

# Model for Mobile Application Development on Traveling Guide: A General Proposal

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**Abstract**— The increase in tourist visits has an impact on providing information on tourist destinations and all related to tourism trips. The information is still inadequate, especially about the purpose of tourist attractions and accommodation or infrastructure for tourist travel. The lack of information will impact the decline in tourist visits to the province of South Sumatra. The efforts that have been made by the government of South Sumatra Province does not maximize. In this research, we made a proposed model based on a mobile application in the travel guide in the Government of South Sumatra. This model will help the Government in making policies in digital tourism. We use mobile smartphone media that are currently used by more than 90% of the people in searching for information related to tourism. Our proposed approach utilizes the stages in mobile development, in general, using the Mobile-D development method, the overall architectural model, and configuration. The result is the application of the model to the use. The implementation was carried out to see how important the model could be developed and implemented in South Sumatra.

**Keywords**— *software development, mobile platform development, model for a travel guide, architecture model*

## I. INTRODUCTION

Nowadays, tourism is an important economic and social activity in many countries. For these, around the world, several works have been done with the objective to investigate environmental, sociocultural, and economic impacts to solve the negative effects and to maximize the benefits of tourism. To achieving this, each country should promote its tourism activity and provide information, services, and security to travelers. Tourism is a travel activity that is carried out with a recreational purpose and vacation to eliminate fatigue, drive boredom away, and new experiences. Planning travel (trip) is usually closely related to tourism [1]. A fun and satisfying tourism destination that provides entertainment is the priority in travelling. For most people, travelling is a journey to find new experiences with the goal of new places. It is not easy to obtain complete, accurate and updated information about the destination of the tourism destination objects to be visited. Information tourism destination should be considered while in the destination area are seeing the correctness of information about accommodation, facilities, and infrastructure in the tourism destinations [2]. While travelling, accommodation, and transportation are very important because they affect the

satisfaction of travelers during the trip [3]. Accommodation and facilities for travelling infrastructure include hotels, restaurants, travelers, attractions, transportation systems, and souvenirs [4].

South Sumatra Province is one of the provinces in Indonesia which long ago known as the center of the Kingdom of Sriwijaya and has several favorite tourism objects in Indonesia. At present, South Sumatra Province is trying to improve the tourism sector, which is reflected by the establishment of universities in the field of tourism [5]. In promoting of the tourism sector, the government of South Sumatra Province has done several things, including the organization of a national and international events. The impact of the promotion that has been carried out is an increase in the number of traveler's visits, both domestic and international travelers [6]. Increasing travelers' visits have an impact on providing information on tourism destinations and all that is related to tourism. Now, tourism information is available on the government website through the provincial tourism service. Information about tourism is also available on the application in Play Store as in Table 1, but only provides information on tourist destinations while the information needs not only a tourist destination but also all related to travel such as accommodation/tourism infrastructure. The lack of information will lead to a decline in the interest of travelers to visit South Sumatra Province. The efforts that have been carried out by the government of South Sumatra Province have not been maximized. For this reason, it is necessary to build a tool to provide tourism information in the form of travel guides.

In this research, we proposed a model for mobile application on a travel guide in the Government of South Sumatra. This model will help the Government in making policies in digital tourism. Mobile devices (smartphones) are used for the implementation of the model because currently, almost 90% of society is used to find information related to tourism [7-8]. For this reason, we identified regulation and the challenges of developing mobile-based applications. The challenges in developing mobile-based applications currently focus on three platforms, namely based on Mobile web, Android, and iOS.

In conducting this research, the method used is the method of developing a mobile application. There are several types of development methods specifically for mobile

development, namely MASAM, SLeSS, and Mobile D. MASAM is a development method that is carried out based on the agile framework, but the steps of work and implementation are very similar to Mobile D [9]. This method was first discovered in 2008 with the work process, namely preparation, embodiment, development, and commercialization [10] and suitable for development in small companies. SLeSS is a development method from SCRUM; this method has five steps of work, namely definition, measurement, analysis, improvement, and control [11]. SLeSS was first discovered in 2011, and its use was specifically for embedded software development, whereas Mobile D is one of the pioneering methods in the field of mobile application development processes. The Mobile D method can be done in teams with several members from 10 people, and the processing time is relatively short, namely in less than ten weeks [12]. Mobile-D appeared for the first time in 2004; it is a development method that prioritizes speed, both in the development and the change processes [13], which has five stages, namely: explore, initialize, production, stabilize, system test, and fix, as shown in Figure 1.

At the beginning of this paper, it discussed the process of developing a mobile platform with the Mobile-D approach. Furthermore, in the second session, describe the general model of architecture that can be used by the Government of South Sumatra in forming the rules of the travel guide. The proposed architectural model covers application containers (application servers and database servers), tourism departments (regencies or cities), users (society and travelers can do) (complete models see figure 2).

## II. CHALLENGES

In this section, we identify what challenges needed in running the model for mobile application development related to travelers' users in South Sumatra. These Challenges can be proven by just a few applications available on the Android Play Store and IOS Appstore that provide information about tourism in South Sumatra. Most applications are only limited to tourism information without giving details information about the B2B (business to business) process.

### A. Difference between Mobile Platforms

Difference between mobile platforms is the first reason that is a topic in mobile development. Many users or communities use different platforms such as mobile web, Android, or iOS.

### B. Internet Access

Internet access in South Sumatra is a problem that has until now become a phenomenon in the community. The current inequality of internet access in each region in South Sumatra still occurs mainly in areas that have tourism potential to be visited by travelers.

### C. Unorganized Travel Guide

In South Sumatra, there are many tourism potentials that can be visited by travelers, but this is constrained by inadequate travel guide access and infrastructure. Travel guides mostly come from outside South Sumatra, so they are not well organized, making it difficult for travelers to visit tourism in South Sumatra. For this reason, it is necessary to

make a rule and a model that can be used by the Government of South Sumatra to improve tourist destinations.

## III. PROPOSE APPROACH

In this section, we focus on proposals in building models in developing mobile platforms for travel guides. As explained in the previous section, we will take several steps. We describe these stages, namely the development process, the architectural model of the application, and the application configuration.

### A. Process of Mobile Development Method

To complete this research, Mobile D is used as an application development process. The use of Mobile D is because this method does not require a large number of teams, and the processing time is shorter than the others. In addition, the product targets produced are not specific as in the MASAM and SLSS development methods. But the three models put forward the principle of agile [14]. These principles include (1) prioritizing customer satisfaction, (2) being always ready with changes (3) having periodic presentation of development results, (4) doing work as a team or together, (5) encouraging team members, (6) conducting collection of information relevant to the work, (7) prioritizing development work, (8) maintaining relationships with the main stakeholders of the sponsor, (9) prioritizing technical work, (10) simplifying work, (11) using the team itself in making architecture, analysis of needs and design, and (12) working effectively and periodically [15] [16] [17] [18].



**Fig. 1.** the Development process of mobile-D [19]

In this research, the process of developing mobile applications for travelling guides is carried out in accordance with Mobile D. The flow of research work processes as shown in Figure 1, namely: the first stage of exploring. This stage was carried out at the beginning of the development and determination of application users. In this research, there are several types of application target users. Namely tourism, South Sumatra, and travelers. Before starting the development of the application, interviews were conducted with stakeholders. In this case the government is represented by the Department of tourism and the communication and information service of South Sumatra Province. Interviews were conducted to get information about their wishes and needs related to the application that would be made. The second stage is initialize. the form or whatever features of the application were selected based on the type of user that had been determined in the explore phase. The third stage is production. The stage when the modelling or forming a process flow and database design is doing. The application process flow was described in the form of a business process diagram and translated by an application diagram architecture notation, while the database formation was described in an entity relationship diagram. The fourth and fifth stages is stabilize and test & fix the system. This process will be carried out continuously until the application is considered perfect.

### B. Application Architecture Model

The application architecture is used to describe the business function requirements of the application.

Application architecture is closely related to data and users attached to the application, which can usually be described logically and physically [20]. The application architecture

described in the development of the mobile travel guide application in South Sumatra province uses physical description, as shown in Figure 2.

