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TABLE OF CONTENTS

Preserving Anonymity in E-Voting Using Authentication Techniques: A Review Nurain Nabilah Salehuddin, Siti Rahayu Abdul Aziz and Shahadan Saad	1 - 11
UiTM PBDutify: UiTM Police Security Scheduling System Wan Normaini Binti W Mohamad Idris, Sarah Syazwani Shah Kamarudin, Mustapha Salleh and Suhail Najmi Ayub	12 - 17
Evolution of ICT Infrastructure in UiTM Rozita Mengen and Jamaluddin Johan	18 - 23
A Proposed Framework for Development of University Enterprise System Mohd Hairy Mohamaddiah, Zamani Umar Husin, Gazairi Ghazali, Ezabarena Radzi and Suraya Che Kamal	24 - 28
Distance Learning Tools Preferences - Among Office Management Lecturers (UiTM Pahang) Rozita Mengen and Nor Farhana Mohd Azmi	29 - 32
Managing Industrial Attachment Records: Students' Perceptions in Optimising Online Repository Automated System Sharin Sulaiman, Azlina Bujang, Aiza Johari, Zainon Haji Bibi and Mohd Syazwan Mohd Aris	33 - 39
Hotel.CO Siti Nur Athirah Mohd Asri, Amirah Raihanah Azmi, Noorfazirayu Md Hanapi and Alya Syara Mohd Zin	40
Sip and Chill Muhammad Muzakkir Mohd Zaki, Ahmad Marzuqi Mohd Saufi, Mohd Aqmal Hafizi Mohd Dzaher and Mohd Zulhilmi Ab Hamid	41
Lovely.Love.App Nor Aishah Jalal, Izzmadihah Mohamad Supian, Nur Fazziatul Aqma Hashim and Raja Nur Aini Hidayah Raja Hassan	42
Scapha Wristband Liz Irdina Rozaini, Aina Hayati Mohd Ramli and Nur Hannani Dzulkifli	43
Around Malaysia Siti Hajar Ahmad Zahir, Nur Ainami Mohamad Zaid, Siti Nur Amirah Mohamad Sapandi and Khairun Aida Shahirah Shakor	44
3MnGO Application Muhammad Alif Ifdam Jafrudin, Wan Noor Aziemah Wan Mohd Fouzi and Norzaharah Binti Abdul Wahab	45
Jointfun.App Afiq Azman, Amirul Ridwan Hasbullah, Fajar Huda Azhar and Nik Aqilah Sofiya Nik Noor Ahmazukee	46
Dream's E-Brochure Muhammad Nufail Akram Mat Nasir, Farah Mohd Rosli, Siti Zarifah Nasuha Mohd Zahid and Nur Izwanina Munira	47

Use of Technology Application by Destination Operator Kim Kyung Joo, Nur Afza Azman, Nur Alya Athirah Madzlaan and Nur Maisarah Saiful Nizam	48
Facial Recognition Technology With Reducing The Risk of Spreading The COVID-19 Muhammad Arif Azhad Amalulkhair, Nur Akmal Mahadi, Nur Adlina Abdullah, Suhaili Khalid and Kannaphat Sattaratpaijit	49
FoodHunter App Izleen Farhanah Husain, Balqis Nur Azlin Akhmar, Fatin Nur Aisyah Abd Shukor and Penpitcha Chanakoch	50
Hotel Live Chat Box Nurin Zulaikha Hachibullah @ Hasbullah, Nurul Malissa Shahira Abdullah, Siti Zulaika Mohd Asa'ari, Ahmad Zulkarnain Zainuddin and Wongsakorn Rueanphet	51
VR Digital Concert Muhammad Azeem Ibrahim, Muhammad Fakhrullah Aizat Abdul Manan, Nurain Khadijah Mohd Nizam, Nurul Akma Zulkarnain and Thippayaporn Thonghom	52
Smart Room Service Apps Seomgyeol Lee, Nur Afiqah Mohd Zuhaimi, Ahmad Fawwaz Ahmad Amizan, Nurul Ain Abdul Kepli and Nur Aimi Shafira Shahidan	53
Managing Industrial Attachment Records Student' Perceptions in Optimising Online Repository Automated System Syarin Sulaiman, Dr. Azlina Bujang, Aiza Johari, Zainon Haji Bibi and Mohd Syazwan Mohd Aris	54
Distance Learning Tools Preferences - Among Office Management Lecturers (UiTM Pahang) <i>Rozita Mengen and Nor Farhana Mohd Azmi</i>	55
Committee Members	56-57
Author Index	58-59

PRESERVING ANONYMITY IN E-VOTING USING AUTHENTICATION TECHNIQUES: A REVIEW

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ABSTRACT: The use of an electronic voting system allows voters to cast ballots over a computer network. As a result, voters will be able to participate in elections without having to travel to polling stations, which is more convenient and efficient. The confidentiality of voter information is one of the criteria that is considered essential and desirable. Electronic voting protocols must ensure voter anonymity as a fundamental requirement in order to provide adequate protection for voters' privacy. This ensures that a specific vote cannot be traced back to any voter. To put it another way, it is not possible to disclose or demonstrate a connection between voters and their votes. The requirement for voters' anonymity is what differentiates electronic voting from other types of electronic applications. It's possible that voters won't reveal their true preferences if their anonymity is threatened. As a result, the primary concentration of this article will be on the problem of maintaining voters' anonymity within electronic voting systems. A few concerns revolve around the design of the system, and two of those concerns are the voters' anonymity in the database records and the authenticity of the vote that is cast to the system. It is planned to implement a hashing algorithm on the data stored in the database to protect the anonymity of the voters. The method of authentication that will be used will be Multifactor Authentication (MFA), which will use user identification and a One-Time Password (OTP). It is anticipated that the project will contribute toward satisfying the demand for a secure and reliable electronic voting system.

Keywords: e-voting, one-time password (OTP), hashing algorithm, anonymity, 2FA authentication.

INTRODUCTION

Democracy is the healthiest and most participative form of government in the world. It encourages collaboration and coordination between public and private sectors, as well as citizens and the government. It allows residents to elect their representatives and participate in the workings of government, allowing them to exercise power and political influence through voting (Raut et al., 2021). In general, voting is a method used by a community of people to reach a collective decision or express an opinion. Not far behind, the concept of election is very tightly knitted with the concept of voting. Elections or voting is commonly used in many situations, whether it is in much higher stakes such as democracies to elect high-level officials or to even vote for something less of significance, such as the winner of Miss Universe.

As time goes by, the world becomes more advanced with the assistance of technology. Nowadays, the traditional paper-based elections are still valid and are quite frequently used. Alongside, there is also a local, electronic system for the voting process where they replaced the physical paper ballot system with a digital version of it using voting machines. Nevertheless, with the rapid growth of the internet and technologies in general, the existence of electronic facilities such as e-applications is inevitable. With that, the project is inspired by three main problem statements, which are: the inconvenience of the traditional voting process, the issue of the anonymity of the voters, and the need of an online e-voting system.

LITERATURE REVIEW

A. TRADITIONAL VOTING PROCESS

The traditional voting process or procedure refers to the standard way of voting. Most standard elections require physical participation from their voters. It is a requirement and is a part of the major procedure of the voting process itself. The voters will be set into a specific place, day, and time where they will need to attend the election and cast their vote. The most popular and well-known type of voting process would be the paper-based election or ballot vote. Like its name, the voters cast their votes through a paper ballot on the voting site they were co-opted with prior. In recent years, with the evolution of technology, there has been the existence of a local, electronic system as a substitute for the paper-based voting system (Djanali et al., 2018). However, as it is a local system and not an online system, the voters will still need to attend the designated place and time, much like the traditional paper-based election.

Therefore, naturally, whenever an election happens, whether it is with a higher purpose or lesser, a voter will need to attend the election site on a specific date. The voters will go through much stricter rules and steps during the voting process based on the type of election itself. The more significant the election is, the stricter the rules revolve around it. Although physical participation in a voting process is crucial and beneficial to the authenticity of the voting ballot, it might also pose a problem. With the troubles of the COVID-19 pandemic striking the world without warning and the social distancing protocols implemented in our daily lives, it is the lack of an online or remote voting system that has become a problem as it increases the difficulty in the traditional voting procedure (Fernandez-Navia et al., 2021).

B. ISSUE OF THE ANONYMITY OF THE VOTERS

When it comes to voting, and depending on the election's priority or policy, the anonymity of the voting or ballot is critical. Indeed, whether using a traditional paper-based system or an online voting system, voter anonymity is a must, particularly for high-level elections. It is critical to keep the relationship between the voter's identity and the cast vote private and anonymous. This is because it is a part of a protection measure or a political privacy to forestall the aims of influencing the voters' choices through intimidation, extortion or even potentially buying the votes.

According to (Jonker & Pieters, 2010), anonymity means it is impossible to determine who sent which message to whom. Depending on the context, different formalizations of anonymity appear to be required. In conjunction with that, anonymity is also crucial in electronic voting – voters should be able to vote without anyone knowing which option they chose. Instead of anonymity, the property expressed precisely is usually referred to as "privacy" in the electronic voting community. On the other hand, enabling privacy in voting is insufficient because it does not prevent vote-buying. The elections must be conducted in private to prevent vote-buying; No voter should be able to persuade anyone else of how a person voted and vice versa.

The problem statements for Universiti Melaka and Universiti Teknologi MARA (Melaka) in Malaysia are the foundation for the issue of voting anonymity in this paper. The votes cast at the institutions cannot indeed be considered anonymous because the voting area is open to the public (meaning there is no secure and private booth) and is closely monitored by the actual person in charge who lingers around the voting area. Furthermore, because they have a login system in order to vote, and the credentials are dependent on the students' identification, it is possible that the voter's identity is stored in the database.

C. THE NEED FOR AN ONLINE E-VOTING SYSTEM

The very first online voting was initially used in Estonia's national elections in 2005. Because of the growth of e-technology and direct democracy, voting machines and postal voting have emerged as models for developing online voting.

Low voter turnout increases the influence of a split opposition. Remote voting over online platform is thought to make distance to a polling site and other issues obsolete. The Barisan Nasional (BN)'s victory in the recent Johor state election (2022) was due to several issues, the most important of which is that low voter turnout increases the influence of a split opposition. The voter turnout was barely 55 percent, but BN received 43 percent of the ballots, giving them more than two-thirds of the seats with less than a quarter of the vote, which leads the way to the path victor, "If more people had shown up, the outcome could have been different"

Take UNIMEL (Universiti Melaka) and Universiti Teknologi MARA (Melaka) in Malaysia as an example. For every semester, they hold an election day to vote for their high-level committee. Due to the COVID-19 pandemic, all educational institutions were required to put a halt in terms of the normal face-to-face and physical classes. As a result, online e-voting has emerged as the most important method to implement.

Many researchers have proposed schemes to enhance the security of e-voting systems and put them into practice. According to Kho et al. (2022), the conventional approaches for e-voting systems can be categorized into mix-net-based and blockchain-based e-Voting, as well as latest developments in the field of post-quantum e- voting and hybrid e-voting. The use of different e-voting approaches may vary depending on the application to which they are applied. A hybrid scheme refers to the scheme that is constructed by integrating two or more approaches. Hybrid schemes are more practical and efficient than other approaches, according to an analysis of Table 1.

Approach	Advantages	Disadvantages
Mix-net-Based e-Voting	 Provides unlinkability between voters and their votes The computation cost is lower than the homomorphic tallying e-voting scheme Supports write-in ballots 	 Difficult to implement on large-scale elections due to its complexity Large amount of computation power is required for the mix server to prove the correctness of mixing Vulnerable to DDOS attack
Homomorphic e-Voting	 Suitable for small-scale elections, efficient in the open phase Do not require decrypting of the encrypted votes to tally the election result. Thus, voter privacy is achieved 	 Requires intensive zero knowledge proof to prove the validity of votes (high communication cost) High computation cost for the vote verification This is not suitable for multi-candidate elections because the ballot must contain proof of a possible choice in the election; therefore, the encryption cost is high when there is a large range of preference

Table 1. The Advantages	and disadvantages	of various e	e-voting appr	oaches
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Table 1: Cont.

Approach	Advantages	Disadvantages
Blind Signature-Based e-Voting	 Simple, flexible, universally verifiable, and efficient Intensive zero knowledge proof is not required Guarantees anonymity Supports write-in ballots Most efficient in the tallying phase Does not require high communication cost for the intensive phase 	 Requires an anonymous channel where it suffers from complex computation and might be impractical to implement in the real world Blind factor can serve as a voting receipt Receipt-free blind signature e-voting requires physical assumption, e.g., an untappable channel that is impractical to implement over internet Most of the proposed schemes required certificate authority to distribute key pairs to the voter and it is costly to maintain
Blockchain-Bas ed e-Voting	 The votes stored in the blockchain are immutable Allows the election results to be generated instantly Offers transparency while guaranteeing Privacy Able to withstand a DOS attack 	 Facing scalability as an issue due to the technology is new Inadequate testing tools
Post-Quantum e-Voting	 Sustainable against quantum attacks Does not require intensive zero knowledge proof 	 Larger key size than public key algorithms, thus requires more storage space Large sizes of data for signature and key establishment to be transmitted over communication channels, thus limits the speed of transmission and vulnerable to unforeseen quantum attacks

Note. From "A Review of Cryptographic Electronic Voting" by Kho et al. (2022) *Symmetry*, *14*(5), 858. https://doi.org/10.3390/sym14050858

D. HASHING TECHNIQUES

Hashing algorithms or hash functions is a process of converting input strings into output strings of a specific length. The output data, known as hash code, is usually smaller than the original. Hash functions are widely used in data integrity and security, both important for data transfer and authentication (Velioglu et al., 2019).

According to Stevens (2018), hashing is frequently used to manage and protect our digital life in various ways. For instance, whenever users input their password on a website, the server will most likely take action to save a hashed version of it instead of the plain text inputted by the users. The content of the hash code assures that the input string has not been modified. Since passwords are used in various computing applications, storing data in clear text is deemed unsafe and difficult. Choosing a model that cannot be used to recreate the original data is the most secure way to store a password, and the saved value, on the other hand, should be used for verification.

Generally, hash functions can be divided into two distinct type which are the cryptographic hash algorithms and the non-cryptographic hashing algorithms. Since the use of the hashing algorithm is simply to generate an ID or some sort of 'signature' for the voters, this particular project suggested the use of the non-cryptographic hashing algorithms. Although there are diverse types of the hashing algorithms, ranging from 8 bits in size to an output size of 224 bits, this particular project targets the shorter sizes of hashing functions to encrypt the data stored in the database. Some hashing functions that are considered to be implemented in this project are CRC32, ADLER32, JOAAT128 and FNV132. Table 2 shows the comparison between the hashing algorithms.

	CRC32	ADLER32	JOAAT PHP	FNV132
Туре	Originally a	Originally a	The Jenkins hash	Fowler-Noll-Vo
	checksum	checksum	functions. The	hash function.
	algorithm that is	algorithm that is	PHP's version.	
	occasionally used	occasionally used		
	as hash functions	as hash functions		
Length (Bits)	32	32	32	32
Output Size	8	8	8	8
(Letters)				
Example	hello = 3d653119	hello = 084b021f	hello = c8fd181b	hello = b6fa7167
(Plain text à				
hashed)				
Speed (GB/s)	13.19	2.00	0.80	1.00

Table 2: Comparison between CRC32, ADLER32, JOAAT128 and FNV132

E. ONE-TIME PASSWORD

A dynamic password is sometimes known as a one-time password. It's a random sequence of numbers created by a certain algorithm. It is the most basic form of one-time-password, therefore the passwords generated usually does not have validation termination. The simplicity of the is also include in terms of the implementation and maintenance within a system. And because a single password that only works once, it's a good technique to prevent account theft (Nayaka K et al., 2019). The name One Time Password implies that it is only valid for a single interaction, session, transaction, or authentication. These are more secure than the static password created by the user (Chowhan & Tanwar, 2019).

