultation with the lecturer regarding the project. Get feedback from the lecturer about the idea of the project. Adjust the project in accordance with the lecturer's feedback.
1 DECEMBER 2024- 20 JANUARY 2025	<ul style="list-style-type: none"> Start working on the project prototype. Make final adjustments to the project. Finish up the prototype mock-up. Do preparation on presenting the project with group members. Record and edit the presentation video.

4. References

- [1] University of Central Arkansas. (2023). *Chat GPT: What is it?* Uca.edu. <https://uca.edu/cetal/chat-gpt/>

- [2] Kehr, P. (n.d.-b). *What is Bard (Google AI)? Definition + Examples (Updated in 2024)*. Instagantt. <https://www.instagantt.com/project-management/what-is-bard-google-ai>
- [3] Pichai, S., & Hassabis, D. (2023, December 6). *Introducing Gemini: our largest and most capable AI model*. Google. <https://blog.google/technology/ai/google-gemini-ai/#sundar-note>
- [4] Fedewa, J. (2023, April 3). Bing Chat: How to use the AI chatbot. *How-To Geek*. <https://www.howtogeek.com/882581/bing-chat-how-to-use-the-ai-chatbot>

Appendices

Screenshot

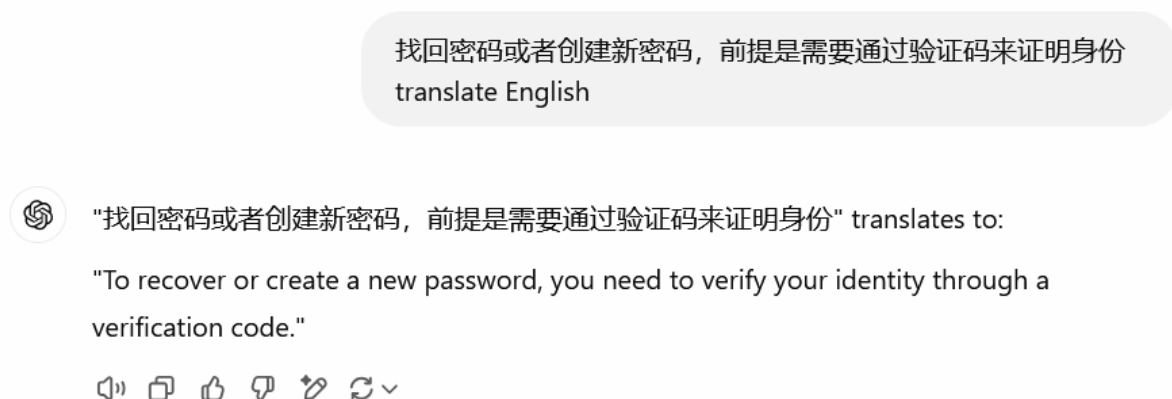


Figure 5 Screenshot Generative AI translation from BC to English

URL

<https://chatgpt.com/c/678be79d-6bc4-8007-9eec-ead5bbef9bbb>

<i>Marking Criteria</i>	<i>Marks</i>
<i>Introduction</i> <ul style="list-style-type: none"> • <i>Needs</i> • <i>Approach</i> • <i>Benefits</i> • <i>Competitors</i> 	<i>12 marks</i>
<i>Existing Systems</i>	<i>4 marks</i>
<i>Issues or problem with existing systems</i>	<i>4 marks</i>
<i>Proposed System</i>	<i>10 marks</i>
<i>Project Schedule</i>	<i>5 marks</i>
<i>References</i>	<i>2 marks</i>
<i>Overall report quality</i>	<i>3 marks</i>
<i>Report Total marks</i>	<i>40 marks</i>