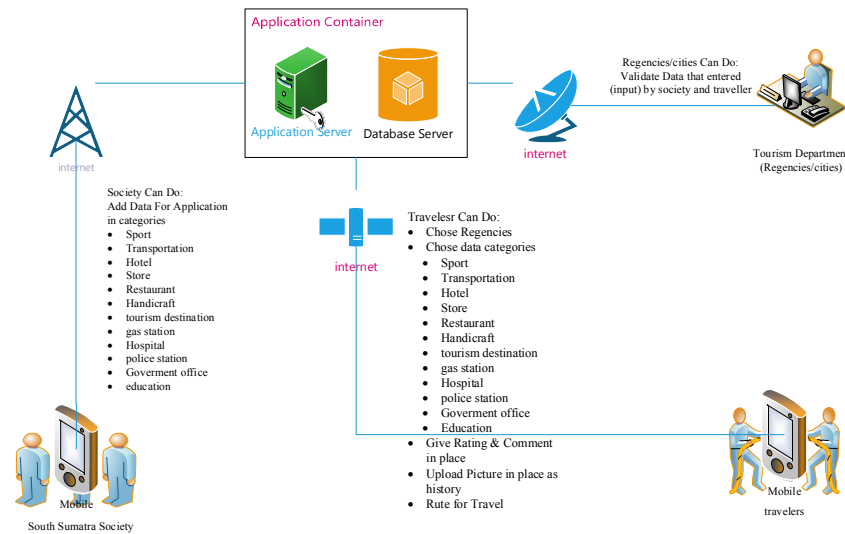


Fig. 2. Proposed model: travel guide architecture in South Sumatra

Based on the application architecture, as shown in Figure 2, there are three types of users, namely South Sumatra Society, Tourism Department (Regencies/Cities) and Travelers. The activities for each type of user can be explained as follows:

- South Sumatra Society: add information related to tourism trips in South Sumatra Province. Adding data is done in real time because the application travel guide reads the user's GPS position. When adding additional data, the user is asked to choose the regencies/city, place category, and photograph the location of the place. In adding data, there are twelve categories, namely sport, transportation, hotel, store, restaurant, handicraft, tourism destination, gas station, hospital, police station, government office, and education facilities.
- Travelers: search for travelers' destinations and things related to tourism in South Sumatra Province. The

search for traveler's destination can be done by selecting the regencies/cities and then choosing the category of place to be seen. These categories include sports, transportation, hotels, stores, restaurants, handicrafts, tourism destinations, gas stations, hospitals, police stations, government offices, and education. After getting the destination, the travelers can see detailed information such as place names, descriptions, pictures and interactive menus. The menu in place details includes rate, route, and updates. Give rating is used to rate places by logging into Facebook accounts, routes to view travel routes, and updating to improve the position of the place if it is considered inappropriate. In addition, travelers can add pictures as a gallery to the location they visited.

- Tourism Department (Regencies/cities): validate data entered by the South Sumatra Society and verify images uploaded by travelers.

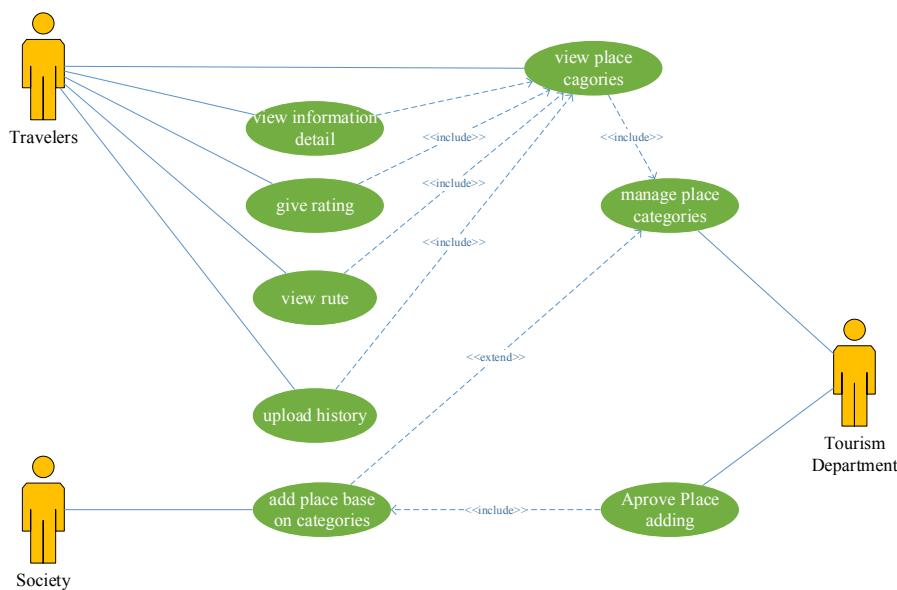


Fig. 3. Use Case Diagram

The three types of users shown in the application architecture have activities for each user which are depicted in the use case diagram as shown in Figure 3. Based on the use case diagram than shown in Figure 3 travelers have activities view place categories consisting of sport, transportation, hotel, store, restaurant, handicraft, tourism destination, gas station, hospital, police station, government office, and education facilities for each regencies/cities. Travelers can also rate, view travel routes and upload images as history. Society users can add places according to categories and activities as travelers can do. The tourism department can manage the place category data and validate or approve the addition of places by the society.

### C. Configuration

This section will explain the configuration of the proposed model into the mobile application. The setting carried out starts from the identification of the objects involved. These objects include server and database applications, internet network infrastructure, and the society involved. We recommend decomposing the parts. These parts are platform-independent parts (PIP) and platform-dependent parts (PDP). PIP is an application part that does not depend on the specifics of a platform, for example, in the model-view-controller (MVC) section of the application. Whereas PDP is several parts that are directly involved (dependent) on specific platforms such as view (interface of client applications).

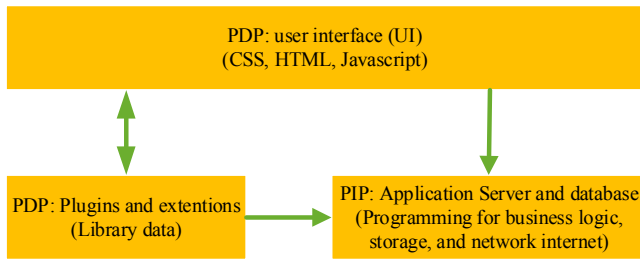


Fig. 4. Mobile application configuration

Figure 4 is the proposed implementation of the model shown in Figure 2. Broadly speaking, this illustrates mobile multiplatform development technology that can be implemented on mobile web, Android, and iOS. The configuration is indeed more in PDP (platform-dependent parts) than in PIP (platform-independent components). This condition is because it involves different objects, so platform-dependent is needed, such as in the user interface (UI) and plugins/extension files of the supported library.

## IV. EVALUATION

In the research that we did, this was indeed not too complex and detailed, but we did it by the reality that existed in the Government of South Sumatra, especially in the tourism sector. We are developed applications to see how important this model is to be developed and implemented in South Sumatra.

For travel guides in South Sumatra Province have grouped features based on the type of user, namely South Sumatra Society, Tourism Department (Regencies/Cities), and Traveler. The application features provided are based on the application architecture, as shown in Figure 2. In the main menu of the application, there are the names of the regencies/cities in South Sumatra Province namely Ogan

Komerling Ulu (OKU), Ogan Komerling Ulu Timur (OKU Timur), Ogan Komerling Ulu Selatan (South OKU), Ogan Komerling Ilir (OKI), Muara Enim, Lahat, Musi Rawas (Mura), Musi Banyuasin (Muba), Banyuasin (BA), Ogan Ilir (OI), Empat Lawang, Palembang, Pagaralam, Lubuk Linggau, Prabumulih, Penukal Abab Lematang Ilir (PALI), and Musi Rawas Utara (Murata). The purpose of the menu name is to use the regencies/cities so that travelers can easily find travelers information in each regency/city in South Sumatra Province, as shown in Figure 5.