Nowadays, although its use in its purest form has yet to find commercial use, it is a component of many multi-factor authentication systems. An OTP is produced for the user when they log in, and they must return it correctly. For sending a one-time password, an alternative channel is usually employed, such as SMS, e-mail notification, a specific mobile application, or a hardware token (Landyshev et al., 2020).

Even with the various selection of multifactor methodologies that can be used, ranging from biometric verification, security question, one-time passwords, etc. This project, however, is planning to use the one-time password (OTP) as its method of authentication which in the choices between the basic One-Time-Password, Time-Based One-Time Password (TOTP), and HMAC-based One-time Password algorithm (HOTP). Table 3 shows the comparison between the three types of OTPs (One Time Password).

Trans	OTD	ТОТР	ИОТР
Iype	OIP	IOIP	HOIP
	(One-Time Password)	(Time-Based One Time	(HMAC Based One Time
		Password)	Password)
Algorithm-base	None	Time-based	Event-based
Timeout	No	Yes	No
Security	Medium	High	Medium
Implementation Complexity	Low	High	High
Maintenance	Low	Low	High
Cost	Low	High	High

Table 3: Comparison between OTP, TOTP and HOTP *(Source:* Chowhan & Tanwar (2019))

Note. From "Password-Less Authentication" by Chowhan & Tanwar (2019), IGI Global bookstore, p. 190–212 (https://doi.org/10.4018/978-1-5225-8100-0.ch008)

F. RELATED WORK

As the need of online e-voting system increases by the year, it is inevitable that there are already plenty of attempts to develop the system with several types of technologies. However, the goal of the pass studies and this particular project is quite similar.

In research done by Oke et al. (2017), the electronic voting system is designed with a combination of the proposed improved Feistel block cipher which guarantees the confidentiality of the recorded data stored on the smart card and the enhanced voter's fingerprint model using first moment extraction algorithm for verifying the authenticity of valid real-time voters.

Another prime example is the system developed by Hasta et al. (2019), where they created a client/server web application software architecture for e-voting that uses biometrics of the voters' fingerprints for authentication and the SHA-1 hashing algorithm for data security. Although the system captures the key functional aspects of a voting system, it also addresses several important non-functional needs such as the requirements for fidelity, robustness, coherence, consistency, safety, and security are critical.

And recently, the technology of blockchain is also introduced in the e-voting systems. As created by K & K (2022), the e-voting system uses biometrics identification for the authentication and implemented the blockchain algorithm to the security at the storage level. As a result, the proposed method will help to increase overall voting system trust and transparency while also making voting more environmentally friendly, time-saving, and efficient. Table 4 shows the comparison between the three research.

Author (Year)	Oke et al. (2017)	Hasta et al. (2019)	K & K (2022)
Title	Developing Multifactor Authentication Technique for Secure Electronic Voting System	Fingerprint Based Secured Voting	Blockvoting: An Online Voting System Using Block Chain
Main feature	Multifactor Authentication	Biometrics-based	Blockchain technology
Authenticatio n method	Smart card and biometric (fingerprint)	Biometric (fingerprint)	Biometric (fingerprint)
System's target area	Authentication	Authentication, Data security	Data security, Transparency

Table 4: Comparison between the research prior.

G. EXPECTED RESULTS

To simplify the understanding of the project, flowcharts are used as guidance for further comprehension. In this project, there are several modules that are considered crucial that for the user will need to go through, which are the Login module, Voting module, Vote Verification module and the Check Vote Status module. Below, however, is the basic overview of the application's function. Figure 3.4 illustrates the overview flowchart of the application.



Figure 1: Basic overview flowchart of the application

Despite there are multiple modules related to the project, there two that are crucial where the hashing and the OTP are implemented, which are the Voting Process module and the Vote Verification module. Below are the figures illustrating the flow and the implementation of the methodologies suggested from the

previous parts of the report.



Figure 2: Flowchart of Voting Process module



Figure 3: Flowchart of Vote Verification module

To simply put, the project is expected to gain a successful result with preserving the voters' anonymity by storing the ID or code generated from the hashing output instead of the plain text of the voters' email in the database. From figure 3, the ballot_box table in the database is deem as a placeholder and acts to hold the voting process data temporarily before and during the authentication of a valid vote, which includes data such as voter's ID, candidates ID, etc. Once the OTP is verified to match the respective voters' ID, only then the vote will be considered valid. A valid vote will trigger the program to save the voter's code in a table that lists the voters that have successfully voted for the election. The use of hashing to generate the voter code and the use of ballot_box that acts as temporary storage will preserve the anonymity of the voters as there will be no link between the voter's identity (in this case their email address) and the vote casted, while the use of OTP is simply to authenticate or validate the vote to deem it legitimate or not. The successful implementation of these methods is expected to result in resolving the problem statements of the project.

CONCLUSION

In conclusion, this paper discussed some practical considerations in the design of e-voting system that targets to keep the anonymity of the voters. To achieve the goals of anonymity of the voters, the use of a non-cryptographic hashing algorithm, CRC32, will be implemented. The hashed value is also used as part of the voters' authentication to verify its validation with the compliments of the use of One-Time-Password (OTP). The e-voting system is predicted to make sure the data in the database is intelligible in the human eyes and to successfully implement the OTP authentication for the validation of the vote. By using all of these technologies and methodologies within the development of the online e-voting application, it is predicted that the application's functionalities will work perfectly without any complications.

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UiTM PBDutify: UiTM Police Security Scheduling System Wan Normaini Binti W Mohamad Idris¹, Sarah Syazwani Shah Kamarudin¹, Mustapha Salleh², Suhail Najmi Ayub ³

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ABSTRACT

The issue of security is very important in any organization, especially campuses that have many students and assets that need to be taken care of. Therefore, towards a digitalization era a system needs to be established to assist those responsible for monitoring and controlling campus security. This system will help the person in charge to organize staff schedules in a better and an orderly manner. Before this, the compilation of staff work schedules was done manually and has caused many problems to arise. One of the conflicts is when it is difficult to arrange work schedules not to overlap each other. With the existence of this system is expected to help staff to organize, update schedules and can also view the systems anytime and anywhere.

Keyword: daily schedule, Police Security, RAD

1. INTRODUCTION / PRODUCT DESCRIPTION

Campus security at UiTM Cawangan Terengganu is under the supervision of the Police Security Office (*Polis Bantuan*) and conducted for 24 hours. Since it is conducted for 24 hours, the implementation of tasks is done in rotation of 3 shifts - morning, evening, and night and also office hours. To facilitate task preparation, a daily task schedule was prepared manually to distribute and arrange tasks to officers of the Police Security. Presently, the campus digitization plan manual daily task schedule was replaced with UiTM Police Security Scheduling System (PBDutify). It is interesting because of the complexity in order to arrange and manage members' tasks for 24 hours with 3 different shift rotations, different tasks and different locations and used for 3 different campuses at UiTM Cawangan Terengganu.

The problem for manual daily task schedules comes when officers need to prepare a new schedule or make changes. Where officers need to check past records to ensure fair and equitable placement of duties of members on duty. In addition, officers need to do daily housekeeping records. The problem also comes when there is a change of duties on the current shift, where sometimes it causes an overlap of tasks and causes confusion and dissatisfaction among members.

The objective of the paper is to facilitate new or replacement officers in managing and monitoring daily task schedules and avoid the injustice in division of tasks, PBDutify is formed to replace manual daily task schedules. It also helps to reduce complaints between members and officers, and produce a healthy and happy working environment. Beside it is to accomplish one of the plan campus digitization and to acquaint myself with the PBDutify system with other campuses.

The System Development Life Cycle (SDLC) is the process guideline used to develop the PBDutify application. As a result of the implementation of the application, the work schedule of the Police Security at UiTM Cawangan Terengganu is more manageable, systematic and easier for members to use. We hope the new application will create a happy working atmosphere as a result of its fairness in distributing and allocating tasks among the members.

2. System Development Life Cycle

This section describes the Public Sector System Development Ecosystem which consists of development methodology and aspects of consideration that influence the successful implementation of the system development projects.

The application system development life cycle model (SDLC) follows the International Software Testing Qualifications Board (ISTQB) Certification elements that consists of 6 main phases, namely the collection phase of needs and analysis, design phase, development phase (coding), testing phase, implementation phase (development) and maintenance phase as described in Figure 1. Each phase has a series of activities through the use of selected techniques for the production of submission documentation.



Figure 1: Application System Development Life Cycle

There are various application system development methodologies that have been adopted to develop the system/application. As for the PBDutify system, the Rapid Application Development (RAD) Methodology has been adopted in developing the system. The RAD rotation includes 4 main phases, namely need planning, design, development and implementation (Figure 2). Furthermore, the phase is implemented by a group of skilled application developers who work closely with the management of Police Security throughout the development period. In order to quickly produce a high-quality system which emphasizes the needs of the owner of systems or user.



Figure 2: Rapid Application Development (RAD)

System Planning

System planning begins with a formal request to the IT department from the owner of the system in 2021, which describes problems or desired changes in an information system or a business process. After discussion with the representatives of the Security Police Office and Infostructure Department, UiTM Terengganu, Kampus Dungun, the actual requirement to make daily schedule tasks more systematic, manageable and easy to use has been identified and discovered. The discussion resulted in the creation a few of sub module for the PBDutify System. There are 5 sub modules that are provided in it. Figure 3 shows sub modules that had been provided in the PBDutify System.



Figure 3: Sub Module of the PBDutify System

System Analysis

The purpose of the system analysis phase is to build a logical model of the new system. A logical model has been created using "draw.io" to reveal all the relationships between attributes and the database shown in figure 4. The entity relational diagram (ERD) had been discussed between developers. The logical model is an overview of how the system works as shown in figure 5.



Figure 4: Entity Relational Diagram



Figure 5: Logical work

System Design

The purpose of the systems design phase is to create a physical model that will satisfy all documented requirements for the system. In the first phase, the storyboard of the system was designed and presented to the owner of the system and output from the discussion has been noted for the next phase.

System Implementation

During the system implementation phase, where the developers use structured analysis or O-O methods, the procedure was designed to the requirement needs — programs are written, tested, and documented, then the system is installed.

System Testing

System testing is implemented on the PBDutify system several times and the progress has been presented to the owner of the system (representatives of Police Security, UiTM Cawangan Terengganu Kampus Dungun). The system has many logical errors but is systematically able to run. All databases are found to be good. The report for the upgrade has been prepared after the first presentation.

System Maintenance

To improve performance and to adapt the system to a changed environment, system maintenance is needed to modify the system to correct faults. The design of the system was maintained after a presentation with the owner of the system. The maintenance was performed to reduce user input and fixing errors occurred while running the PBDutify system.

Even though the process took a relatively long time due to the Covid19 pandemic and the knowledge constraints of the system developers and persons in charge of the system, the system was completed in 2021. As noted earlier there are 5 sub modules in PBDutify. In the first sub module list of the security police staff, the name of staff with rank and authority number is displayed that is unique and different from the current UiTM staff system. Therefore, for PBDutify system does not require any integration with the current task scheduling system at this moment. For the second to fourth module, task schedules displaying the month, weekly and daily time table. Last but not the least, the fifth module which includes the reporting ability which helps officers to generate reports and schedules if needed.

3. FINDING

The use of electronic technology in UiTM is not something new. Therefore, to comprehend the Campus Digitization Plan, the existence of PBDutify can improve the service standard of the Police Security unit especially at UiTM Cawangan Terengganu. PBDutify brings a few impacts to senior officers and overall members at the Police Security, especially in management. Where division of tasks is easier and being fairer and more equitable. Besides, data storage being more systematic and easier to retrieve when needed.

4. CONCLUSION AND RECOMMENDATION

In conclusion, the transformation made by the Police Security Office, UiTM Cawangan Terengganu towards the development of the PBDutify system has a goal to ensure the quality of service and management, especially more efficient and comprehensive, is right on time. Although the scope of this study is limited in terms of the duration of using the PBDutify and user satisfaction in response to the system usage and scope. For the future research, hopefully PBDutify sub module will be extended to replace other manual tasks for overall use and also can be used by other UiTM branches.

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- 4. Dr Zainuddin Bin Zakaria, UiTM Cawangan Terengganu Kampus Dungun

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EVOLUTION OF ICT INFRASTRUCTURE IN UITM

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ABSTRACT: The article is about the evolution of UiTM ICT infrastructure, in general. Objective of the article review is to inform and record the changing technology applied throughout the years. The information will circulate around topics on the growth of network communications services that supports UiTM applications over the years. Method of identifying data is based on information reviewed from the paper written by the first author and the work experiences from both authors in the field. Findings from the collection of data will be a general chronological evolution of the entire ICT infrastructure system in UiTM for both intranet and the Internet link. These explanation enables the understanding on how ICT infrastructure evolution and growth in UiTM and can be referred to as a guideline for current or future administrators.

Keywords: ICT infrastructure, intranet, Internet, Network Technology

INTRODUCTION

The purpose of this paper is to provide a history case study of the development of data networks in Universiti Technology MARA, the largest university in Malaysia. In relation to the growth of network infrastructure in the USA and Europe in 1980's many other parts of the world were not keeping pace (Bothon, 2016). In Malaysian scenario, only in 1990s the MSC program was officially inaugurated by the fourth Malaysian Prime Minister, which was on 12 February 1996 to catch up with the digital divide. As explained by Bothon (2016) the development of digital divide, must carry on changing to keep pace upon the changing technology.

Planning for Computer Networking System infrastructure is very important for an organization that relies very much on Information Technology to support its business operations. Networking technology allows for the exchange of data between large and small information systems used primarily by businesses and educational institutions. The scope of the article discusses about the chronological setting and evolution arrangement in the data communication (Networking Technology, 2016) network territory, for connectivity between Universiti Technology MARA's campuses and the Internet. The Internet is a global network of billions of computers and other electronic devices. Internet, enables access to almost any information, communicate with anyone else in the world, and do much more (Internet Basic, 2022). Meanwhile an Intranet is a private network contained within an enterprise that is used to securely share company information and computing resources among employees (Intranet, 2022).

The need to have a sound platform to support data communication is crucial due to the expanding number of campuses, to support vast number of students, and considering upon the growing need to support UiTM business operations via online system, either Intranet or Internet. Since the outbreak of the Covid -19 Pandemic in the world, every business operations are badly affected. This adds to the problem of readiness of organizations to support the growing need to work online and scalable is their Computer Networking System infrastructure.

Based on previous research, ICT infrastructure network projects (ICT infrastructure physical assets) are associated with the infrastructure that require the connection between computers, data loggers, printers, switches, telecommunications, servers, cabling, data rooms, civil works, etc., for exchanging data, communication (Dordal, 2009). Whereby as explain by Wong & Kim, 2017, Networks are physical assets that deliver information systems, which, in turn, host databases and software (ICT). ICT is the infrastructure

and components that enable people and organizations to interact in the digital world. A hefty amount on these investments is linked toward ICT infrastructure physical assets which enabling the ability to designing smarter cities offering quality life to residents and better business processes (Nijkamp & Cohen-Blankshtain, 2013). The approach of an efficiently planned management of operational change, enabled the delivery of good and organized ICT infrastructure (Leydesdorff & Wijsman, 2007). The growth and operation of ICT infrastructure network projects represent a profound change that will bring about organizational processes and methodologies (Anthopoulos et al., 2016; Moktadir, 2018; Lappi et al., 2019).

In the attempt to fulfill the objective of this paper, the Method used to gain data are based on two sources of information. The first source in information reviewed from the paper written by the first author in her thesis paper written in academic paper. The second vital data collection was using based on the work experiences from both authors in the past, plus the current job specification that still relates on ICT infrastructure. These untap tacit knowledge needs to be processed, revisit and transformed into explicit knowledge to be disseminated and use for future as reference.

METHODS

The descriptions, results and reflections in this paper are based largely on past research by the first author (Mengen, 2001) discussion on UiTM current and future network design, experienced work history by both authors, that mostly based on internal nonconfidential data in general. Effectiveness of this study is largely evaluated by including personal work experience. Future predictions about the development came from time history analysis of the situation in UiTM. Historical analysis is a method of the examination of evidence in coming to an understanding of the past.

By using this methods, a consistent and comprehensive narrative is formed on the evolution and impacts of Internet or intranet access in UiTM. This story has never been told before in one place, and here, we link it to the potential for shared, collaborative technical and information sharing.

RESULTS AND DISCUSSIONS

The history of ITM/UiTM Nework System in chronological order by year.

Connection using Frame Relay technology (Frame Relay, 2022).

1989	ITM initial started connecting to the Internet through "Rangkaian Komputer Malaysia (Rangkom)" where Malaysian Institute Microelectronic System (MIMOS) was the first Internet Service Provider (ISP) in Malaysia. The early application was email and electronic forum using X.25 Technology (Data Communication in Wide Area Networks) connection. Using copper wire with T- connectors, (X.25, 2022)
1994	ITM starts using JARING (Joint Advanced Integrated Networking) using Leased Line Technology 64kbps. JARING Project was an upgrade from Rangkom Project by MIMOS (Leased line, 2022)
1997	ITM began the Network System Project ITM in Shah Alam campus using Asynchronous Transfer Mode (ATM) 155 Mbps technology as its Network Backbone. Using category 5 copper cable and fiber optic as the backbone link (Asynchronous_Transfer_Mode, 2022) There were initially Seven (7) network center in 1997 (ATM technology) 8 Core Switches, 1500 nodes, 70 shared switches & 2 routers
1998	Network system in UiTM was extended by connecting branch campus Malaysian wide using leased line Corporate Information Superhighway (COINS) provided by "Telekom Malaysia" as the WAN

2003 The Network System Project upgrade for UiTM Shah Alam using 10 Gigabit Ethernet technology All the Network Backbone speed is 10GbE.
Category 6 copper cable was used at workgroup layer plus fiber optics to link between backbones/other layer switches certain distance.
This replaced the ATM Backbone technology that was no longer supported in the market.
The number of core switch , shared switch, nodes, triple in numbers as the requirement for connectivity has then expanded (Gigabit Ethernet, 2022 & Multilayer Switch, 2022)

Internet access Jaring & TM upgraded and used as load balance and backup link.

2008 > Internet access has more been upgraded to support UiTM campuses Metro E (TM) ISP service provider but the exact year was not accessible after both authors was transferred to different department/faculty

Figure 1: The history of ITM/UiTM Nework System Until 2003

Over the years after 2003, the expansion of user node point connection to the Internet & intranet has grown massively. In the early 2000s, Wireless Lan (WLan) technology was not trusted due to its insecurity. Wireless Local Area Network (WLAN) technology emerged in the early 1990s but, was not widely accepted due to its high cost and technological limitations at that time (Kane & Yen, 2001). Nonetheless after the WLan technology mature, application of such devices was use in various suitable places only due to accessibility quality are still not satisfying with comparison to the physical cable.

Below are a few almost current networks architecture design for UiTM infrastructure that has evolve and been used over the years.



Figure 2: The Almost Current Enterprise Network Architecture



Figure 3: UiTM Uses Premier Metro-E Access to Branches

CONCLUSION (*Times New Roman, 11 font size, bold, all caps*)

The network infrastructure changes overtime, in relation to the changing technology and user demand in business operation. In UiTM Shah Alam, the local area network technology used was X.25 technology using copper wire with T- connectors, then move to Asynchronous Transfer Mode (ATM) 155 Mbps technology supported by category 5 copper cable and fiber optic as the backbone link, and the last upgrade uses 10gigabit technology at its core switch with category 6 copper cable plus fiber optics to link between backbones/other layer switches certain distance. Evolution period can be seen in terms of year distance below.



Figure 4: The Backbone Technology Timeline

While the connectivity to the other campuses and the Internet evolution period can be seen in terms of year distance below with the Internet Service Provider (ISP) chosen based on contract maintenance.



Figure 5: The WAN/Internet Upgrade Timeline

As seen above the findings are limited based on authors experience and backdated knowledge. Thus for future case study, further uptodate findings can ensure documentation on the evolution of such vast infrastructure in ensuring sustainability and good governance/administration without exposing the confidentiality factors.

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A PROPOSED FRAMEWORK FOR DEVELOPMENT OF UNIVERSITY ENTERPRISE SYSTEM

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ABSTRACT : University has developed various type of Enterprise Systems (ES). ES is a package application that consist of business process automation that reflect the common business operations. However, the developed system does not follow any standards or best practices for system development. This resulted the ES has variety of heterogenous architecture. Furthermore, it will complicate the maintenance work in the future for the ES. This paper proposed an empirically derived framework for ES for higher education (university). The framework addresses the standardization of ES development. Based on the study, eight elements are introduced to form the proposed framework.

Keywords : Enterprise System, ES, Enterprise Architecture, System Development.

I. INTRODUCTION

Public University has developed numerous information systems and applications. Some of the developed applications are categorized as an enterprise system. According to [1], An enterprise system is a packaged application that supports and automates business; processes and manages business data. They come with pre-implemented and customizable modules that reflect best practice for common business operations. Therefore, we defined Enterprise systems as packaged applications to automate business processes, integrating across all over functions at both intra-organizational and inter-organizational levels. Examples of enterprise systems such as Enterprise Resource Planning (ERP), supply chain management (SCM) and customer relationship management systems (CRM). The aims of enterprise system are to provide a solution that incorporates typical business processes and data and reflects industry best practices[2].

However, the development of information systems or applications at the University, that has been carried out, does not have, or comply with any framework, standard procedures, or best practices. This has resulted in the information systems and applications having a diverse and heterogeneous architecture, thus complicating maintenance work, and requiring a large workforce. Moreover, even in big enterprise system installations, direct and indirect costs of these systems are frequently underestimated, which results in many enterprise implementation projects going over budget [3]. This happens when there is no standard reference. It will cost the university more in the context of budget and human resource management.

The primary intended contribution of this paper is to develop a proposed standardized framework for the enterprise system in University. The proposed framework will be based on quantitative data collected through our facilitation system.

II. METHODS

Our main objective of the overall research study is to develop a standardized framework for the University Enterprise System. In this study, we adopted a multi-method research design, extending the research cycle proposed by [4] for developing and validating the proposed University Enterprise System. The method consists of two stages: exploratory and verification method. The exploratory stage mainly for identifying the elements of the framework to ensure the framework completeness. It is also to make sure that an appropriate element is considered in our proposed framework. The elements that were identified, will later become the basis of the a-priori framework to be operationalized in the verification phase. This method also applied in [5] and [6]. In the exploratory stage, we develop an online instrument where we intended to identify the elements for our proposed framework. The online instrument is an inventory system for all systems being developed in the organization. From the system, we collected the data and summarized the key elements. On the other hand, the study attempts to identify factors from the system. The summarized results from the system will be discussed further in the next section.

Figure 1 below, derived the research method based on the method we explain above. However, the result of this paper only covers the first stage. The other stage will be carried out in our future work.



III. RESULTS & DISCUSSION

Based on the first stage in our research method, we collected pools of data from the inventory system. Figure 2 illustrated parts of the quantitative data collected from the system. From these data, we identify the key elements from the data for our framework.



Figure 2 Quantitative Data Collection

We the derived our proposed framework for University Enterprise System (UES) based on the identify elements. We identify eight main construct elements and these elements form layers of our proposed framework. Figure 3 is our proposed framework.



Figure SEQ Figure * ARABIC 3 Proposed University Enterprise System Framework

Besides the quantitative data, our proposed framework is also based on the Strategic Alignment Model (SAM) of Henderson and Venkataraman (1993), which suggests 4 constructs: Business Strategy, Business Infrastructure and Processes, IT Strategy and IT Infrastructure and Processes[7]. The SAM model is also used by [8] to construct their enhanced cross-domain strategic alignment model between business and IT. We add to the SAM model by incorporating ideas from the University's enterprise architecture. The proposed framework is shown in Figure 2 above and the constructs of the main elements in the framework are explained in Table 1.

Table 1. Definition of the main construct elements	Table	1.	Definition	of the	e main	construct	elements
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Main elements	Definition
Access Layer	Channels used for access to developed systems and applications.
Business Logic Layer	Explains about classification of university service delivery functions
Application Layer	System and application architecture processes as well as technology/platforms for system development.
Integration Layer	Explains the integration and its platform elements in system development
Data Layer	Explains the data and its platform elements in system development
Infrastructure Layer	technology of ICT infrastructure necessary for the construction of the system.

Main elements	Definition
Security Layer	elements and ICT security standards required in development of university enterprise systems.
Governance Layer	governance in developing system or application in university environment

All layers are interconnected between each other. Access layer is all about channels to access the developed system. It must contain diversity of channels to support multiple environments. The business logic layer will define the business processes involved and map to a classified university service delivery system. This layer is crucial as it will depict the system behavior plus the technology platform needed.

The data and integration layer are also connected to each other. Integration will derive the method to integrate the systems and data. While a data layer is the construct of a data model and its technology platform managing the databases in the system.

Infrastructure layer supports the application requirement in terms of technical requirements such as computing resources, network, and other related infrastructure. This will ensure the developed system/application will be operating in full capacity. It will then assist the system availability and performance.

Without governance and security, an enterprise system will not be fully operational. These elements are very important to develop an enterprise system. Additionally, the developed system must consider certain security concerns and solutions for preventing transactional mistakes plus follow the governance of the university.

IV. CONCLUSION

This paper presented a proposed enterprise system framework in higher education. However, this paper aims to pave way for further research to elaborate and empirically for the full university enterprise system in the future. Such a framework will then simplify hardware and software selection, increase agility in taking advantage of new and emerging technologies and improve business and IT alignment. Our future work is to finalize the proposed framework into a full university enterprise system framework. It will consist of sub elements for each layer. All elements will then be validated by a pool of experts. The validation then will prove our proposed framework is workable and as a standard reference for development of the system in a university environment.

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DISTANCE LEARNING TOOLS PREFERENCES - AMONG OFFICE MANAGEMENT LECTURERS (UITM PAHANG)

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ABSTRACT: This study is about discovering the most preferred teaching tools amongst selected lecturers during the Open Distance Learning (ODL) exercise due to COVID-19 Pandemic starting from the early 2020 through the early 2022 and the reason behind the preferences. Base on the findings it was discovered that Google Meet is the most favored tool used followed by WhatsApp.

Keywords: Teaching Tools, Open and Distance Learning, Google Meet, WhatsApp, COVID-19.

INTRODUCTION

During the outbreak of viral pneumonia in Wuhan, China (Li et al., 2020), Malaysia has taken measures to control the pandemic by introducing Movement Control Order (MCO). In relation to it, most of the higher institutions have already implement online learning to supplement traditional face-to-face lectures, but the recent Covid-19 pandemic outburst has forced institutions to halt physical classes and continue with fully open and distance learning (ODL). This is because of, the Movement Control Order (MCO) and Conditional Movement Control Order (CMCO). Public and private universities were required to discontinue any physical lessons during the pandemic time. However, things might not run smoothly as envisioned, and there are a lot of considerations that need to be considered in order to conduct efficient, fully online courses.

Open and Distance Learning (ODL) has been accelerated globally at an unprecedented speed and haste since COVID-19 pandemic attacks. With the new norms in education, come new experiences and challenges. The demands in online learning have pushed both students and educators to maximize their ICT skills and some to be unwillingly ready for the new normal. Lecturers and students have no choice but to keep up with the requirements and challenges of Open and Distance Learning (ODL).

ICT facilities and resources have always been an issue and a tremendous challenge for the Ministry of Education in Malaysia since there is still a huge gap between urban and rural schools in terms of Internet connection and network resources (Jamil, Razak, Raju, & Mohamed, 2011). In 2013, data from the Centre for Educational Research Institute recorded that less than 20% of teachers in Malaysia reported using technology for students' class projects (OECD, 2018). Due to the current Covid-19 pandemic situation, most institutions, educators and learners are forced to fully utilize Internet resources and upgrade their ICT skills in response to the requirement of fully open and distance learning (ODL) to ensure that learning still takes place in times of crisis. Students and educators have no choice but to keep up with the new norms and challenges of ODL.

Educational institution and workplace were forced to run at home via online (Prem et al.,2020). Online learning is where education which takes place partially or fully through the Internet, using variety of software communication to substitute face to face meeting (Means et al., 2009). Examples of such applications are namely Google Meet, WhatsApp, Zoom, Webex, Classroom and may other freely available in the market.

This sudden transition demands educator to adapt their teaching practices into the online environment, and some found out they are challenged with difficulty to adopt to the new teaching mode technology (Kreijns et al., 2014). Nonetheless these challenges also have the positive side where educators must adapt fast and venture into new technology during the online learning session. Resulting into educators use whatever tools available and that can fulfill the need for them and their students. Taking into consideration also on the capability of Internet access, hardware and software that can support the situation.

Organization such as University Technology MARA (UiTM) immediate adapt to this situation and use the terminology of Open and Distance Learning (ODL) to support its business operation as an education institution. In conjunction to ODL, and the restriction due to pandemic, each UiTM lecturer may have to use their organization existing tools to continue online teaching. However, in times of crisis, UiTM per say allows the tool of choice to facilitate the ODL class as per suitability of the educators and the students, in their individual classroom. This case study would identify which tools most preferred in terms of usage throughout the pandemic period from the early 2020 until the early 2022. It would also identify the cause of using which

type of tools preferred.

METHODS

A study has been done by Vloreen & Ellen (2021), shows that majority of students had average quality of internet connection with the highest percentage of 46.9% and the least with poor internet connection quality, 6.3%. Some students indicated that ODL should not be continued in the future semester, due to problems such as poor internet connection, budget constraints and time management issues. Based on previous research done by Norazrina (2020), it was found that the most preferred online learning platform by the students was Google Classroom (86.8%) and followed by Whatsapp (77.9%). This indicates that the students really like using Google Classroom and essential communication apps like Whatsapp and Telegram. When the students were asked further why they preferred Google Classroom, they mentioned that it is easier for them to manage and keep track of their learning tasks and activities.

In relation to this study, data collected was about the type of tools used and the reason for the selection. Data collection was amongst lecturers from Faculty of Business and Management teaching code BA118 and BA232. Method on data collection is questionnaire collected using Google Form. Data analysis method used is the descriptive statistics by measuring frequency.