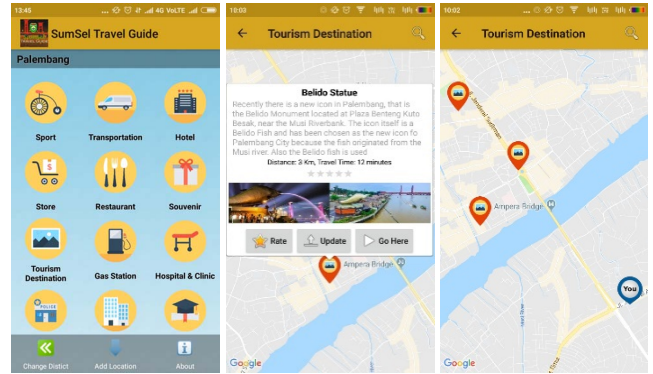


Fig. 5. Home screen and place categories

To see the comparison of applications produced with similar applications that already exist can be seen in Table 1. the comparison includes information and application features.

TABLE I. APPLICATION COMPARISON

Name	Publisher	Information	Features
Sumsel Travel Guide/ Palembang Guide (proposed)	Macangsakti	sports, transportation, hotels, stores, restaurants, handicrafts, tourism destinations, gas stations, hospitals, police stations, government offices, and education	Object Description, direction map, place rating, visitor comment, visitor photo upload, add (recommend) place
Sumsel Tourism	Cyborgitcenter	Tourism destination and hotels	Tourism destination description, hotel reservation
Pariwisata dan Kebudayaan Sumatra Selatan	DigitalCreative	Tourism destination	Tourism destination description
Exotica South Sumatra	Dinas Kebudayaan dan Pariwisata Sumatra Selatan	Natural, food, and culture tourism destination	Tourism destination description
Palembang In Your Hand	Dinas Kebudayaan dan Pariwisata Sumatra Selatan	Museum, Augmented Reality, and News	Museum description using Video and reading news

Available on Play Store

## V. CONCLUSION

The proposal we offer through a mobile application-based model for travel guides in the Government of South Sumatra. This model will help the Government in making policies in digital tourism. In the proposed approach, we take advantage of the stages in developing mobile applications, in

general, using the development method process (Mobile-D), the overall architectural model, and configuration. We identify the challenges that travelers need in South Sumatra. The challenges include differences in smartphone platforms, internet network access, and unorganized travel guides. Then to describe the general model of architecture that can be used by the Government of South Sumatra in forming a travel guide rule. The proposed architectural model includes application containers (database servers and databases), tourism departments (regencies or cities), users (society and travelers can do). The result of this research is to develop applications as a model validation to be developed and implemented in South Sumatra.

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Authors		<table border="1"> <thead> <tr> <th>Drag to change order</th> <th>Name</th> <th>ID</th> <th>Edit</th> <th>Flag</th> <th>Affiliation (edit for paper)</th> <th>Email</th> <th>Country</th> <th>Email</th> <th>De</th> </tr> </thead> <tbody> <tr> <td></td> <td><a href="#">Usman Ependi</a></td> <td>1530458</td> <td></td> <td></td> <td><a href="#">Universitas Bina Darma, Indonesia</a></td> <td><a href="mailto:u.ependi@binadarma.ac.id">u.ependi@binadarma.ac.id</a></td> <td>Indonesia</td> <td></td> <td> </td> </tr> <tr> <td></td> <td><a href="#">Ari Muzakir</a></td> <td>1691951</td> <td></td> <td></td> <td><a href="#">Universitas Bina Darma, Indonesia</a></td> <td><a href="mailto:arimuzakir@binadarma.ac.id">arimuzakir@binadarma.ac.id</a></td> <td>Indonesia</td> <td></td> <td> </td> </tr> <tr> <td></td> <td><a href="#">Fatoni Fatoni</a></td> <td>1594150</td> <td></td> <td></td> <td><a href="#">Universitas Bina Darma, Indonesia</a></td> <td><a href="mailto:fatoni@binadarma.ac.id">fatoni@binadarma.ac.id</a></td> <td>Indonesia</td> <td></td> <td> </td> </tr> <tr> <td></td> <td><a href="#">Muhammad Bunyamin</a></td> <td>1691952</td> <td></td> <td></td> <td><a href="#">Universitas Bina Darma, Indonesia</a></td> <td><a href="mailto:muhammad.bunyamin@binadarma.ac.id">muhammad.bunyamin@binadarma.ac.id</a></td> <td>Indonesia</td> <td></td> <td> </td> </tr> <tr> <td></td> <td><a href="#">Dedi Irawan</a></td> <td>1691953</td> <td></td> <td></td> <td><a href="#">Universitas Bina Darma, Indonesia</a></td> <td><a href="mailto:dedi.irawan@binadarma.ac.id">dedi.irawan@binadarma.ac.id</a></td> <td>Indonesia</td> <td></td> <td> </td> </tr> <tr> <td></td> <td><a href="#">Irman Effendy</a></td> <td>1691954</td> <td></td> <td></td> <td><a href="#">Universitas Bina Darma, Indonesia</a></td> <td><a href="mailto:irman.effendy@binadarma.ac.id">irman.effendy@binadarma.ac.id</a></td> <td>Indonesia</td> <td></td> <td> </td> </tr> </tbody> </table>	Drag to change order	Name	ID	Edit	Flag	Affiliation (edit for paper)	Email	Country	Email	De		<a href="#">Usman Ependi</a>	1530458			<a href="#">Universitas Bina Darma, Indonesia</a>	<a href="mailto:u.ependi@binadarma.ac.id">u.ependi@binadarma.ac.id</a>	Indonesia				<a href="#">Ari Muzakir</a>	1691951			<a href="#">Universitas Bina Darma, Indonesia</a>	<a href="mailto:arimuzakir@binadarma.ac.id">arimuzakir@binadarma.ac.id</a>	Indonesia				<a href="#">Fatoni Fatoni</a>	1594150			<a href="#">Universitas Bina Darma, Indonesia</a>	<a href="mailto:fatoni@binadarma.ac.id">fatoni@binadarma.ac.id</a>	Indonesia				<a href="#">Muhammad Bunyamin</a>	1691952			<a href="#">Universitas Bina Darma, Indonesia</a>	<a href="mailto:muhammad.bunyamin@binadarma.ac.id">muhammad.bunyamin@binadarma.ac.id</a>	Indonesia				<a href="#">Dedi Irawan</a>	1691953			<a href="#">Universitas Bina Darma, Indonesia</a>	<a href="mailto:dedi.irawan@binadarma.ac.id">dedi.irawan@binadarma.ac.id</a>	Indonesia				<a href="#">Irman Effendy</a>	1691954			<a href="#">Universitas Bina Darma, Indonesia</a>	<a href="mailto:irman.effendy@binadarma.ac.id">irman.effendy@binadarma.ac.id</a>	Indonesia		
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Title	Only the chairs <a href="mailto:icecos2019-chairs@edas.info">icecos2019-chairs@edas.info</a> can edit	<b>Model for Mobile Application Development on Travel Guide: General Propose</b>																																																																						
Abstract	Only the chairs <a href="mailto:icecos2019-chairs@edas.info">icecos2019-chairs@edas.info</a> can edit	The increase in tourist visits has an impact on providing information on tourist destinations and all related to tourism trips. The information is still inadequate, especially a purpose of tourist attractions and accommodation or infrastructure for tourist travel. The lack of information will impact the decline in tourist visits to the province of Sumatra. The efforts that have been made by the government of South Sumatra Province does not maximize. In this research, we made a proposed model based on application in the travel guide in the Government of South Sumatra. This model will help the Government in making policies in digital tourism. We use mobile smartphor that are currently used by more than 90% of the people in searching for information related to tourism. Our proposed approach utilizes the stages in mobile develop general, using the Mobile-D development method, the overall architectural model, and configuration. The result is the application of the model to the use. The implementa carried out to see how important the model could be developed and implemented in South Sumatra																																																																						
Keywords	Only the chairs <a href="mailto:icecos2019-chairs@edas.info">icecos2019-chairs@edas.info</a> can edit	software development; mobile platform development; model for a travel guide; architecture model																																																																						
Topics	Only the chairs <a href="mailto:icecos2019-chairs@edas.info">icecos2019-chairs@edas.info</a> can edit	Software Engineering; Mobile Computing																																																																						
Presenter(s)		Usman Ependi																																																																						
DOI	Only the chairs <a href="mailto:icecos2019-chairs@edas.info">icecos2019-chairs@edas.info</a> can edit																																																																							
Status		Accepted																																																																						
Copyright form		IEEE; IEEE: <a href="#">Sep 7, 2019 08:12:43 Asia/Jakarta</a>																																																																						