RESULTS AND DISCUSSIONS

This case study identified which tools have been use throughout the pandemic period from the early 2020 until the early 2022. Comments by respondent discovered the reason behind preferred tools for ODL. The case study analysis was based on five semesters ODL sessions, starting from Mac-August 2020 until Mac-August 2022.



Figure 1: Comparison Graph for 5 Semester (Most Preferred ODLTools)

Based on the findings we can identify that in *Mac-August 2020 (73.3%) majority of the lecturers prefer using Google Meet and WhatsApp Group* as their tools for ODL which indicated the highest result. Followed by (53.3%) prefer to use Google Classroom and (6.7%) prefer to use FB Live Streaming. In *October 2020-January 2021, (80%) of lecturers prefer to use Google Meet*, followed by (66.7%) WhatsApp Group and (6.7%) prefers to use FB Live Streaming, YouTube Channel and Zoom. We discover that on *Mac-August 2021, (73.3%) of lecturers prefer to use Google Meet*, followed by (53.3%) prefer to use WhatsApp Group and Google Classroom and (6.7%) prefer to use YouTube Channel and U-Future for their ODL sessions. In *October 2021-January 2022, (73.3%) of the lecturers prefer to use Google Meet* followed by WhatsApp Group (53.3%) and only (6.7%) prefer to use U-Future. Finally, in *Mac-August 2022, (66.7%) of the lecturers prefer to use Google Meet* followed by (53.3%) prefers WhatsApp Group and (6.7%) prefers to use Google *Meet* followed by (53.3%) prefers WhatsApp Group and (6.7%) prefers to use YouTube Channel and U-Future.



Figure 2 : Reason for The Choice (ODL Tools)

We also manage to identify comments regarding challenges in using the tools such as unstable Internet access to a few students due to affordability, weather, and locality. Lack of infrastructure to conduct online class and poor Internet line connections and lack of student's commitments during ODL class session.

CONCLUSION

Majority of lecturers prefer to use *Google Meet and WhatsApp* as their main tools because the applications can record the class session (even though the announcement in early 2022 Google cease to allow free recording, Google Meet maintain the most popular tool used) and the ease of use, respectively. This is due to technology familiarities and in consideration to student's Internet line access issue.

Looking at the trend over the five semesters period, it can be seen that "Google Meet" has become the most preferred tool in "ODL", but further study needs to be done as the teaching and learning process needs evidence for auditing purposes. It is a concern when recording is no more available for users. This situation may involve cost, and ease of use challenges, for both students and educators.

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In the attempt to share experiences and knowledge in the ever-changing academic scene due to pandemic outburst it is with immense pleasure to give an appreciation to the organizer for the opportunity given. Also, gratitude and thankfulness to participating respondents for their kind experience sharing. Only Allah S.W.T. will repay all the kindness to everyone involved.

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MANAGING INDUSTRIAL ATTACHMENT RECORDS: STUDENTS' PERCEPTIONS IN OPTIMISING ONLINE REPOSITORY AUTOMATED SYSTEM

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ABSTRACT: The study aims to discuss the students' perceptions towards the implementation of automated system in helping the organization to manage records and documents, in which relate to practical or industrial training. Students who are registering for practical/industrial training have increased every semester, therefore the amount of data to be recorded has also increased. In the search of systematic and cost-effective ways of managing the information, there is a need to overcome the problem of keying data into the system and managing the filing manually. In consequence, this study would examine whether the development of automation system has significantly made the data management more efficient and effective (data collection, data storage and data retrieval). From the evaluation, 200 students' perceptions from the implementation were analyzed where the surveys were distributed to the students of random programmes in Universiti Teknologi MARA Sarawak. The returned questionnaires were then analyzed using SPSS. The findings indicated that the implementation of such application could really contribute to the improvement of the information resources of the practical/industrial attachment students. This further ensures that the connection between the faculty and the students is uninterrupted. Apart from that, a good industrial relationship between the management and organization can also be established. The study outcome indicated positive perceptions and responses from the student users which could impact the development of the application. Thus, the implementation of the proposed system should be used continuously as an automated information delivery tool.

Keywords: Record Keeping, Automated System, Industrial Attachment

INTRODUCTION

Online Repository Automated Information System (IS) is a tool for the purposes of recording, storing, processing and dissemination of information, and it is designed to support groups of people purposefully. This IS has included a variety of computational and software technologies that can be utilized for a variety of purposes such as data management, communication, supporting decision making at different scales and scenario exploration.

Industrial attachment (Practical Training) is one of the components in the various programme curriculum conducted in Universiti Teknologi MARA(UiTM) Sarawak Branch, in which they shall be exposed to the reality of the industrial environment. It aims to elevate the students' knowledge and skills in a specific profession of their respective fields and at the same time, produce graduates who are credible, creative, and proficient. The situation involves a lot of data management and record especially when it comes to

the big number of students to be managed every semester. Thus, there is a necessity to implement IS in managing student records, specifically for students who undergo the industrial attachment.

During the attachment, students will be able to apply all their knowledge and theories in real working environment. This training is necessary to prepare and enhance students' skills. Besides that, students can also gain experience and knowledge. Many students register for the Industrial Training every semester and the total number of students keeps increasing semester by semester, and therefore the amount of data to be recorded has also increased. Due to this, the process of collecting, keeping, and retrieving data could be tedious and time consuming when they are done manually. As cited from Desmukh (2019), online platform for the industrial training students must be prepared where they can share their learning along with problems associated to various task of industrial training (Kukreti & Dani, 2020).

With regards to this, Information System is initiated as a platform to improve the process of managing loads of information. This study aims to oversee the users' views on the Online Repository Automated Information System for managing the industrial attachment records and supplying students with relevant related information, and the two main objectives are indicated below:

- 1. To oversee an Online Repository Information System for the management of practical training /industrial attachment information.
- 2. To identify students' evaluations (users) towards the Information System in managing their information and retrieving pertinent data.

LITERATURE REVIEW

To improve the efficiency and usefulness of data and information, many institutions and agencies have entered their records into online repository. The management of Information System plays a significant role in contributing the success of an organization's performance through a set of procedures and functions (Hasan, 2018). As such records are continuously growing, proper management on the implementation of records needs to be in place especially academic records that become the asset that needs to be managed properly (Yunus et. al, 2016). Electronic record management systems that are based on cloud repositories allow students to access from remote locations (Millican, 2020). Chin and Lee (2000) affirmed that users' satisfaction with an information system can be defined as the overall affective evaluation of an end-user regarding their experiences in relation to the information system. Data management for educational institution is crucial for each student's academic record and, database management system (DBMS) is the best solution to accommodate this requirement (Callista & Fiona, 2015). Effective record-management systems can assist an organisation to run smoothly, including universities to manage large volumes of data and ensure the reliability of their records within a framework (Kemoni and Wamukoya, 2000).

To add, the evaluation of users' satisfaction is used to identify what people think and feel about using a product, to assess and perceive the quality of use. Scholarly literature has highlighted the positive impact of information system usage on institutional administration and management which provide better accessibility, efficient administration, higher utilization of resources, better time management, and better quality of reports (Shah, 2014). Xiao & Dasgupta (2002) have listed five important items that can be measured to obtain users' satisfaction results, which include ease of use, content, timeless, format and accuracy. A proper system is developed to provide better management besides, giving a guideline of the industrial attachment for both students and organization (Hasmin et.al, 2003). Web-based information system can provide the administrators a tool for monitoring and managing the records of manuscripts collections on the graduates of the academic institutions (Mesa, 2017). Zaragose (2022) has also affirmed that the developed system must apply the good criteria in term of its functionality, usability, performance and be up to date in order to maximize its potential.

METHODS

This study involved the use of the online repository that is functionally used as a medium to storage and retrieval system in managing Practical Training/Industrial attachment student records. Quantitative method was applied in this study based on the development of a research instrument to assess. This study has collected primary data through questionnaire. The sets of questionnaires were disseminated through structured self-administered printed questionnaire and web-based computer-assisted survey by using a provided link. A set of 200 questionnaire had been distributed among the student users who would be doing industrial attachment.

Adapted from Measuring Usability with the USE questionnaire (Lund, 2001), the questionnaire aimed to gauge information based on the respondents' views towards the platform. The instrument was also developed based on the review of literature. The questionnaire was divided into two sections which were Section A and B. Section A focused on the essential aspect of the demographic information of the respondent while Section B identified the students' evaluation and feedback.

RESULTS AND DISCUSSIONS

The survey indicates the respondents' perception and expectation evaluations towards the Online Repository in managing information. To clarify the objectives of the study, the analysis shows positive responses based on the implementation of online platform elements. The criteria for the evaluations are based on the content, accuracy, informative and ease of use. The users' evaluations of the automation platform have illustrated whether the users were satisfied in using the application, hence proving the benefits and usefulness of the automated system in managing the information, with the support of the database component.

Items	Details	Percentage (%)
Gender	Male	60.0
	Female	40.0
Level of Education	Degree	48.0
	Diploma	52.0
Computer	1-3 years	27.5
experience	4-6 years	25.0
	7-10 years	25.0
	More than 10 years	22.5

Table 1.0: Respondents' Demographic Profiles

The basic demographics of the respondents are shown in Table 1.0. There were 60 percent male students and 40 percent female. More than half of the diploma students were taking part to answer the questionnaire. Most of the respondents had more than 5 years' experience in using computer.

 Table 2.0 Students' Evaluation and Feedback on The System's Features

Items	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	
Design	0	3.9	24.3	60.2	11.6	35

User friendly interface	0	1.9	26.2	58.3	13.6
Cloud Accessibility	0	2.9	20.4	54.4	22.3
Ease of use	0	4.8	20.4	54.4	20.4
Attractiveness	0	1.0	22.3	49.5	27.2
Relevant information	0	1.9	21.4	49.5	27.2
Cost Saving	0	1.0	22.3	49.5	27.2
Quicker Response	0	0	17.5	59.2	23.3
Usefulness	0	1.0	29.1	46.6	23.3
Save time	0	1.0	30.0	44.7	24.3
Accuracy	0	0	10.7	39.8	49.5
Timely information	0	1.0	15.5	49.5	34
Flexibility	0	1.0	38.8	54.4	5.8

Table 2.0 has shown the users' evaluations on the important features of the repository platform that they had used in their programme (web based, cloud drive, Gsite and etc). The respondents were satisfied with the layout and format of the website. The results show that 60.2 percent of the respondent agreed and felt that the design is an important element to direct them to use the platform. Only 4% of them disagreed and felt that the design is not one of their criteria. More than 50 percent respondent agreed that the interface should be user friendly. A well-designed industrial attachment repository to keep track of the students' attachment record is very important and has significantly minimised the use of paper (paperless working environment), in which it is an automated information delivery tool and has run efficiently and effectively in terms of data collection, data storage and data retrieval.

It is indicated that 54.4 percent from the population of the respondents agreed that the cloud service accessibility is efficient. This was supported by Kibe (2019), where cloud-based services have the potential of increasing efficiency and effectiveness of public organizations through effective records management. Almost all respondents agreed that the ease of use is one of the important features that they are looking for, as the instructions provided in the system must be simple and easy to understand. The information delivery method is good for correct interpretation. This platform must be very useful for practical students to gain information and to provide the latest information on practical training without frequently referring to lecturers or supervisors. It gives convenience to both lecturers and students to be able to catch up with current news and information. The percentage of 49.5% shows that most of the respondent agreed that the information provided in the system were relevant and useful. Guidelines and rules for students to refer must be provided appropriately. This includes the report writing guideline and template that will help student in preparing their final report.

Another important advantage discussed here is cost saving, as a well-conceived and implemented automated student record system can reduce the costs of handling the report, record keeping procedures and printing the documents. Thus, majority of the respondents had shown agreement to strong agreement (76.7%) where cost saving is one of the elements to be highlighted.

In addition, based on the students' views on the system's features, they preferred to get more and timely information about practical training such as the presentation schedule, supervisor in charge and any other information. This is supported based on the results above, which shows that 44.7 percent agreed that by having the online information system can save their time. The downloadable information is relevant for students who had they practical training outside the campus. Student can also register online compared to the process before they need to fill in the form and returned the completed form manually.

n term of quicker response, when information from a student record is requested, it is often needed promptly, so a well-designed student record system allows for timely retrieval of the needed information at any time. Accuracy is vital at every stage, from data collection, to entry, to maintenance in the system. The information accuracy provides the users with the confidence so that they will continuously rely on the system. An effective automated record IS system should also provide the information required on request easily and not time consuming, and without burdensome trial-and error searching. Like an office filing system, the adequacy of a student record system is often judged by how much time and effort are required to find and retrieve information. Therefore, a key part of the design of a record IS its process for access, retrieval, and reporting.



Figure 1.0 Feedback on The Students' Satisfaction in Using the Platform



Figure 2.0 Feedback on System's Usage (Recommendation for Future Use)

Based on the analysis in Figure 1.0, more than 60 percent respondent that they agreed that they are satisfied with the platform used and would continue to use the application (Figure 2.0) in which 54.4 percent agreed and positively recommended the usage. These results show that the development of online repository has significantly made the data management be more efficient and effective (data collection, data storage and data retrieval). The outcome has also revealed positive perceptions and responses from the students regarding the development of the application. Thus, the implementation of the online repository should be continuously used as an automated information delivery tool in the future.

CONCLUSION

This study can contribute to knowledge recovery on the development of the online repository that has digitalized the management process of Practical/Industrial attachment. Identified elements can be a reference to deploy appropriate features for the system that will increase the end user productivity. Future planning involves the development of a very comprehensive application which will make the practical training coordinator tasks such as updating the information become easier and save time, providing end user with more user-friendly interface and informative system that helps practical training coordinator and students in managing the records.

The purpose of the platform is to bring the users to relevant resources regarding their practical training and their report materials. Effective automation system is the key to provide access to numerous resources and deliver this content dynamically through a well-constructed back-end database implementation. Moreover, the implementation of the system will increase the user performance and productivity with that transition from manually documented filling system to become web based online automation application. It can be concluded that the implementation of such application can really contribute to the improvement of the information resources of the Practical/Industrial attachment students. This will ensure that the connection between the practical training coordinator and the students is uninterrupted. Apart from that, a good industrial relation, relationship between the management and organization, can also be established. The study outcome has indicated positive perceptions from the students who were also the users and therefore, the implementation of such system should be used as an automated information delivery tool.

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JABATAN INFOSTRUKTUR PEJABAT PEMBANGUNAN INFRASTRUKTUR & INFOSTRUKTUR UNIVERSITI TEKNOLOGI MARA, MALAYSIA



SITI NUR ATHIRAH BT MOHD ASRI AMIRAH RAIHANAH BT AZMI NOORFAZIRAYU BT MD HANAPI ALYA SYARA BT MOHD ZIN

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ABSTRACT

After the covid-19 pandemic, many people wanted to travel everywhere. therefore, hospitality services are much needed. In general, the best hotel service will be the choice of travellers. as we know, previously the service to open the hotel room door only used the card provided by the hotel management. therefore, we will convert the card to one application

INTRODUCTION

- In general, tourism has many sectors. one of them is the hospitality sector. The hotel is an institution that offers paid accommodation for tourists to stay. As we know, the country has many hotels with different types of unique hotel designs.

- This application is designed to make it easier for travellers to open the hotel room door by simply scanning the qr code found on each room door

- This application is also user friendly because it is easy to access using only the phone.