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Document (show)	Pages	File size	Changed	Similarity rating ⓘ
		746,496	<a href="#">May 29, 2019 07:46:20 Asia/Jakarta</a>	<a href="#">3</a>
doc	authormeta	Doubleblind conference, but author name 'Ependi' is in PDF meta data. See <a href="#">FAQ</a> for details.		
Review manuscript	doc	papertitle	The paper title <i>Model for Mobile Application Development on Travel Guide: General Propose</i> was not found in the paper. (This is only a warning and may be mistaken if the title contains special characters.) <b>Paper Title (use style paper title)Model for Mobile Application Developm</b>	
doc	authorname	Doubleblind conference, but author name 'Effendy' is visible on first page. (This is only a warning; ignore if false positive.) See <a href="#">FAQ</a> for details.		
pdf	notembedded	One or more <a href="#">fonts</a> are not embedded. See <a href="#">EDAS FAQ</a> .		
pdf	links	PDF <a href="#">links</a> (URLs) are not allowed. See <a href="#">EDAS FAQ</a> .		
pdf	authorname	Doubleblind conference, but author name 'Effendy' is visible on first page. (This is only a warning; ignore if false positive.) See <a href="#">FAQ</a> for details.		

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Document (show)	Pages	File size	Changed	Check format / Report problem	Delete
	5	486,732	<a href="#">Sep 7, 2019 09:40:41 Asia/Jakarta</a>	 last checked <a href="#">Sep 7, 2019 13:56:38 WIB</a>	
Final manuscript	pdf	papertitle	The paper title <i>Model for Mobile Application Development on Travel Guide: General Propose</i> was not found in the paper. (This is only a warning and may be mistaken if the title contains special characters.) Model for Mobile Application Development on <b>Traveling</b> Guide: <b>A General</b>		
	pdf	authororder	Authors may be listed in a different order on the manuscript than in the paper record: Usman Ependi (1530458) recognized as Usman Ependi at character 22; Ari Muzakir (1691951) recognized as Ari Muzakir at character 247; Fatoni Fatoni (1594150) recognized as Fatoni at character 465; Muhammad Bunyamin (1691952) recognized as Muhammad Bunyamin at character 149; Dedi Irawan (1691953) recognized as Dedi Irawan at character 375; Irman Effendy (1691954) recognized as Irman Effendy at character 586		

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However, authors cannot upload: presentation deadline

## Personal notes



You are an author for this paper. You have authored an accepted paper.

## Reviews

### 2 ICECOS Reviews

#### Review 1 (Reviewer A)

Relevance and timeliness (Rate the importance and timeliness of the topic addressed in the paper within its area of research.)

Acceptable (3)

Technical content and scientific rigour (Rate the technical content of the paper (e.g.: completeness of the analysis or simulation study, thoroughness of the treatise, accuracy of the models, etc.), its soundness and scientific rigour.)

Marginal work and simple contribution. Some flaws. (2)

Novelty and originality (Rate the novelty and originality of the ideas or results presented in the paper.)

Minor variations on a well investigated subject. (2)

Quality of presentation (Rate the paper organization, the clearness of text and figures, the completeness and accuracy of references.)

Substantial revision work is needed. (2)

#### Weak aspects (Comments to the author: what are the weak aspects of the paper?)

1. the literature review is very weak
2. there is no problem statement in your paper
3. the method is already used by other researchers.

#### Recommended changes (Recommended changes. Please indicate any changes that should be made to the paper if accepted.)

1. write a research paper and not a project report.
2. the paper based on your own assumptions rather than observation to stakeholder.
3. what is your paper contribution?

#### Review 2 (Reviewer B)

Relevance and timeliness (Rate the importance and timeliness of the topic addressed in the paper within its area of research.)

Acceptable (3)

Technical content and scientific rigour (Rate the technical content of the paper (e.g.: completeness of the analysis or simulation study, thoroughness of the treatise, accuracy of the models, etc.), its soundness and scientific rigour.)

Marginal work and simple contribution. Some flaws. (2)

Novelty and originality (Rate the novelty and originality of the ideas or results presented in the paper.)

Minor variations on a well investigated subject. (2)

Quality of presentation (Rate the paper organization, the clearness of text and figures, the completeness and accuracy of references.)

Substantial revision work is needed. (2)

### **Weak aspects (Comments to the author: what are the weak aspects of the paper?)**

1. The writings are not quite good.
2. Lacking technical analysis.

### **Recommended changes (Recommended changes. Please indicate any changes that should be made to the paper if accepted.)**

1. Your title is not using proper English style. I suggest changing to: "Model for Mobile Application Development on Travel Guide: A General Proposal".
2. Sect 1 "Tourism is a travel activity..." Please insert the reference for your definition.
3. Sect 1 "The things that should be..." the idea is unclear. Please re-write.
4. Sect 1 "In the promoting..." should be "In promoting..." and the word "event" should be in plural form.
5. Sect 1 "This information is still inadequate..." please prove your judgment with data or evidence.
6. Sect 1 "Mobile-D ...[12]" please revise the word "process-es?".
7. Sect 2 "In the section, we identify..." please support with reference or data to support the statement, so your points are valid.
8. Sect 3 "III. Propose Approach" should be "Proposed Approach".
9. Sect 3 "The second stage..." has too many commas so the idea is unclear. Please revise.
10. The caption in Fig 2 should be revised: "Proposed model" and "South".
11. Please add a flowchart / UML diagram on how the system works, not only model and configuration.
12. Are there similar applications already exists in the market (I believe so). If yes, mention them and compare to your works. What makes your system different from them.

## CONFERENCE RUN DOWN

Date	Time	Activity	Location
02/10/2019	07:30 – 08:30	Registration	Ibis Style Hotel
	08:30 – 08:35	Indonesian National Anthem	
	08:35 – 08:45	Chair person's report	
	08:45 – 08:55	Opening Remarks by Rector of Sriwijaya University	
	08:55 – 09:00	Doa, Souvenirs for sponsor, Group photo	
	09:00 – 09:35	Keynote speaker 1: Prof. Masato Miyoshi	
	09:35 – 09:50	Coffee Break	
	09:50 – 10.25	Keynote speaker 2: Prof. Zainal Salam	
	10:25 – 11:00	Keynote speaker 3: Dr. Wahyu Caesarendra	
	11:00 – 12:00	Parallel Session 1	
	12.00 – 13.00	Break, Sholat Dzuhur and Lunch	
	13.00 – 15.00	Parallel Session 2	
	15.00 – 15.15	Coffee Break	
	15.00 – 18.00	Parallel Session 3	
03/10/2019	18.30 – 20.00	Gala Dinner	
		Bintan Tour	

## CONFERENCE PROGRAM

October 2, 2019						
Time	Room					
	Ballroom, 6th Floor	Waterfront	Sekupang	Nongsapura	Batam Center	Harbour Bay
07.30 – 09.00	Registration and Opening Ceremony					
09.00 – 09.35	Keynote speaker session 1					
09.35 – 09.50	Coffee break					
09.50 – 11.00	Keynote speaker session 2					
11.00 – 12.00	Parallel Session 1					
12.00 – 13.00	LUNCH					
13.00 – 15.00	Parallel Session 2					
15.00 – 15.15	Coffee break					
15.15 – 18.00	Parallel Session 3					
18.30 – 20.00	Gala Dinner					

## INSTRUCTION FOR SPEAKERS

### General

- Presentations will be given using the computers provided by the ICECOS Committee. Presenters' personal computers cannot be used.
- All session rooms are equipped with an LCD projector, computer, microphones, laser pointer, timer and screen. The laptops in the oral session rooms are not equipped to accommodate audio sound.
- Keynote speakers' presentation slot is 35 minutes; 25 minutes for presentation and 10 minutes for discussion.
- Contributed presentations are 15 minutes; the presentation lasts 10 minutes with 5 minutes available for discussions.
- Arrive at 15 minutes before the session and introduce yourself to the session moderator
- There will be no rearrangement of papers within an oral session to accommodate absences or cancellations. The time assigned to an oral presentation within the oral session is fixed.
- Please kindly notify and confirm the Symposium Chair if the speaker of the oral presentation is different to the one who registered and submitted paper.
- The certificate of paper presentation will be given on the room in the end of each session by the symposium chair/moderator.

### Presentation Materials

- Presenters are required to submit an electronic version of their talk/presentation materials at one day prior to their presentation to the PRESENTATION CORNER at Hotel Lobby or at least 1 (one) hour before the session. Files are reviewed, scanned for viruses and loaded onto the appropriate computers in the session rooms. Changes to submitted files will not be allowed.
- Please rename the presentation file with: **PAPER ID\_AuthorName**
- Files transferred to the session computers will be well archived by the committee but it cannot be copied by anyone (participants). Anyone wishing to receive a copy of the slides should contact the presenter.



Batam, October 2-3, 2019

- Presentations must be submitted in Microsoft Power Point or PDF format. Acceptable media is USB flash drive. Macintosh computers will not be available in any of the session rooms. Authors using a Macintosh must ensure their presentations operate correctly using Microsoft Office 2013 or Adobe Acrobat in the Windows environment.

## PARALLEL SESSIONS

### Information Technology 1

**Moderator: Dr. Mohd Riduan bin Ahmad**  
**Munawar Agus Riyadi, Ph.D**  
**Room: Waterfront**

No	Time	Paper ID	Title	Authors with affiliation and country
1	11:00 - 11:15	1570588611	An Evolutionary Algorithm for Community Detection Using an Improved Mutation Operator	Dhuha Abdulhadi Abduljabbar (University of Baghdad, Malaysia); Siti Zaiton Mohd Hashim (Universiti Teknologi Malaysia, Malaysia); Roselina Sallehuddin (University Technology Malaysia, Malaysia)
2	11:15 - 11:30	1570572604	Sentiment Analysis of Customers on Utilizing Online Motorcycle Taxi Service at Twitter with the Support Vector Machine	Jajam Haerul Jaman (Unsika, Indonesia); Rasdi Abdulrohman (Singaperbangsa of University, Indonesia)
3	11:30 - 11:45	1570573219	Convolutional Neural Networks for Realtime Multi-Faces Verification with Occlusion	Saparudin Saparudin (Sriwijaya University, Indonesia); Reza Firsandaya Malik (University of Sriwijaya & Faculty of Computer Science, Indonesia); Erwin E (Universitas Sriwijaya, Indonesia); Muhammad Fachrurrozi (Universitas Sriwijaya & Computer Science Faculty, Indonesia); Sukemi Adam, - (University of Indonesia & Indonesia, Indonesia); Puji Rachmawati and Ari Susanto (Universitas Sriwijaya, Indonesia); Bambang Suprihatin (University of Sriwijaya, Indonesia)



4	11:45 - 12:00	1570578019	Academicopter: Metasearch with PDF Automatic Summary of Scientific Articles	Dewi Wardani (Universitas Sebelas Maret, Indonesia); Wisnu Widiarto (Sebelas Maret University, Indonesia); Lyla Aini (BPPT, Indonesia); Rini Anggrainingsih (Sebelas Maret University, Indonesia)
5	13:00 - 13:15	1570580205	Study on Insider Threats Detection for Cyber-Physical System	Zaheera Zainal Abidin (Universiti Teknikal Malaysia Melaka & INSFORNET Fakulti Teknologi Maklumat dan Komunikasi Universiti Teknikal Malaysia Melaka, Malaysia); Nurul Akmal Hashim (Universiti Teknikal Malaysia Melaka, Malaysia); Nurul Zakaria (Saitama University, Japan); Zuraida Abal Abas, Rabiah Ahmad, Puvanasvaran A/L A Perumal and Esuwary Mardaid (Universiti Teknikal Malaysia Melaka, Malaysia)
6	13:15 - 13:30	1570580171	Improvisation of Minimax Algorithm with Multi Criteria Decision Maker (MCDMO in the Intelligent Agent of Card Battle Game	Silvester Dian Handy Permana and Ketut Bayu Yogha Bintoro (Universitas Trilogi, Indonesia); Budi Arifitama, BA (Universitas Trilogi & Program Studi Teknik Informatika, Indonesia); Ade Syahputra (Universitas Trilogi, Indonesia)
7	13:30 - 13:45	1570580444	Towards Guided Summarization of Scientific Articles: Selection of Important Update Sentences	Ghoziyah Haitan Rachman, Masayu Leylia Khodra and Dwi H Widyantoro (Institut Teknologi Bandung, Indonesia)
8	13:45 - 14:00	1570580900	Stress Detection Application Based on Heart Rate Variability (HRV) and K-Nearest Neighbor (KNN)	Prima Dewi Purnamasari (Universitas Indonesia, Indonesia); Ramdhaidfitri Martmis (Universitas Indonesia, Indonesia); Rizky Ramadhan Wijaya (Universitas Indonesia, Indonesia)

9	14:00 - 14:15	1570581257	Short Term Electrical Energy Consumption Forecasting Using RNN-LSTM	Erliza Yuniarti (Sriwijaya University & Universitas Muhammadiyah Palembang, Indonesia); Siti Nurmaini and Bhakti Yudho Suprpto (University of Sriwijaya, Indonesia); Muhammad Naufal Rachmatullah (Bandung Institute of Technology, Indonesia)
10	14:15 - 14:30	1570581268	Term Frequency-Inverse Document Frequency Answer Categorization with Support Vector Machine on Automatic Short Essay Grading System with Latent Semantic Analysis for Japanese Language	Anak Agung Putri Ratna (Faculty of Engineering, University of Indonesia, Indonesia); Aaliyah Kaltsum, Ihsan Ibrahim and Prima Dewi Purnamasari (Universitas Indonesia, Indonesia)
11	14:30 - 14:45	1570584588	Integrated Exploit Kit for Web Application	Aryya Dwisatya Widigdha and Yudistira Asnar (Institut Teknologi Bandung, Indonesia)
12	14:45 - 15:00	1570584939	Network Centralization Analysis Approach in the Spread of Hoax News on Social Media	Dwi Brianna and Edi Surya Negara (Universitas Bina Darma, Indonesia); Yesi Novaria Kunang (Universitas Sriwijaya & Universitas Bina Darma, Indonesia)
13	15:00 - 15:15	1570586489	Enhanced Community Detection Based on Cross Time Approach for Higher Visibility in Supply Chain: A Six-Steps Model Framework	Zuraida Abal Abas (Universiti Teknikal Malaysia Melaka, Malaysia); Zaheera Zainal Abidin (Universiti Teknikal Malaysia Melaka & INSFORNET Fakulti Teknologi Maklumat dan Komunikasi Universiti Teknikal Malaysia Melaka, Malaysia); Nurul Akmal Hashim (Universiti Teknikal Malaysia Melaka, Malaysia)
14	15:15 - 15:30	1570585719	Jumputan Wastewater Optimization Model Using Green Logistic Network Approach	Muhammad Izman Herdiansyah and Anis Lelitasari (Universitas Bina Darma, Indonesia); A. Haidar Mirza (Universitas Sriwijaya & Universitas Bina Darma, Indonesia); Darius Antoni (Universitas Bina Darma, Indonesia)