- Avoid negligence from tourists who leave key cards everywhere

- Every qr code will have an expiration date after the tourist stay period ends

- This application will store all tourist data such as name, period of stay, number of guests and others

METHODOLOGY

DATA COLLECTION

PRIMARY DATA

- Online Survey
- We have done our online survey to get data on this application. We have got 30 people to fill in that information.

SECONDARY SOURCES

- Hotel Statistic
- We have obtained hotel statistics through the official website of the hotel in Malaysia. Such as Sani Hotel, Grand Hyatt Kuala Lumpur, EQ Kuala Lumpur, and Pavilion Hotel Kuala Lumpur
- We also choose some information from other website

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MARA



RESULTS

HOTEL.CO

- To make it easier for tourists to open hotel room doors using just one application

- To protect the privacy of tourists from being invaded
- Makes it easier for tourists not to have to send a card to the hotel management
- This application can be applied for everyone

CONCLUSION

-Overall, this app is much needed by travellers staying in hotels. this is because, it will facilitate all matters either for the hotel management or the tourists.

-With the application, travellers no longer must deal with the registration counter provided at the hotel, tourists only need to download the app.

-All check-in and check-out services will use only with this application. with this, be able to avoid dealing with the public and maintain social distance.

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I.MUHAMMAD MUZAKKIR BIN MOHD ZAKI 2 AHMAD MARZUOI BIN MOHD SALIEI 3.MOHD AQMAL HAFIZI BIN MOHD DZAHER 4.MOHD ZULHILMI BIN AB HAMID

SUPERVISOR NAME

Prof. Madya Dr Mazlina bt Mahdzar

ABSTRACT

The concept for this project was inspired by this new era of social media such as Pinterest, Instagram, Facebook, and TikTok. But, what makes this project different from the other social media companies is that this app is focused mainly on gastronomy and culinary as well as on marketing and community-making purposes. This app features almost all functions just like other social media such as pictures and video posting, chat messeges and sharing features but what makes it special is that users can create its communities that shares the same passion and interests that related with food and beverages. Sip and Chill also have a features that users can explore so many kinds of culinary hype and scenes such as new restaurant in town, food festivals, best cafes, and what's special around the city and many more.

INTRODUCTION

Sip and Chill is an application that connects foodies and cafe hoppers to explore new and trendy cafes and restaurants in the city where the users lived. this app also provides information about the latest news on the food scene all over Malaysia and helps to connect with other users to make up a community where they can meet hang out and chill together. this app also helps to support local businesses and start-ups by promoting their brands. Every week, lucky users will be rewarded with vouchers or discounts for every points that they collect during their visit to any cafes or restaurants featured in our app. this app also has a future to share pictures, videos, blog, articles, and community chat that related about food cultures

METHODOLOGY

The way we create this app are by using the application maker platform such as Adalo and we will cooperate with other food vendors, photographers, video makers and food bloggers to help us finding and promoting the best culinary cultures and scene all around Malaysia. Every users are required to register their account for the app and they're allowed to add their profile pictures or an avatar. This app can be downloaded from Playstore or app store and each users can communicate with each other to make friends and share their passion and knowledge about the trendy and new food culture in the city that they lived or anywhere in Malaysia. The users also can upload and share their images, videos, postings and blogs that related. for restaurant owners, they can register as a business owner option and they can promote and introduce their restaurant to the society. they can show what's special about their restaurant that people have to visit.

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MARA

SIP AND CHILL



RESULTS

since Malaysia is one of the top destinations for its gastronomy tourism, this app helps to boost the culinary scene in this country by introducing so much exciting information and news that people need to know about the culinary hype of Malaysia. it also helps to support local entrepreneurs by promoting their businesses and startups as well as generating income for any writers, photographers, and video makers to show their masterpiece through this app and share it with the community. Through Sip and Chill app, will help to make Malaysia's gastronomy scene on the map and can compete with other neighboring countries that have been the gastronomy powerhouse such as Thailand, Vietnam, and Indonesia

CONCLUSION

The establishment of this application can help startups or local restaurant operators to grow quickly and get a response from the community. Besides the use, it is clear that this app will help the community to get to know or try new foods and create helping the community to taste and know the new and traditional culinary trends.

ACKNOWLEDGEMENT

All praise and thanks to Allah and His blessing for completing this thesis. I thank God for all of the opportunities, trials, and strength that have been bestowed upon me to complete the thesis. Throughout this process, I learned a lot about myself, not only academically but also personally. My heartfelt thanks to the Holy Prophet Muhammad (Peace be upon him), whose way of life has been a constant source of inspiration for me.

First and foremost, I would like to express my gratitude to my lecturer, Associate Professor Dr. Mazlina Binti Mahdzar, for his guidance, understanding, and patience, as well as for providing positive encouragement and a warm spirit for me to complete this thesis. It has been a privilege and an honor to have him as my supervisor. I'd also like to thank my family and friends for their help. We could not have completed this project without their assistance. Last but not least, we'd like to thank everyone who assisted and encouraged us to work on this



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- **1.NOR AISHAH BINTI JALAL**
- 2. IZZMADIHAH BT MOHAMAD SUPIAN 3. NUR FAZZIATUL AQMA BINTI HASHIM
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SUPERVISOR NAME

PROFESOR MADYA DR MAZLINA BINTI MAHDZAR

ABSTRACT

Considering Covid 19 cases are declining worldwide, the tourism and hospitality industry in certain countries has opened borders. It make more demand for such as services, so our app is one of the services for covid 19 pandemic is declining to facilitate consumers. The concepts in this app will make it easier for users out there to plan, find ideas and inspiration to start their honeymoon journey. They can find the best hotels and interesting tour packcage to visit. Not the same as most other apps because this app is more focused on couples who want to enjoy a private honeymoon. This application also does not require a cost to use it unless the couple wants to book the travel package offered. This application collaborates with many other travel agencies to make it easier for couples to choose the desired honeymoon place.

INTRODUCTION

Lovely.love application is an application created for travel use around the world. This Lovely.Love application is more focused on newlyweds to find information, ideas or inspiration for their honeymoon. what is more interesting about this Lovely.Love app is that this app collaborates a lot with travel agencies to make it easier for couples to choose and determine for themselves where they want to go for their honeymoon. Users can also use our app by selecting interesting suggested places for them to visit. This can be an inspiration for them to spend time together. For your information, our recommended travel packages are user -friendly where they can get information about places as well as accommodation and food prices so that users do not have to be confuse. Well we know that planning for the perfect honeymoon is important as people to very excited and they do want to miss any chance to spoil it by choosing wrong location.

METHODOLOGY

Every couple who wants to use this Lovely.Love app can download it on Google Play Store or Apple Store. This application does not charge to download it. Users only need to register to activate an account in these Lovely.Love apps. Users also need to fill in personal information such as phone number, email and profile picture. Activating an account on Lovey.Love apps is also able to get a cheap package deal. Lovely.Love apps also provides a comment space for users who have used these apps to give their feedback.

AUTHORS

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Lovely.Love.App



RESULTS

With this Lovely.love app it will make it easier for couples who are looking for a suitable place for their honeymoon based on their ability and budget because this Lovely.love app will help these couples to give ideas or suggestions that are very suitable for those who are finding this honeymoon spot will make it easier for couples to make the right choice.

CONCLUSION

Lovely.love apps can be a lot of benefits only for married couples who want to enjoy a vacation. They can share stories together after being busy with working life. so, our lovely love application can strengthen the relationship between husband and wife like when they are not married

ACKNOWLEDGEMENT

We would like to thank Allah SWT because of His blessings, and we can complete this task and we also want to thank to the organizers of IT Conference 2022 for giving us the opportunity to attend this programmed. We finally managed to achieve this group project for the subject Information Technology in The Tourism Industries (HTT511) with enthusiasm and determination we also would like to thank Professor Madya Dr. Mazlina Binti Mahdzar, our lecturer for the class Digital Technology in Tourism (HTT511), for her guidance on this group project. Lastly, thankfulness goes to all group members for their ideas and hard work through completing this group project. Without the good teamwork, we would not have finished this task successfully



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KONFERENSI ICT 2022 "EMBRACING DIGITAL LEARNING TRANSFORMATION"



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SUPERVISOR NAME

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ABSTRACT

This concept will be developed in the twenty-first century. This endeavour will be a first in the airline business. Because some airlines will disregard or overlook the services they could provide. This development is particularly significant for the airline sector because it has the potential to help the company grow and become more profitable. Because innovation and project go hand in hand when they are developed, they can be run as a project. We shall apply the concept of innovation project management and specify the traditional project in this project. We can contribute to the academic programme and the debate between innovation and project management by implementing this innovation.

INTRODUCTION

The innovation project has been done since then and it is still going strong because innovation in education also encourage students to explore, research, and use all the tools to uncover something new. The thinking process that goes into it will help students develop their creativity and their problem-solving skills.

As for this project, it's a combination of technology and also widgets that have been combined to be the newest technology in airlines that can be convenient for passengers to book a ticket flight or check in their bags.

METHODOLOGY

Self-print is a project that aims to connect the systems used in the airline industry, especially those between check-ins, customs checkups, onboard meals, and merchandise purchases. To give a brief explanation, passengers would've bought their flight tickets online through their devices. When they arrive at the airport on their boarding day, they'll scan a QR code that'll be provided at the self-print kiosk and print their own wristbands as a sign of checking-in. Once they board the plane, to buy an inflight meal, they only have to show their QR code wristband for sales and purchases onboard without the hassle of taking out cash. Most importantly, those wristbands can only be removed once they have landed and gone through the destination customs checkpoint/counters.

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RESULTS

SCAPHA

WRISTBANDS

The results of this idea will help travellers by buying their tickets and enjoying all of the facilities at both the airport and onboard. They will find it less hassle for them to only scan the QR code on their wristband to complete their sale and purchase within the designated proximity. This will also help put an ease on the airlines' staff who work at the check-in counter due to this new system where tourists and travellers can manage their check-ins themselves by just scanning the QR code with their smartphones & printing the wristband before dropping off their luggage at the counter. This product may also reduce the risk of losing their tickets due to the need to wear the wristbands right after printing them out.

CONCLUSION

Innovation is something new that creates an impact. It can be in the form of products, services, experiences, technologies, features, brands, policies, and systems. It is also a process of organisations transforming ideas into new or improved products, services, or processes. As a conclusion, this wristband may save time for passengers to check in and also save the airline the task of checking them in. It is a win-win situation where it can be universally adopted as a better practice.

ACKNOWLEDGEMENT

First of all, we want to say thank you to the organisers of IT Conference 2022 for giving us the opportunity to attend this programme. Thus, we also would like to thank Professor Madya Dr. Mazlina Binti Mahdzar, our lecturer for the class Digital Technology in Tourism (HTT511), for her guidance on this group project.

Furthermore, thanks to the members of our group, Aina Hayati, Nur Hannani, and Liz Irdina, for their hard work in completing this project. This project could not be completed without the assistance of the members of this group. We also would like to thank our friends and family members for helping us prepare for this project.



Mara

KONFERENSI ICT 2022 "EMBRACING DIGITAL LEARNING TRANSFORMATION"



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ABSTRACT

Tourism and technology have emerged as significant areas with the ability to contribute to economic growth. The app is intended to guide visitors to fascinating spots in Malaysia. This app is called "A/M App" that stand for Around Malaysia travel application. This app is available downloaded at google play store and Appstore. This software is intended to make it easier for travelers to visit fascinating spots in Malaysia. This app is quite useful for foreign travelers who are participating in tourism activities in Malaysia. Next, the primary goal of developing this application is to provide more thorough information about places of interest in Malaysia to visit. Furthermore, the findings of this study revealed that 30 respondents agreed to utilize this application to help users identify sites of interest throughout Malaysia. As a recommendation, hopefully, this app is constantly updated with information on new and interesting places to visit.

INTRODUCTION

Application Around Malaysia to help those who want to visit interesting places in Malaysia by providing select packages with affordable prices, trusted travel agents, providing transportation rental facilities such as cars. With the creation of this application, tourists can not only achieve the objectives of their visit, but also local travel agencies can expand their business were trough this application customers can also connect with listed agents.

METHODOLOGY

To develop an A/M app that can be accessed by all users, we have taken a few steps, the first step, we do a lot of research on the existing travel applications in the market. thus, we can identify the functions and services provided by the existing application. In addition, we also conduct research by obtaining views or opinions on the application. that way, we can develop applications that are useful to users, especially for travelers who desperately need accurate and fast information. after going through the information collection process, we will list the contents in the application that we will develop, among the contents available in the application are the price of travel packages offered by each travel agency and by monthly, travel packages by state, travel packages with high demand as well as a list of trusted vehicle rental companies. where this application is designed to meet the needs or desires of tourists who travel in groups. pairs or alone. we understand the concerns of tourists about the price of tourist packages, so we have also listed the packages that have discounts for tourists to choose from. after completing the list that wants to be placed in the application, we will go to the application creation process, the website we use to develop our app is Firebase. while our app logo uses canvas. firebase allows our applications to be easily accessed and published on google play store as well as on apple Appstore. This website is unpaid app for a few months so that it helps in term of financial to develop this app. The first process to create an application in Firebase, we need to create a Firebase account. next we will choose the package with the application we want to develop. After that, we will enter the details of our application and our app settings. And further accept the terms and conditions from Firebase. lastly, we will test the functionality of the app before it is accessed and used by the user that of these apps is available on google play and Appstore.

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Pejabat Pembangunan Infrastruktur dan Infostruktur

AROUND MALAYSIA





OBJECTIVE

-The objective of this application is this application will help local and international tourists while travel all around Malaysia especially the famous places. This application also will guide and provide tourists about all information about all packages.

-The objective of this application is this application enable tourists to access and share transport-related information and experience.

-The objective of this application is this application helps travel needs, such as location details, package cost etc.

NOVELTY

This application will provide various package available such as gravel agency, transportation, state, famous package and monthly. This application also providing package discount which is around 10% until 50% discount per package. For the monthly package, this application will provide school holiday package, New Year package, Chinese New Year package, Malaysia Independence package and others. This application also will show all the trusted and famous travel agency. All information and famous places in all states in Malaysia are included in this application. Various transportation also providing in this application such as cars and motorcycle. For the famous package is focus on all famous places in all states in Malaysia.

RESULT

The result of this idea will help travelers to be able to help travelers especially travelers from abroad to access information about places of interest in Malaysia. The app also saves travelers time to search interesting place. In addition, it can also help tourists learn how to create travel -related itineraries and can add experience through this application. to attract more users of the application, we will make improvements to the example of posting the current state of tourism destination and others. so that users get the best service from this application at the same time will be able to increase the value on this app to remain relevant, informative, and convenient to its users. at the same time, be able to maintain user confidence in the app. therefore, all groups and ages can also use it and the features of this application are easily accessible using a smartphone no matter where they are. In addition, this application also does not charge a fee to its users like other applications.

CONCLUSION

As the conclusion, online platform is very useful and powerful in the promotion and marketing of business. For that, an application Around Malaysia was created to connect existing business or travel agents and tourist who need to benefit from it. Application Around Malaysia is not only an application to attract tourists to come and travel to Malaysia. In fact, this application also indirectly helps to redevelop the Malaysian of finances, time, activities to be done and so on before starting the trip. economy after Covid-19. It also helps tourists compare, plan, and prepare in terms.