15	15:30 - 15:45	1570586557	Design Log Management System of Computer Network Devices Infrastructures Based on ELK Stack	Adian Fatchur Rochim (Diponegoro University, Indonesia); Mukhlis Abdul Aziz (Diponegoro University); Adnan Fauzi (Diponegoro University, Indonesia)
16	15:45 - 16:00	1570587224	Automatic Essay Grading for Bahasa Indonesia with Support Vector Machine and Latent Semantic Analysis	Prima Dewi Purnamasari (Universitas Indonesia, Indonesia); Anak Agung Putri Ratna (Faculty of Engineering, University of Indonesia, Indonesia); Ihsan Ibrahim (Universitas Indonesia, Indonesia)
17	16:00 - 16:15	1570588438	Analysis of Cardiac Frequency on Photoplethysmograph (PPG) Synthesis for Detecting Heart Rate Using Fast Fourier Transform (FFT)	Ratna Aisuwarya (Andalas University, Indonesia), Hendrick (Padang State Polytechnics, Indonesia), Meitiza (Andalas University, Indonesia)
18	16:15 – 16:30	1570588440	Monitoring and Notification System of the Position of a Person with Dementia Based on Internet of Things (IoT) and Google Maps	Ratna Aisuwarya (Andalas University, Indonesia), Melisa (Andalas University, Indonesia), Rian Ferdian (Andalas University, Indonesia)

## Communications and Vehicular Technology

**Moderator: Dr. Reza Firsandaya Malik**

**Nyayu Latifah Husni, MT**

**Room: Sekupang**

No	Time	Paper ID	Title	Authors with affiliation and country
1	11:00 - 11:15	1570588609	Device Discovery for D2D Communication Using Belief Space Search in Dense Area	Omar Hayat (Universiti Teknologi Malaysia, Malaysia & NUML H-9 Islamabad, Pakistan); Razali Ngah and Siti Zaiton Mohd Hashim (Universiti Teknologi Malaysia, Malaysia)
2	11:15 - 11:30	1570546039	Expending Technique Cryptography for Plaintext Messages by Modifying Playfair Cipher Algorithm with Matrix 5 x 19	Son Sumarsono (Universitas Islam Negeri Sunan Kalijaga, Indonesia); Muhammad Anshari (Universiti Brunei Darussalam, Brunei Darussalam); Amiroh Mujahidah (Universitas Islam Negeri Sunan Kalijaga, Indonesia)

Batam, October 2-3, 2019

3	11:30 - 11:45	1570556215	Design of Battery Balancing Unit of Satellite Using BQ77PL900	Muhammad Affan (NED University of Engineering and Technology, Pakistan); Abdullah Munir (University of Technology Malaysia, Malaysia); Zulkurnain Abdul-Malek (Universiti Teknologi Malaysia & Institute of High Voltage and High Current, Malaysia); Zainuddin Nawawi (Universitas Sriwijaya, Indonesia); Muhammad Abu Bakar Sidik (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Indonesia); Muhammad Irfan Jambak (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Malaysia); Mona Riza Mohd Esa (Universiti Teknologi Malaysia, Malaysia); Mehmood Ali (NEDUET, Malaysia)
4	11:45 - 12:00	1570556217	Millimeter-wave Bandpass Filter by Open Loop Elliptical Ring Resonators	Hussam Keriee (Universiti Teknologi Malaysia, Malaysia), Zulkornain Abd Malik (University of Technology, Malaysia), Nawres Abbas Nayyef (University Teknikal Melaka, Malaysia), Muhammad Irfan Jambak (Universitas Sriwijaya, Indonesia), Zainuddin Nawawi (Universitas Sriwijaya, Indonesia), Mona Riza Mohd Esa (University of Technology, Malaysia), Muhammad Abu Bakar Sidik (Universitas Sriwijaya, Indonesia)
5	13:00 - 13:15	1570580473	Performance of Centralized Authentication Control in IEEE 802.11Ah with Multirate Registration	Teuku Yuliar Arif, Rizal Munadi, Syahrial Syahrial and Muharratul Mina Rizky (Syiah Kuala University, Indonesia)
6	13:15 - 13:30	1570586645	Simple Prevention of Advanced Stealth Man-in-The-Middle Attack in WPA2 Wi-Fi Networks	Teuku Yuliar Arif and Ferial Sarjana (Syiah Kuala University, Indonesia); Ramzi Adriman (Universitas Syiah Kuala, Indonesia); Rizal Munadi (Syiah Kuala University, Indonesia)

## Information Technology 2

**Moderator: Dr. Reza Firsandaya Malik**

**Nyayu Latifah Husni, MT**

**Room: Sekupang**

No	Time	Paper ID	Title	Authors with affiliation and country
1	13:30-13:45	1570552719	Big Data and Big Challenge for Knowledge Management	Muhammad Anshari (Universiti Brunei Darussalam, Brunei Darussalam); Siti Nurmaini (University of Sriwijaya, Indonesia); Syamimi Ariff Lim (Universiti Brunei Darussalam, Indonesia); Wahyu Caesarendra (Universiti Brunei Darussalam & Diponegoro University, Brunei Darussalam)
2	13:45-14:00	1570555898	Requirement Engineering for Traffic Information Application Using GPS Based on Motivations to Contribute	Rahmat Izwan Heroza, Mgs Afriyan Firdaus and Ali Ibrahim (Universitas Sriwijaya, Indonesia)
3	14:00-14:15	1570556070	Milestone of Pain Intensity Evaluation from Facial Action Units	Reneiro A Virrey and Asmah Husaini (Universiti Brunei Darussalam, Brunei Darussalam); Wahyu Caesarendra (Universiti Brunei Darussalam & Diponegoro University, Brunei Darussalam); Iskandar Petra (University of Brunei Darussalam, Brunei Darussalam); Emeroylariffion Abas (Universiti Brunei Darussalam, Brunei Darussalam); Chandratilak De Silva Liyanage (Massey University, New Zealand)

4	14:15-14:30	1570556281	Identification of Classification Method for Sudden Cardiac Death: A Review	Febriyanti Panjaitan (Universitas Sriwijaya & Universitas Bina Darma, Indonesia); Siti Nurmaini (University of Sriwijaya, Indonesia); Muhamad Akbar, A. Haidar Mirza and Hadi Syaputra (Universitas Sriwijaya & Universitas Bina Darma, Indonesia); Tri Basuki Kurniawan (Universitas Bina Darma, Indonesia); Radiyati Umi P (Universitas Sriwijaya, Indonesia)
5	14:30-14:45	1570557602	Edge Detection for Online Image Processing of a Vision Guide Pick and Place Robot	Hasta Muzana Qul'am and Tresna Dewi (Politeknik Negeri Sriwijaya, Indonesia); Pola Risma (Sriwijaya Polytechnic, Indonesia); Yurni Oktarina (Polytechnic Sriwijaya Palembang-Indonesia, Indonesia); Dewi Permatasari (Politeknik Negeri Sriwijaya, Indonesia)
6	14:45-15:00	1570558735	A Literature Review of Infrastructure Capabilities in Shared E-Government Concept	Darius Antoni, Muhammad Nasir and Asep Syaputra (Universitas Bina Darma, Indonesia)
7	15:00-15:15	1570559801	Model for Mobile Application Development on Travel Guide: General Propose	Usman Ependi, Ari Muzakir, Fatoni Fatoni, Muhammad Bunyamin, Dedi Irawan and Irman Effendy (Universitas Bina Darma, Indonesia)
8	15:15-15:30	1570562549	Feature Selection in Text Classification Using Long Short Term Memory (LSTM)	Dian Palupi Rini and Winda Kurnia Sari (Universitas Sriwijaya, Indonesia); Reza Firsandaya Malik (University of Sriwijaya & Faculty of Computer Science, Indonesia)