ACKNOWLEDGEMENT

Foremost, we would like to thank Allah SWT because of His blessings, and we can complete this task. We finally managed to achieve this group project for the subject Information Technology in The Tourism Industries (HTT511) with enthusiasm and determination. Therefore, we would like to thank the individuals who have guided us in doing this group project. We also would like to thank our Information Technology in The Tourism Industries lecturer, Associate Professor Dr. Mazlina Binti Mahdzar who has taught us how to complete this project. Also, thanks to all group members for their contributions and hard work in finishing this group project. We would not have completed this mission satisfactorily if we had not worked well together. Finally, we want to thank our parents for constantly praying for us and taking the time to listen to our difficulties.

KONFERENSI ICT 2022 "EMBRACING DIGITAL LEARNING TRANSFORMATION"



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SUPERVISOR NAME

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ABSTRACT

The hospitality and tourism industry is a large industry that encompasses all economic activities related to travel and tourism include in Malaysia too. As we know, technology is growing rapidly all over the world and everyone using smartphones allows everyone to surf the internet or use the app at the fingertips anywhere at any time because inside every smartphone there should be an app that can be downloaded on their own or that is already in the smartphone. Our aim is to help and promote local traders and travel agencies that are affected by the pandemic and enhance their lifestyles to become better as well as promoting interesting destinations in Malaysia. The different about our app with other travel app is the users can choose their own destinations, accommodations, restaurants, mosques, local souvenir sellers/ shops, and types of transportation. Then, for the existing packages, the users can choose their own duer friendly, anyone from any range of ages can use the app and it will be convenient for traveller to choose their preferred destinations. In conclusion, this app is to attract more foreign tourists to explore Malaysia easily with the 3MnGo app.

INTRODUCTION

The hospitality and tourism industry is a large industry that encompasses all economic activities related to travel and tourism, whether directly or indirectly. Tour operators are sometimes called wholesalers but this is partially true because a wholesaler buys goods and services in bulk at his own account to prepare a tour package and then retails it through the travel agencies or directly to clients. Ever since the introduction of the internet 20 years ago, people's lives, business structures and tourism have changed drastically towards technological advances causing communities and the use of tourist information technology to change. As a result, the development of new technologies and industries has been shaped by the digital age, resulting in a multi-functional application, especially those downloaded by users to various mobile devices.

As we move towards 21st century, everyone uses a mobile phone and wherever they go, they'll take a mobile phone with them resulting in addiction and it allows everyone to surf the internet or apps at their fingertips anytime and anywhere. Hence, the need to travel to anywhere we desire has increased from time to time. With the 3MnGO app, it allows tourists to plan travel activities to interesting destinations in Malaysia as well as allowing tourists to choose their own packages custom or existing packages. Our app is to help travelers to travel safely without worrying about cost, destinations, accommodations, restaurants, mosques, local souvenir sellers' shops, and types of transportation.

Our app differs from other available travel and adventure apps like Roadie: road trip planner & rv, Sygic Travel Maps Trip Planner, Visit A City, Traveloka, Trivago, and many others because the majority of other travel apps only concentrate on comparing locations or options for lodging, transportation, restaurants, and more, whereas our app concentrates on tourists to choose their tour from preexisting packages or they can create their own vacation. After the pandemic COVID-19 affected the tourist sector in Malaysia, 3MnGo is concentrating on providing possibilities for travel companies to attract clients and boost the industry.

METHODOLOGY

his app is available only in google play store for the time being. every user needs to ownload in google play store only. Our application will appear and be at the top of the 3MnGo earch if you simply input "3MnGo Application." For every first time users, they will need to ign in the app, and after every successful sign in, they have to log in for free to use the ext features in the application. The 3MnGo was developed to encourage first-time visitors to lalaysia to use local travel firms that are MOTAC-registered. We evaluated a number of factors uring the development of the 3MnGo application, including our own experience, observations nade, questionnaires, and reading comments left by users in reviews of applications they had sed. From there, we added and modified some functions that we needed to add and use in MnGo. Adalo.com was used to create 3MnGo at this early stage because it is simple to use and ppropriate for those of us who are just starting out in application development.

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KONFERENSI ICT 2022 "EMBRACING DIGITAL LEARNING TRANSFORMATION"

3MnGO Application



RESULTS

As a result of the use of this application, it can help foreign tourists who are coming to Malaysia for the first time to choose their own destination and activities of their choice or they can choose an existing package to make it easier for them to make a choice. Not only to help tourists to travel in Malaysia, this application can also help local traders and travel agencies affected by the pandemic that has been around for 2 years. In addition, this app can also promote Malaysia to tourists who have probably never heard of or knew of the existence of Malaysia. Just at your fingertips, the use of this 3MnGO application can help promote Malaysian products and at the same time promote Malaysia in the eyes of the world. Other than that, the payment can be done easily with QR code or online banking.

CONCLUSION

In conclusion, this app is very much needed by people who like to travel but do not know the interesting places that are in the country they want to go because this app will manage all things like hotels interesting places and many more. In addition, they also no longer have to deal in the office because they can deal online with this 3MnGO application. Therefore, people are advised to use this application to facilitate their affairs in dealing with their travel packages.

ACKNOWLEDGEMENT

First of all we would like to express our gratitude to Allah SWT because with His bounty we were able to complete this task successfully. Our group finally successfully completed this project for the subject of Information Technology in The Tourism Industries (HTT511). Therefore, we would like to thank the Information Technology lecturer in The Tourism Industries, Associate Professor Dr. Mazlina Binti Mahdzar who has taught us in completing this project. Thanks also to all the team members for their contributions and hard work in completing this project. We will not complete this task successfully if we do not work together well. Finally, we would like to thank our parents for always praying for us and taking the time to listen to our plight.



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SUPERVISOR NAME

PROFESOR MADYA DR MAZLINA BINTI MAHDZAR

ABSTRACT

Tourism and technology have emerged as significant areas with the ability to contribute to economic growth. We offer the Jointfun Application, a marketplace and entertainment application that uses the TikTok platform to advertise entertainment such as theme parks, amusement parks, casinos, cinemas, shopping centers, performing arts centers, and sports complexes. Our purpose is to promote the entertainment industry and to encourage users to participate in and enjoy the entertainment options available in the country. As far as we know, there aren't many travel apps that offer a marketplace and entertainment options, particularly for places. Thus, the app's novelty is linked to the creator's goals, which include promoting entertainment sites as an interesting destination for the general public in order to contribute to the local economy's net profit. Furthermore, the proposed application's utility is that it can provide users with enjoyment in discovering available entertainment. Finally, results and discussion are used to improve and simplify the process of travelling while having fun in your free time.

INTRODUCTION

Entertainment is a fun activity and helps reduce stress and strain from work and daily activities. In the tourism industry, entertainment is very important in this sector because it is a driving factor for tourists to travel around the world. In Malaysia, there are many interesting entertainment places such as Legoland, Escape Theme Park, A'Famosa Theme Park and so on. Indirectly, it not only benefits tourists by giving them satisfaction but also helps develop the country's economy and society, especially after Covid-19 hit. However, to travel, tourists need information before planning a trip. So Jointfun.app is an application that provides information to tourists about entertainment places available throughout Malaysia. Jointfun.app is an application developed for the use of tourists in and outside Malaysia. This application makes it easy for tourists to find information on interesting entertainment tourism places throughout Malaysia. It is an application which was developed to help the entertainment sector in Malaysia after being hit by Covid-19 by advertising using tiktok as a platform. More shore their experiences when traveling somewhere and give a rating according to the level of satisfaction with the services provided.

OBJECTIVES

Jointfun.app's goal is to assist users or tourists in finding entertainment destinations or activities. Then, with Jointfun.app, you may find out about the many forms of entertainment accessible in Malaysia and internationally. Next, in Jointfun.app will introduce more entertainment attractions that trending nowadays. Finally, the purpose of Jointfun.app is to aid the tourism industry by marketing the entertainment sector more widely and assisting them in expanding their business.

NOVELTY

Each application must have its own specialties and novelties. So here are some of the novelties and privileges owned by the Jointfun.app application. The first is easy to access. Jointfun.app uses Tiktok as a platform to connect directly with users by presenting and advertising interesting entertainment tourism venues throughout Malaysia. The second is to give tourists who have traveled to Malaysia the opportunity to leave their comments. With the comments given indirectly will make many people especially tourists who are interested in traveling to Malaysia make a choice of destination they want to go before traveling. And the third is that this application also comes with important information. For example, prices, activities and operating hours are important information to make it easier for tourists to plan their time and expenses while traveling.

CREATIVITY

Jointfun.app app has their own creativity and personality. In this apps we will promote all the entertainment industry around the world by posting the videos of the place, pictures, promotion video, sales video, voucher and so on. All the posting of the review are not deleted same goes to other paid review. And for the price of the paid review will be more cheaper than other influencer because our main vision and mission is to help our entertainment industry being more famous and all the people can having fun in their own way.

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JOINTFUN.APP



JOINTFUN.APP ENTERTAINMENT

USEFULNESS

The usefulness of the Jointfun.app is to make it easier for travellers to find entertainment activities by providing information that is easily accessible for tourists to plan or survey the area. Apart from that, travellers will be able to share their experiences and opinions on the activities. Finally, to encourage more visitors or users to include entertainment activities or attractions in their vacation itineraries.

OVERALL ACCEPTABILITY / PRACTICALITY

All the entertainment industries accept this Jointfun.app App because it is a good platform for them to promote their product and service by only using the power of viral. This app also easy for customer to find their entertainment place by only scrolling Tiktok account that named Jointfun.app to get know about their destination. This app also has a multi-function device that can helps all the customer find their entertainment place because there already has the link of website to manage their booking, destination, date and so on.

COMMERCIAL VALUE / MARKETABILITY

TikTok was the main most downloaded application in 2020, and it's assessed that TikTok has around 689 million month to month dynamic clients and 2 billion application store downloads. This might seem like a **promoting goldmine** — particularly on the grounds that there could be less contest while different organizations wonder whether or not to jump aboard.

COST / ECONOMIC EFFECTIVENESS

In terms of cost, Jointfun.app will charge a price to be set and agreed to advertise travel products to consumers.In terms of economic effectiveness helps to increase the country's income through tax collection from tourists and businesses involved. Not only that, it also increases employment opportunities due to the tourism sector which does not have enough manpower but the demand is increasing. The increase in employment opportunities will also see an increase in the local community spending because their income increases as well as increase their purchasing power.

METHODOLOGY

The material and method that has been used in making Jointfun.app Apps is Tiktok Application. As we know Tiktok being the famous apps in this era and all the people mostly used Tiktok as their main entertainment social media. So, we decided to create a Tiktok account that named Jointfun.app to promote all the entertainment industries in Malaysia. For example, we will do a review by posting their videos, pictures, and promotion or sale of their place. After that, we also put the link of the website on every posting of the entertainment place. So that all the people can get to know about the place easily. And for every review that already posted we will charge them and the range of price may be different.

RESULT

The existence of the Internet today has enabled Internet users to export, share and disseminate information through social media sites such as TikTok. TikTok Marketing as Entertainment According to Informant 4, the development of the Internet has attracted the attention of the public. This is because the Internet is not just a network for finding information or visiting online platforms, it also allows people to find entertainment venues that get recommendations from the app's ads as well as the people who use the app. With this Jointfun.com can promote this sector easily.

CONCLUSION

Nowadays, technology is becoming more sophisticated and evolving and is being used in various fields including tourism to facilitate work and solve daily problems. Many current viral and trading things that are increasingly being shown on social media with human nature that has a high curiosity and trying nature will definitely make them interested and be a motivating factor to participate. So with the Jointfun.app, it makes it easier for them to identify viral entertainment and trading places in Malaysia. Jointfun.app is not only an application to attract tourists to come and travel to Malaysia. In fact, this application also indirectly helps to redevelop the Malaysian economy after Covid-19. It also helps travelers make comparisons, plan and prepare in terms of finances, time, activities to do and so on before embarking on a trip

ACKNOWLEDGEMENT

First, we would like to thank Allah SWT because of His blessings, and we can complete this task. We finally managed to achieve this group project for the subject Information Technology in The Tourism Industries (HTT511) with enthusiasm and determination Therefore, we would like to thank the individuals who have guided us in doing this group project. First, we would like to thank our Information Technology in The Tourism Industries lecturer, Associate Professor Dr. Mazlina Binti Mahdzar who has taught us how to complete this project. Next, the thankfulness goes to all group members for their ideas and hard work through completing this group project. Without the good teamwork, we would not have finished this task successfully.Finally, we would like to thank our parents who have always prayed for us and given us time to listen to our problems.



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ABSTRACT

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This product has been innovated according to acceptable standards and facilitates the public. This product will be one of the new products of this century. This is not only in line with the current Covid-19 era but can even help those who love to seek information. Information is very important for the convenience of the public. With a wide range of interesting information and attractions, it will be the choice of many people. this will advance the existing business. with the internet and gadgets, we can find information at our fingertips.

INTRODUCTION

Tourism activities are one of the activities that are very popular with the public. This is said so because tourism activities can relax the mind and we can see the beauty of the environment. Tourism activities can be done either domestically or abroad. Tourism activities will be easier if we have various facilities that can help us travel easily and quickly. Then, we want to create an e-brochure to facilitate the tourists. This e-brochure is created with a variety of very interesting facilities. Therefore, our product is not the same as the existing e-brochure in the market. With this facility, we can help tourists to travel easily without wasting much time.

METHODOLOGY

The main purpose of this project is to create an e-brochure that contains animations and is understandable for tourists. For example, when we press on the image or the vacation destination, our screen will show a movement and the design will be done in different types of languages such as Malay, English, and Thai. Where you can make it easy for the customer to find more information, images, and videos and can help customers to decide on their choice. This is because traditional brochure printing involves high material costs and printed brochures only have limited space to indicate a specific product. Customers want to know the details of products instead of just attractive pictures. E-brochure is the way to solve this problem of the past because the Internet has become the most important communication channel in tourism and has greatly influenced tourism organizations? marketing activities. It has forced tourism organizations to re-evaluate and 're-invent' their strategies and offerings to adapt to this new environment. This would also help bureaus reduce the printing and shipping costs for their offline brochure versions. Therefore, e-brochures can be of great benefit to travel agencies as they are easily accessible and accessible to everyone. Lastly, we will use google form for methodology.

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 Water
 Pejabat

 UNIVERSITI
 Pembangunan

 TEKNOLOGI
 Infrastruktur

 MARA
 dan Infostruktur

DREAM'S E-BROCHURE

Project Title: Font - Gill Sans MT: min size 60 point



Related Photos

RESULTS

As a result of the implementation of e-brochure. Good initiatives during Covid-19 towards the tourism industry. E-brochures that show movement and videos make customers enjoy browsing our ebrochure website. the impact tourism industry tries to make other innovations to get attraction customers during covid-19 which is trying to create a package for domestic only. To get the customers all the travel agencies must have an idea which is to create something that can make people attract. Nowadays people like to try something new and fast service, however, e-brochure is a good initiative to travel agencies to improve their quality.

CONCLUSION

To conclude, the digital e-brochure age provides travel agency apps with several options for leveraging the benefits of information and communication technologies cost-effectively and straightforwardly and using the most up-to-date information technologies to stay relevant. People now spend more time online than watching television. The travel industry is being compelled to innovate at a breakneck pace. In a nutshell, today's traveler may plan a vacation in minutes using his or her phone at e-brochure. This is a sector that will have both challenges and opportunities in the future. Travel agent training apps is an important aspect of a candidate's life because it gives knowledge while preparing them for their jobs. However, being aware of technical solutions is insufficient. Strong human ties with clients and value chain partners, as well as quality service delivery, remain the keys to producing value.

ACKNOWLEDGEMENT

First of all, special thanks to the organizer, IT Conference 2022 because gave us a great opportunity to join this event and also gives us chance to show our innovative thinking skills here. We want to extend a heartfelt thank you to our Professor Madya Dr. Mazlina Binti Mahdzar, lecturer on the subject of Digital Technology In Tourism (HTT511), for her generous support and guidance for this project.

Apart from that, would like to thank the members of our group, Farah, Izwanina, Nufail, Varayut, and Zarifah for their commitment and hard work in completing this project. The great teamwork comes out with a great result.



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Use of Technology **Application by Destination** Operator

ABSTRACT

Covid-19 struck the world and nothing has remained the same. The various industries of the world can attest to how much effect the abrupt disruption amounted to their various sectors and how much it affected them especially in destination operator. The research objective is to create a service that can be used in destination operator that are affected by the Covid-19 in their daily promotion with using the knowledge IT and to discuss technological solutions for better tourism. The research problem is how technological development affect destination operator that leading to innovation contribution to the industry. So, we decide to use a tool which is intro travel app to develop destination operator. It is because this app concludes all the information about the trip and we just need to refer this app if we have a problem with our trip

INTRODUCTION

Destination Operators have now used application technology in their management. The term technology applications refer to software and systems, run on business equipment, that supports important administrative and instructional functions. This application contains all the information about the tourist destination, destination operator's contact number, and website. With this application, the destination operator can load all the travel packages into it and can be directly accessed by the customer.

In the 1980s, Psion developed the Psion Organiser I model, which was branded as the "World's First Practical Pocket Computer" and came complete with a calculator, clock, and other familiar apps. The world's first smartphone from IBM in 1993, was equipped with many of the same utilitarian apps as the Psion.

This technology application will lead destination operator management to grow more widely.

METHODOLOGY

I expect another new disease to occur after COVID-19. That is why we must maintain some non-face-to-face systems. Establishment of a tourist attraction for minority groups in the Destination Operator App and a system for family tourism



RESULTS

Allows for cashless travel

Because many travellers are terrified of thefts or guarrels over currency throughout their journey, it becomes a major security concern for tourists visiting unfamiliar nations and regions for the first time. Simple reservation procedure

Users of travel and tourism business apps can book their favourite places with just one click from the comfort of their own homes. Mobile apps are popular among vacationers since they allow for guick bookings. You can purchase tickets to get there, determine your destination, order a cab for touring, reserve a hotel room at a reasonable rate, and learn about local attractions. For many tasks, you don't need to move to another programme.

Provides breathtaking views of destinations

Before travelling to a new location, everyone wants to know what to expect. You can acquire photographs and videos of the travel destination with these mobile apps. Because you already know how the place appears, you can even plan a better trip. To give consumers a better experience, these mobile apps feature high-quality videos.

CONCLUSION

In conclusion, travel mobile apps such as INTRO Travel become more affordable and easier to build, more and more businesses in the travel industry are starting to capitalize on their convenience. INTRO Travel apps allows travelers to avoid extensive long-term planning which allows them to be as spontaneous-something that many travelers enjoy.

Through apps, destination operator can enhance their visibility and presence in the competitive travel industry. INTRO Travel apps is providing all the information that tourists need directly from the application. With this mobile application, businesses can publish their tour packages along with discounts to reach a broader tourist through instant notifications.

ACKNOWLEDGEMENT

It would not have been feasible to complete this project without the participation and cooperation of our team members who contributed to it. However, we'd want to thank our lecturer for their consistent support, politeness, and patience throughout the assignment.

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MARA

Pejabat اونېزىسىتى تىڭنۇلوكى Pembangunan UNIVERSITI Infrastruktur Teknologi dan Infostruktur



I. MUHAMMAD ARIF AZHAD BIN AMALULKHAIR

- 2. NUR AKMAL BINTI MAHADI
- 3. NUR ADLINA BINTI ABDULLAH
- 4. SUHAILI BINTI KHALID
- 5. KANNAPHAT SATTARATPAIJIT

SUPERVISOR NAME

PROFESOR MADYA DR MAZLINA BINTI MAHDZAR

ABSTRACT

Project management, which originated in the mid-20th century, has evolved into a distinct way of managing business activities today. Another significant development is the widespread acceptance of the importance of innovation and technology in organizational change, growth, and profitability. It is unsurprising that innovation development is frequently carried out as a project. However, both project management and innovation studies have emerged as independent fields over time. In this work, we attempt to define innovation project management and to define the distinctive nature of innovation projects against traditional projects. We contribute to the budding academic discourse on the interaction between innovation and project management by doing so.

INTRODUCTION

The current COVID-19 pandemic is spreading the globe and transforming civilization. People all across the world have had to adjust to a New Normal lifestyle for almost two years. COVID-19 is caused by a virus that may live on surfaces while looking for a new host. People can contract the virus by touching regularly handled surfaces such as door handles, light switches, faucets, table tops, and so on. People should wash their hands often and avoid touching shared surfaces, according to health advice that has been implemented and has become common practice. To reduce infection and sustain economic prospects, governments and enterprises are turning to innovative biometric applications. Thermal facial recognition, remote fever monitoring, and smartphone-based immunization certifications are just a few examples of technologies that were formerly thought to be science fiction. technology for multimodal biometric surveillance COVID-19 is reported to have generated an increase in interest and demand for touchless access.

METHODOLOGY

The sample with CAA surveys for FACES of AirAsia typically operate for a period of twelve months with anywhere from 3,000 to 70,000 interviews accomplished, depending on customer condition and satisfaction. However, with the shortcomings we have now, then the survey will be done only on how many users we will be interviewing. At least 1000 to 5000 people in a week.

AUTHORS

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RESULTS



CONCLUSION

In conclusion, biometric systems involve the identification of people from a database of photos, including static photographs and video. These facial systems are used to detect the disease and secure access and improve surveillance, especially during the pandemic. This technique will be the most effective way to stop the coronavirus from spreading and this is the fastest way in the process of checking. Hence, this technology can reduce cost and manpower in dealing with the spread of coronavirus outbreaks. As a result of this concept, passenger airlines will be able to bring advantage of the greatest benefits and services. Lastly, this technology will help this airline improve its service quality.

ACKNOWLEDGEMENT

We would like to express our special thanks to our lecturer Profesor Madya Dr Mazlina Binti Mahdzar, who gave us the golden opportunity to do this wonderful project of Digital Technology In Tourism. Who also helped us in completing our project. We came to know about so many things and we're really thankful to them. Then, we also like to thank our parents and friends who helped us a lot in finalizing this project within the limited time frame.



Pejabat UNIVERSITI Pembangunan TEKNOLOGI Infrastruktur MARA dan Infostruktur

Facial Recognition Technology With Reducing The Risk Of Spreading The COVID-19



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- 2. Balgis Nur Azlin binti Akhmar
- 3. Fatin Nur Aisyah binti Abd Shukor
- 4. Penpitcha Chanakoch

ABSTRACT

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As food and beverages industry had grown, we saw an opportunity for this industry to go further by introducing more to new developments of technology in solving daily problems and also providing easier way for both worker and customer. For our innovation, we decide to create an apps for all food and beverages industry that can be used as online system booking, payment, reservation and feedback.

INTRODUCTION

As many foods and beverages sector faced problems to manage the system of their company, we come out with the idea of making an apps for the both employees and customer. By using this app, the customer can simply choose their favorite restaurant to making reservation, update with the current availability to dine in and what menu did they served. For the employees, in the system when their customers already key in the system, they will know their list menu for each table and easily can detect what dishes they already got and what is not.

METHODOLOGY

This study method using qualitative method where we explore some customer problems on food and beverage industry by online research. For example, customer faced trouble before reserve a restaurant.

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FoodHunter App

RESULTS

- The result is customer will save their time by doing a reservation before entering a restaurant.

-Customer can get a clear description of the restaurant that they want to go.

-The restaurant can have a smooth navigation and van avoid order errors.

CONCLUSION

The FoodHunter app is an initial idea to improve food and beverages industry that might take slow down because of high demand on customer and pandemic. By doing some research and getting to know customers' problems, we hope FoodHunter will pleasant customer with various selection.

ACKNOWLEDGEMENT

First and foremost, I am grateful to Allah because give me and my friends a chance to finish this assignment. I would like to express my gratitude and appreciation to all those who gave us the possibility to complete this assignment. As the completion of this poster gave me much pleasure, I would like to sincerely thank to finish our respectable lecturer, Profesor Madya Dr Mazlina Binti Mahdzar of subject Digital Technology in Tourism (HTT511) for her advice, guidance, and understanding to finish this assignment. In addition, I would like to express my gratitude towards our family and classmates for always being with me and supporting us in every situation. I would also like to thank to all those have directly and indirectly guided and helped me in completing this assignment.



MARA

ويتواسية في تيكنو لوكي Pejabat JNIVERSITI Pembangunan TEKNOLOGI Infrastruktur dan Infrostuktur KONFERENSI ICT 2022 'EMBRACING DIGITAL LEARNING TRANSFORMATION"



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ABSTRACT

This idea will be developed during the 21 century this project that will be a new innovation for the hotel. It is because some of hotel will neglect the or ignore about the services in the hotel. This development also important to the hotel in virtually because the role of technology can make the business will growth and profitability. The development of innovation can be run as project because the innovation and project go together when they being develop. In this project we will use the concept that innovation project management and specify the conventional project. By doing this innovation we can contribute to the academic program and debate between the innovation and project management.

HOTEL LIVE **CHAT BOX**



INTRODUCTION

There are a lot of articles, new papers and books that tell us about the innovation and project management that being popular day by days. It is because in book there are a topic innovation. In that book they already summarize the theory and the example of innovations project that. Then the purpose of innovation project is to create the new product or improved the products, technology, process and services.

Actually, this project management is a combination between technology and services but at the same time is about to realisation the new ideas in hotel management. At most of hotel didn't applies the services at their hotel. However, the understanding of how to create the innovation project by our experience and research that really obvious. This innovation project involved the development of hotel to create the new live chat and to improved the services in their hotel. By launching the new business model and new practices about how the project applied to our

METHODOLOGY

The main purpose of this project is to build a live chat box section for hotel service. Where it is can facilitate customers who want to find information or complain about any problems about the hotel. For example, they can ask questions in the live chat box at any time. The advantage of this live chat box section, it is automatic and quick to provide feedback to customers where they can interact at any time. Hence, they don't have to wait long to get the answer. Since there are various complaints and problems faced by customers that cannot be resolved in a short time, then with the live chat box section this can help customers to get answers quickly.

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MARA

RESULTS

The result of this idea is that hotel customers will be able to enjoy good and the best of the hotel service. This can also help hotel management and ease the work of employees who work as customer service. Hence, with the existence of this live chat box technology in all hotels in Malaysia and abroad, this can further raise the standard of service of the hotel management.

CONCLUSION

In conclusion, innovation is lifeblood to any large organizational technological that can provide the potential to change the competitive status as well as management in an industry that involves the effective integration of people, processes and organizational plans. Currently, countries are adopting national strategic roadmaps to foster innovation and increase their economic impact especially in the areas of tourism and hospitality. Therefore, the use of innovative technology such as hotel live chat not only strengthens the service of a hotel but also improves the smoothness of work

ACKNOWLEDGEMENT

First and foremost, thanks to the organizer IT Conference 2022 because give us oppoturnity to join this programme and to shows our talents here. We also like to thank to our Professor Madya Dr. Mazlina Binti Mahdzar, lecturer for the subject of Digital Technology In Tourism (HTT511), for her willingness to guide and provide guidance throughout this project. We were able to finish this project successfully. She also provided good cooperation if we had any questions about this project.

Apart from that, thanks to the members of our group, Nurin Zulaikha, Nurul Malissa Shahira, Siti Zulaika, Ahmad Zulkarnain, and Wongsakorn Rueanphet, for their hard work in completing this project. The project could not have been completed well without the assistance and support of the members of this group. We would also like to thank our friends, and family members for their help in preparing this project. For example, it helps emotionally and provides uplifting motivation.







- Muhammad Azeem Bin Ibrahim Muhammad Fakhrullah Aizat Bin Abdul Manan
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SUPERVISOR NAME

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ABSTRACT

Virtual Reality Concert is a technology that allows people to experience a live concert while feeling immersed in their surroundings. This environment is viewed through a device known as a Virtual Reality headset or helmet. Normally, people use a VR headset for gamification, but it can also be used for other forms of entertainment, such as a virtual concert. Even, many concerts were cancelled due to pandemic Covid-19 and other issues such as the death of an actress and most people are concerned about crowded places. The digital concert can provide more entertainment to anyone who wants to participate and can be used wherever you want and enjoyed without interruptions. In addition, it can be used at home along Covid-19. Besides, to make the digital concert more interesting, we have included hologram technology for attendees and singers to gain new experiences from watching and performing in the concert. Last but not least, with virtual reality concerts and hologram technology, people can join the concert and enjoy it wherever they want.

Keyword: Virtual Reality Concert, Hologram Technology

INTRODUCTION

A virtual reality concert is a form of entertainment for people who want to participate in a virtual concert from the comfort of their own homes or any other location. They can attend any type of concert, whether local or international concert. For examples is people using a VR headset and playing a Blackpink Concert that showing a singer and audiences on the stage when using a hologram technology. Even if there are some of problems such as the concert is postponed or there involves the death of the singer, VR digital can be used and show the singer virtually on stage and make it look like real.

METHODOLOGY

VR can model the world in very visual, chemical, medical, astronomical or physical ways, simulations can offer design, techniques and ideas in every field. Therefore, in a concert that uses this VR method can feel like a real concert and can even be felt more clearly. With the advent of Digital VR, the total number of viewers will increase because most entertainment fans prefer this method because it looks more clearly and will give satisfaction to the audience.

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VR DIGITAL CONCERT



RESULTS

The result that will be obtained from this product is that it can maintain the relationship between the community or relatives no matter how far or close. Its uncomplicated use will make it easier for people to use it more often. This tool is also suitable for use regardless of age or old or young suitable for use without any risk. So this product will bring great results to the national economy. It can not only strengthen the relationship between the community in the country. It can also be a platform that connects us with friends from abroad. So this tool is very suitable if you want to find new friends abroad. Indirectly, this product can also provide knowledge about how to live other cultures from abroad. So the results shown by this product is very lucrative because it will contribute a lot of benefits from various sectors as well as for the community

CONCLUSION

Virtual reality's future is difficult to predict, but one thing is certain the entertainment industry will witness significant changes. Virtual reality eventually gave way to video games and concert. For example, Nintendo Wii and Project Natal are amazing because the user interacts with the game through physical movement. Also, many more 3D movies are being produced, and they may become more engrossing in the future. In addition, virtual reality can be utilized to watch real-world concerts. This concert virtual reality headset can be worn at home or anywhere else.

ACKNOWLEDGEMENT

First and foremost, we would want to thank and appreciate the Almighty God for providing us with the strength and blessing that enabled us to complete this task. We would not have gotten this far without His blessing. Our group members, Nurain Khadijah, Nurul Akma, Muhamad Azeem, Fakhrullah Aizat, and Thippayarporn Thonghom cannot finish this job without their efforts and cooperation. With our entire devotion and responsibility, we always strive hard to create a decent assignment.As a result, we would like to express our gratitude to our lecturer, Dr Mazlina Binti Mahdzar, for guiding us through this assignment. She always offers us encouragement and guidance on how to complete our assignments in order to achieve a positive conclusion. She inspired us greatly to work in this project We'd want to express our gratitude to him for instructing us in this course.