9	15:30-15:45	1570568506	Prediction of the Student Graduation's Level Using C4.5 Decision Tree Algorithm	Dian Palupi Rini (Universitas Sriwijaya, Indonesia); Sukemi Adam, - (Universitas Sriwijaya); Evi Purnamasari (Universitas Sriwijaya, Indonesia)
10	15:45-16:00	1570569024	A System for Reporting Inadequate Regional Infrastructure Using Raycasting-based Geofencing Technique on Mobile Devices	Puspa Miladin Nuraida Safitri A Basid (Universitas Islam Maulana Malik Ibrahim, Indonesia); Juniardi Nur Fadila (UIN Maulana Malik Ibrahim Malang, Indonesia)
11	16:00-16:15	1570569068	A LSTM-method for Bitcoin Price Prediction: A Case Study Yahoo Finance Stock Market	Ferdiansyah Ferdiansyah (Universitas Bina Darma & Universiti Teknologi Malaysia, Indonesia); Siti Hajar Othman and Raja Zahilah Raja Mohd Radzi (Universiti Teknologi Malaysia, Malaysia); Deris Stiawan (University of Sriwijaya, Indonesia); Yoppy Sazaki (Universitas Sriwijaya, Indonesia); Usman Ependi (Universitas Bina Darma, Indonesia)
12	16:15-16:30	1570544660	Smartphone and Mobile Learning to Support Experiential Learning	Mirna Ari Mulyani (Universitas Pendidikan Indonesia, Indonesia); Abdur Razzaq (Universitas Islam Negeri Raden Fatah, Indonesia); Sari Lestari Ridho (Politeknik Negeri Sriwijaya, Indonesia); Muhammad Anshari (Universiti Brunei Darussalam, Brunei Darussalam)



Batam, October 2-3, 2019

## Electronics, Circuits, and System

Moderator: Dr. Bhakti Yudho Suprpto

Dr. Eng. Suci Dwijayanti

Room: Nongsapura

No	Time	Paper ID	Title	Authors with affiliation and country
1	11:00 - 11:15	1570556167	Simulation Analysis of Formation Control Design of Leader-Follower Robot Using Fuzzy Logic Controller	Tresna Dewi and Carlos R Sitompul (Politeknik Negeri Sriwijaya, Indonesia); Pola Risma (Sriwijaya Polytechnic, Indonesia); Yurni Oktarina (Polytechnic Sriwijaya Palembang-Indonesia, Indonesia); Ranti Jelista and Mulyati Mulyati (Politeknik Negeri Sriwijaya, Indonesia)
2	11:15 - 11:30	1570556210	Performance Comparison of Fuzzy Logic and Neural Network Design for Mobile Robot Navigation	Hendra Marta Yudha (Universitas Tridianti Palembang, Indonesia); Tresna Dewi (Politeknik Negeri Sriwijaya, Indonesia); Nurul Hasanah (Politeknik Negeri Sriwijaya Palembang, Indonesia); Pola Risma (Sriwijaya Polytechnic, Indonesia); Yurni Oktarina (Polytechnic Sriwijaya Palembang-Indonesia, Indonesia); Sari Kartini (Politeknik Negeri Sriwijaya Palembang, Indonesia)
3	11:30 - 11:45	1570560590	Leak Detection in Water Pipe Using FSR (Force Sensitive Resistor) Sensor	Kemahyanto Exaudi, Rossi Passarella and Rendyansyah Rendyansyah (Universitas Sriwijaya, Indonesia); Ades Duri (University of Sriwijaya, Indonesia)

4	11:45 - 12:00	1570563333	Intelligent Transportation System for Traffic Accident Monitoring	Ade Handayani, ASH (Politeknik Negeri Sriwijaya & Engineering Electrical, Indonesia); Hani Putri, Sopian Soim, Nyayu Latifah Husni, Rumiasih Rumiasih and Carlos R Sitompul (Politeknik Negeri Sriwijaya, Indonesia)
5	13:00 - 13:15	1570558685	Electrostatic Force and Centrifugal Force for Fiber Fabrication	Norul Ashikin Norzain and Wei Chih Lin (National Sun Yat-sen University, Taiwan)
6	13:15 - 13:30	1570567248	Garbage Monitoring and Warning System	Nyayu Latifah Husni (Politeknik Negeri Sriwijaya, Indonesia); Robi Mr (Politeknik Negeri Sriwijaya, Indonesia); Ekawati Prihatini (State Polytechnic of Sriwijaya, Indonesia); Ade Handayani, ASH (Politeknik Negeri Sriwijaya & Engineering Electrical, Indonesia); Firdaus Firdaus (Universitas Sriwijaya, Indonesia)
7	13:30-13:45	1570568485	Design and Development of Ozone-Based Surgical Equipment Sterilizer	Zolkafli Buntat (Universiti Teknologi Malaysia, Malaysia); Muhammad Abu Bakar Sidik (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Indonesia); Zainuddin Nawawi (Universitas Sriwijaya, Indonesia); Muhammad Irfan Jambak (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Malaysia); Rizda Kurnia (University of Sriwijaya, Indonesia); Akhlar Wista Arum (Universitas Sriwijaya, Indonesia)

8	13:45-14:00	1570569176	Solar Cell-Powered UAVs for Marathon Flights as a Geographic Data Retrieval Tool	Juniardi Nur Fadila (UIN Maulana Malik Ibrahim Malang, Indonesia); Puspa Miladin Nuraida Safitri A Basid (Universitas Islam Maulana Malik Ibrahim, Indonesia)
9	14:00-14:15	1570585702	Comparison of Inverted Pendulum Control System Using Proportional - Integral - Derivative (PID) and Proportional - Integral (PI)	Bhakti Yudho Suprpto (University of Sriwijaya, Indonesia); Suci Dwijayanti (Sriwijaya University, Indonesia); Reni Samara (Universitas Sriwijaya, Indonesia)
10	14:15-14:30	1570586149	The Lateral Control of Autonomous Vehicles: A Review	Bustanul Arifin (Universitas Sriwijaya, Indonesia); Bhakti Yudho Suprpto (University of Sriwijaya, Indonesia); Sri Arttini Dwi Prasetyowati (Universitas Islam Sultan Agung, Indonesia); Zainuddin Nawawi (Universitas Sriwijaya, Indonesia)
11	14:30-14:45	1570586613	Water Distribution Control Using Arduino with Fuzzy Logic Algorithm Method: A Prototype Design	Ferdiansyah Ferdiansyah (Universitas Sriwijaya, Indonesia); Zaenal Husin and Bhakti Yudho Suprpto (University of Sriwijaya, Indonesia); Suci Dwijayanti (Sriwijaya University, Indonesia)
12	14:45-15:00	1570588254	Improved Single Barrier Ozone Chamber	H.A. Budiman, D. Amri, A.W. Arum, and Muhammad Abu Bakar Sidik (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Indonesia)

13	15:00-15:15	1570588257	Removal of NO <sub>x</sub> from Diesel Engines Vehicle: Simulation and Experiment	Muhammad Abu Bakar Sidik (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Indonesia); Zainuddin Nawawi (Universitas Sriwijaya, Indonesia); Muhammad Irfan Jambak (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Malaysia); Zolkafli Buntat and Fatin Nabilah Musa (Universiti Teknologi Malaysia, Malaysia); Bentang Budiman (Institut Teknologi Bandung, Indonesia)
14	15:15-15:30	1570588258	Ozonized Water for Mouth Cleansing System in Dentistry	Zolkafli Buntat (Universiti Teknologi Malaysia, Malaysia); Muhammad Abu Bakar Sidik (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Indonesia); Zainuddin Nawawi (Universitas Sriwijaya, Indonesia); Muhammad Irfan Jambak (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Malaysia); Rizda Kurnia (University of Sriwijaya, Indonesia); Akhlar Wista Arum (Universitas Sriwijaya, Indonesia)
15	15:30-15:45	1570588260	Breakdown Voltage of Biodegradable Oil RBDPO Olein and Oleum Maydis by Nanoparticles Addition	Muhammad Abu Bakar Sidik (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Indonesia); Wiwin Armoldo Oktaviani (Universitas Muhammadiyah Palembang, Indonesia)