MARA



SMART ROOM SERVICE APPS

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ABSTRACT

As a result of confinement-related difficulties, the COVID-19 pandemic has caused radical changes in tourism industry. The purpose of this project is to design a system for a hospitality service that can be used by the Telecommunication industries that are affected by the COVID 19 in its daily promotion

INTRODUCTION

Smart Room Service App is a newly invented mobile application with full functionality, allowing guests to navigate around the app and check or choose all of the available room services, as well as all of the necessary information, and submit their query.

INTRODUCTION

This research is to examine perspectives in Smart Room Service App innovation with the context of hotel co -creation. Next, the current research proposes an advanced basic model of technology use i.e. technology -based services (TBS) using Smart Room Service App by analyzing the impact of customer engagement, need for interaction and level of co -creation on adoption between hotel guests with smartphone use with this app . The effect of the level of co -creation on customer satisfaction was also studied

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RESULTS

Smart room service apps has effect on the quality of services provided. The project enables to be more efficient instead of direct services especially during COVID-19 pandemic. This services app more effective for hospitality that used in telecommunication industries. With advance application system, guests have lower risks of making mistakes and know the procuder during/after pandemic.

CONCLUSION

Overall, smart room technology can improve personalization, energy economy, repair speed, ease, and the ability to remotely manage gadgets. This is because SMART ROOM eliminates all of the challenges associated with traditional room service while also providing a unique mobile experience for your visitors.

ACKNOWLEDGEMENT

Without the participation and assistance of our team members who contributed to this project, it would not have been possible to complete it. However, we'd like to express our gratitude and debt of gratitude to our lecturer for their unwavering support, kindness, and understanding throughout the project



MANAGING INDUSTRIAL ATTACHMENT RECORDS: STUDENTS' PERCEPTIONS IN OPTIMISING ONLINE **REPOSITORY AUTOMATED SYSTEM**

ABSTRACT

The study aims to discuss the students' perceptions towards the implementation of automated I he study aims to discuss the students' perceptions towards the implementation of automated system in helping the organization to manage records and documents, in which relate to practical or industrial training. Students who are registering for practical/industrial training have increased every semester, therefore the amount of data to be recorded has also increased. In the search of systematic and cost-effective ways of managing the information, there is a need to overcome the problem of keying data into the system and managing the filing manually. In consequence, this study would examine whether the development of automation system has significantly made the data management more efficient and effective (data collection, data storage and data retrieval). From the evaluation, 200 students' perceptions from the implementation were analyzed where the surveys were distributed to the students of random programmes in Universiti Teknologi MARA Sarawak. The findings indicated that the implementation of such application could contribute to the improvement of the information resources of the application could contribute to the improvement of the information resources of the practical/industrial attachment students. This further ensures that the connection between the faculty and the students is uninterrupted. Apart from that, a good industrial relationship between the management and organization can also be established. The study's outcome indicates positive perceptions and responses from the student users which could impact the development of the automated information delivery tool.

INTRODUCTION

Online Repository Automated Information System (IS)

tool for recording, storing, processing and dissemination of information, and it includes a variety of computational and software technologies.

This system is a valuable platform : to improve the process of managing loads of information.



Due to this:

Industrial Attachment (Practical Training)

training is compulsory for students of various curriculum programmes in the university.

the students will be exposed : the students win be exposed . It to the reality of the industrial environment where it will elevate the students' knowledge and skills in a specific profession of their respective fields and, produce graduates who are credible, creative, and proficient.

the academic staff : will need to conduct a lot of data management and record especially when it comes to the big number of students to be managed every semester.

cess of collecting, keep inually. If record-mana y in managing large vol and Wamukoya, 2000) :ting, keeping, and retrieving data could be tedious and time consuming ord-management systems are effectively managed, it can assist an orga (arge volumes of data and ensuring the reliability of their records with

To add, Zaragose (2022) has affirmed that the developed system must apply the good criteria in term of its unctionality, usability, performance and be up to date to maximize its potential.



Google Sites

Cloud Storage

RESULT

and Feedback

Table 1.0: Respondents' Demographic Profiles

Items	Details	Percentage (%)
Gender	Male	60.0
	Female	40.0
Level of Education	Degree	48.0
	Diploma	52.0
Computer	1-3 years	27.5
experience	4-6 years	25.0
	7-10 years	25.0
	More than 10 years	22.5



Table 2.0 Features Elements Analysed Fo



Figure 2.0 Feedback on The Recommendation of the System's Usage

CONCLUSION

Effective automation system is the key to provide access to numerous resources and deliver this content dynamically through a well-constructed back end of the database implementation.

This Study can contribute to knowledge:

Recovery on the development of the online repository that has digitalized the management process of Practical/Industrial attachment.

Future Planning:

Involves the development of a very comprehensive application which will make the practical training coordinator tasks such as updating the information become easier and save time, providing end user with more user-friendly interface and informative system that helps practical training coordinator and students in managing the records the records.

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EMBRACING DIGITAL LEARNING TRANSFORMATION"



ROZITA MENGEN NOR FARHANA MOHD AZMI **UITM PAHANG**

ABSTRACT

This study is about discovering the most preferred teaching tools amongst selected lecturers during the Open Distance Learning (ODL) exercise due to COVID-19 Pandemic starting from the early 2020 through the early 2022 and the reason behind the preferences. Base on the findings it was discovered that Google Meet is the most favored tool used followed by WhatsApp.

INTRODUCTION

This sudden transition demands educator to adapt their teaching practices into the online environment, and some found out they are challenged with difficulty to adopt to the new teaching mode technology (Kreijns et al., 2014). Resulting into educators use whatever tools available and that can fulfil the need for them and their students. Taking into consideration also on the capability of Internet access, hardware and software that can support the situation.

Organization such as University Technology MARA (UiTM) immediate adapt to this situation and use the terminology of Open and Distance Learning (ODL) to support its business operation as an education institution. In conjunction to ODL, and the restriction due to pandemic, each UiTM lecturer may have to use their organization existing tools to continue online teaching. However, in times of crisis, UiTM per say allows the tool of choice to facilitate the ODL class as per suitability of the educators and the students, in their individual classroom. This case study would identify which tools most preferred in terms of usage throughout the pandemic period from the early 2020 until the early 2022. It would also identify the cause of using which type of tools preferred.

METHODOLOGY

A study has been done by Vloreen & Ellen (2021), shows that majority of students had average quality of internet connection with the highest percentage of 46.9% and the least with poor internet connection quality, 6.3 %. In relation to the study, data collected was about the type of tools used and the reason for the selection. Data collection was amongst lecturers from Faculty of Business and Management teaching code BA118 and BA232. Method on data collection is questionnaire collected using Google Form. Data analysis method use is the descriptive statistics by measuring frequency.

CONCLUSION

Majority of lecturers prefer to use Google Meet and WhatsApp as their main tools because the applications can record the class session (even though the announcement in early 2022 Google cease to allow free recording, Google Meet maintain the most popular tool used) and the ease of use, respectively. This is due to technology familiarities and in consideration to student's Internet line access issue. Looking at the trend over the five semesters period, it can be seen that "Google Meet" has become the most preferred tool in "ODL", but further study needs to be done as the teaching and learning process needs evidence for auditing purposes. It is a concern when recording is no more available for users. This situation may involve cost, and ease of use challenges, for both students and educators.

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In the attempt to share experiences and knowledge in the ever-changing academic scene due to pandemic outburst it is with immense pleasure to give an appreciation to the organizer for the opportunity given. Also, gratitude and thankfulness to participating respondents for their kind experience sharing. Only Allah S.W.T. will repay all the kindness to everyone involved.

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Figure 2 : Reason for The Choice (ODL Tools)

DISTANCE LEARNING TOOLS PREFERENCES -AMONG OFFICE MANAGEMENT LECTURERS (UiTM PAHANG)

RESULT

This case study identified which tools have been use throughout the pandemic period from the early 2020 until the early 2022. Comments by respondent discovered the reason behind preferred tools for ODL. The case study analysis was based on five semesters ODL sessions, starting from Mac-August 2020 until Mac-August 2022.

Based on the findings we can identify that in Mac-August 2020 (73.3%) majority of the lecturers prefer using Google Meet and WhatsApp Group as their tools for ODL which indicated the highest result. Followed by (53.3%) prefer to use Google Classroom and (6.7%) prefer to use FB Live Streaming. In October 2020-January 2021, (80%) of lecturers prefer to use Google Meet, followed by (66.7%) WhatsApp Group and (6.7%) prefers to use FB Live Streaming, YouTube Channel and Zoom, We discover that on Mac-August 2021, (73.3%) of lecturers prefer to use Google Meet, followed by (53.3%) prefer to use WhatsApp Group and Google Classroom and (6.7%) prefer to use YouTube Channel and U-Future for their ODL sessions. In October 2021-January 2022, (73.3%) of the lecturers prefer to use Google Meet followed by WhatsApp Group (53.3%) and only (6.7%) prefer to use U-Future. Finally, in Mac-August 2022, (66.7%) of the lecturers prefer to use Google Meet followed by (53.3%) prefers WhatsApp Group and (6.7%) prefers to use YouTube Channel and U-Future.

We also manage to identify comments regarding challenges in using the tools such as unstable Internet access to a few students due to affordability, weather, and locality. Lack of infrastructure to conduct online class and poor Internet line connections and lack of student's commitments during ODL class session.



Figure 1: Comparison Graph for 5 Semester (Most Preferred ODL Tools)



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Treasurer: Mohd Farhan Ahmad DaruanProgramme Committee: Muhammad Hazrin Othman (Head) Intan Zuriaty Mujrimi Mohd Anwar HassimNordin Anwar Hassim Norzahirah Mohd Razali Mohd Nazri Khalid Roslan Mamat @ MusaPublication: Siti Rozana Mat Sanat Ahmad Akmal Mohd IdrisPromotion Committee: Abdul Hadi Milok (Head) Nor Azni Abdullah Zawawi Mior Mohd Aizat Zakariah Hj. Noor Adzman Mohamed En Mazuar Zainol
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Norzahirah Mohd RazaliNohd Nazri KhalidRoslan Mamat @ MusaPublicationSiti Rozana Mat SanatAhmad Akmal Mohd IdrisVNor Azni Abdullah ZawawiMior Mohd Aizat ZakariahMohamad Sofi BaharumHj. Noor Adzman MohamedEn Mazuan Zainol
Mohd Nazri Khalid Roslan Mamat @ Musa Publication Promotion Committee Promotion Committee Read Advantation Read Advantation Read Advantation Read Advantation Read Advantation Nor Azni Abdullah Zawawi Mior Mohd Aizat Zakariah Mohamad Sofi Baharum Hj. Noor Adzman Mohamed En Mazuan Zainol
PublicationRoslan Mamat @ MusaPublicationSiti Rozana Mat Sanat Ahmad Akmal Mohd IdrisPromotion CommitteeAbdul Hadi Milok (Head) Nor Azni Abdullah ZawawiMior Mohd Aizat Zakariah Mohamad Sofi Baharum Hj. Noor Adzman Mohamed En Mazuan Zainol
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Ahmad Akmal Mohd IdrisPromotion CommitteeAbdul Hadi Milok (Head)Nor Azni Abdullah ZawawiNor Azni Abdullah ZawawiMior Mohd Aizat ZakariahMohamad Sofi BaharumHj. Noor Adzman MohamedEn Mazuan Zainol
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Author Index

Afiq Azman	46
Ahmad Fawwaz Ahmad Amizan	53
Ahmad Marzuqi Mohd Saufi	41
Ahmad Zulkarnain Zainuddin	51
Aina Hayati Mohd Ramli	43
Aiza Johari	33, 54
Alya Syara Mohd Zin	40
Amirah Raihanah Azmi	40
Amirul Ridwan Hasbullah	46
Azlina Bujang	33
Balais Nur Azlin Akhmar	50
Dr.Azlina Bujang	54
Fajar Huda Azhar	46
Farah Mohd Rosli	47
Fatin Nur Aisvah Abd Shukor	50
Gazairi Ghazali. Ezabarena Radzi	24
Izleen Farhanah Husain	50
Izzmadihah Mohamad Supian	42
Jamaluddin Johan	18
Kannaphat Sattaratpajijt	49
Khairun Aida Shahirah Shakor	44
Kim Kyung Ing	48
Liz Irdina Rozaini	43
Mohd Aamal Hafizi Mohd Dzaher	41
Mohd Hairy Mohamaddiah	$\frac{1}{24}$
Mohd Syazwan Mohd Aris	33 54
Mohd Zulhilmi Ah Hamid	33, 3 4 41
Muhammad Alif Ifdam Lafrudin	41
Muhammad Arif Ijaam Jajruain Muhammad Arif Azhad Amalulkhair	43
Muhammad Azoom Ibrahim	49 52
Muhammad Azeem Ibrahim Muhammad Fakhrullah Ajzat Abdul Manan	52 52
Muhammad Fakhrullah Alzal Abaul Mahan Muhammad Muzahhin Mohd Zaki	52 41
Muhammaa Mufail Aluam Mat Nasin	41
Munammaa Nujati Akram Mai Nastr Muatanba Sallah	47
Musiapha Salleh	12
Nik Aquan Sojiya Nik Noor Anmazukee	40
Noorjaziraya Ma Hanapi	40
Nor Alsnan Jalal	42
Nor Farnana Mona Azmi	29, 55
Norzanarah Binti Abdul Wahab	45
Nur Afiqan Mond Zunaimi	53
Nur Afza Azman	48
Nur Aimi Shafira Shahidan	53
Nur Ainami Mohamad Zaid	44
Nur Akmal Mahadi, Nur Adlina Abdullah	49
Nur Alya Athırah Madzlaan	48
Nur Fazziatul Aqma Hashim	42
Nur Hannani Dzulkifli	43
Nur Izwanina Munira	47

Nur Maisarah Saiful Nizam	48
Nurain Khadijah Mohd Nizam	52
Nurain Nabilah Salehuddin	2
Nurin Zulaikha Hachibullah @ Hasbullah	51
Nurul Ain Abdul Kepli	53
Nurul Akma Zulkarnain	52
Nurul Malissa Shahira Abdullah	51
Penpitcha Chanakoch	50
Raja Nur Aini Hidayah Raja Hassan 42	42
Rozita Mengen	18, 29, 55
Sarah Syazwani Shah Kamarudin	12
Seomgyeol Lee	53
Shahadan Saad	2
Sharin Sulaiman	33
Siti Hajar Ahmad Zahir	44
Siti Nur Amirah Mohamad Sapandi	44
Siti Nur Athirah Mohd Asri	40
Siti Rahayu Abdul Aziz	2
Siti Zarifah Nasuha Mohd Zahid	47
Siti Zulaika Mohd Asa'ari	51
Suhail Najmi Ayub	12
Suhaili Khalid	49
Suraya Che Kamal	24
Syarin Sulaiman	54
Thippayaporn Thonghom	52
Wan Noor Aziemah Wan Mohd Fouzi	45
Wan Normaini W Mohamad Idris	12
Wongsakorn Rueanphet	51
Zainon Haji Bibi	33, 54
Zamani Umar Husin	24

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