Batam, October 2-3, 2019

## Power System 1

**Moderator: Muhammad Abu Bakar Sidik, Ph.D**

**Dr. Herlina**

**Room: Batam Centre**

No	Time	Paper ID	Title	Authors with affiliation and country
1	11:00 - 11:15		On the Upward Initiated Lightning from a Tall Structure	KAWASAKI Zen-Ichiro (Osaka University)
2	11:15 - 11:30	1570557597	Tilt Angle Effect Analysis on Nodes of Inductive Resonance Wireless Power Transfer	Sonny Syahputra (Politeknik Negeri Sriwijaya, Indonesia); Pola Risma (Sriwijaya Polytechnic, Indonesia); Tresna Dewi (Politeknik Negeri Sriwijaya, Indonesia); Yurni Oktarina (Polytechnic Sriwijaya Palembang-Indonesia, Indonesia); Sabilal Rasyad (State Polytechnic Of Sriwijaya, Indonesia)

Batam, October 2-3, 2019

3	11:30 - 11:45	1570557751	Application of Interleaved Bidirectional Converter on Pond Aerators with Electricity Sources from Solar Panels	Indra Ferdiansyah (Politeknik Elektronika Negeri Surabaya, Indonesia); Era Purwanto (Electronic Engineering Polytechnic Institute Of Surabaya, Indonesia); Indhana Sudiharto, Epyk Sunarno and Syechu Nugraha (Politeknik Elektronika Negeri Surabaya, Indonesia); Ony Qudsi (Politeknik Elektronika Negeri Surabaya & Institut Teknologi Sepuluh Nopember, Indonesia); Lucky Pradigta Setiya Raharja (Politeknik Elektronika Negeri Surabaya, Indonesia); Mochamad Abdul Mughis (Electronic Engineering Polytechnic Institute of Surabaya, Indonesia); Ipensius Tua Simorangkir (Politeknik Negeri Batam, Indonesia)
4	11:45 - 12:00	1570559979	Hydrogen Gas Production Using Water Electrolyzer as Hydrogen Power	Rusdianasari Rusdianasari, Yohandri Bow and Tresna Dewi (Politeknik Negeri Sriwijaya, Indonesia); Pola Risma (Sriwijaya Polytechnic, Indonesia)
5	13:00 - 13:15	1570560424	Narrow Bipolar Events Within Reversal Distance and Associated UHF-VHF Emissions	Seah Boon York, Mohd Riduan Ahmad and Shamsul Ammar Shamsul Baharin (Universiti Teknikal Malaysia Melaka, Malaysia); Mona Riza Mohd Esa (Universiti Teknologi Malaysia, Malaysia); Mohamad Zoinol Abidin Bin Abd Aziz (Universiti Teknikal Malaysia Melaka & Hang Tuah Jaya, Malaysia); Muhammad Abu Bakar Sidik (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Indonesia)

6	13:15 - 13:30	1570560431	Temporal Analysis of Microwave Radiation Emitted by the First Return Stroke	Shamsul Ammar Shamsul Baharin, Mohd Riduan Ahmad and Seah Boon York (Universiti Teknikal Malaysia Melaka, Malaysia); Mona Riza Mohd Esa (Universiti Teknologi Malaysia, Malaysia); Norbayah Yusop (Utem, Malaysia); Muhammad Abu Bakar Sidik (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Indonesia)
7	13:30-13:45	1570560434	Radar Analysis of a Tropical Hailstorm Associated with Lightning Flash Rate	Mohd Riduan Ahmad (Universiti Teknikal Malaysia Melaka, Malaysia); Sulaiman Ali Mohammad and Mona Riza Mohd Esa (Universiti Teknologi Malaysia, Malaysia); Muhammad Abu Bakar Sidik (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Indonesia); Norbayah Yusop (Utem, Malaysia)
8	13:45-14:00	1570566933	Potential Sites for Mini Hydro Power Plant Development in West Sumatra: a GIS Approach and Remote Sensing Data	Yuhendra Yuhendra (Padang Institute of Technology, Indonesia); Zaini (Andalas University, Indonesia)
9	14:00-14:15	1570568034	Electrical Energy Needs Projection of Bangka Belitung Province in 2019-2033 Using Fuzzy Logic	Muhammad Najmi and Rinaldy Dalimi (University of Indonesia, Indonesia)

10	14:15-14:30	1570568128	The Effects of Different Electrode Holes on Ozone Generation	Syarifa Fitria and Zainuddin Nawawi (Universitas Sriwijaya, Indonesia); Muhammad Abu Bakar Sidik (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Indonesia); Rizda Kurnia (University of Sriwijaya, Indonesia); Muhammad Irfan Jambak (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Malaysia); Zolkafle Buntat (Universiti Teknologi Malaysia, Malaysia); Dwirina Yuniarti (Universitas Sriwijaya, Indonesia)
11	14:30-14:45	1570569060	Hybrid Energy Utilization of Photovoltaic with Jatropha Curcas Oil-Based Biofuel for Supporting Electrification on Sumba Island	Muchammad A Nafik, Budi Sudiarto, Rudy Setiabudy, Feronica Fatimah (University of Indonesia, Indonesia)
12	14:45-15:00	1570569080	Increasing Compressor Gas Turbine Efficiency Using Fogging System at Inlet Air Filter Study Case of PLTGU Block 2 Muara Karang	Feronica Fatimah, Budi Sudiarto, Rudy Setiabudi, and Muchammad A Nafik (Universitas Indonesia, Indonesia)
13	15:00-15:15	1570569093	Real-Time Monitoring of Power Quality for Web Based Electrical Power Panel Using LabVIEW	Isdawimah Isdawimah, Nuha Nadhiroh, Damar Aji and Ismujianto Ismujianto (Politeknik Negeri Jakarta, Indonesia)



14	15:15-15:30	1570569128	A Thin Polymer Film Based Optical Fiber Sensor for Partial Discharge Detection	Mohd Hafizi Ahmad and Chaganti Lakshmana Geetha Pavan Kumar (Universiti Teknologi Malaysia, Malaysia); M. Afendi M. Piah (Universiti Teknologi Malaysia & Institute of High Voltage and High Current, Malaysia); Muhammad Yusof Mohd Noor (Universiti Teknologi Malaysia, Malaysia); Zainuddin Nawawi (Universitas Sriwijaya, Indonesia); Muhammad Abu Bakar Sidik (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Indonesia); Muhammad Irfan Jambak (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Malaysia)
15	15:30-15:45	1570581149	An Improved Two-Switch Bridgeless PFC SEPIC Structure for Total Harmonic Distortion Reduction and Circulating Current Minimization	Jumadril JN, Asmarashid Ponniran, Mohamad Kamil Romai Noor and Munirah Az Zahra Abdul Rashid (Universiti Tun Hussein Onn Malaysia, Malaysia)
16	15:45-16:00	1570581195	Analyzing Performance of Distance Relay in Protecting Distribution Lines with Distributed Generation	Adrianti Adrianti, Alexander Sijabat and Muhammad Nasir (Universitas Andalas, Indonesia)
17	16:00-16:15	1570585587	Model Development of Optical Devices for the Configuration of Optical Differential Protection Scheme	Muhammad Nasir and Adrianti Adrianti (Universitas Andalas, Indonesia)

18	16:15-16:30	1570587215	Study Characteristics of Disturbance in Frequency 9 kHz-150 kHz Generated by Household Appliance at Different Points in Building Installation Systems	Budi Sudiarto, Muhammad Hood and Galuh Prameswari (Universitas Indonesia, Indonesia)
19	16:30 - 16:45	1570588703	Investigation of the Implement the Shoe Height and Slot Opening Width on Decreasing the Peak of Cogging Torque in PMSG	Herlina Wahab (Sriwijaya University & University of Indonesia, Indonesia); Tajuddin Nur (Atma Jaya Catholic University, Indonesia)
20	16:45 – 17:00	1570589086	Phase-Shifting Method with Dy11 Transformer to Reduce Harmonics	Herlina Wahab (Sriwijaya University & University of Indonesia, Indonesia); Rudy Setiabudy (Universitas Indonesia (UI), Indonesia)

## Pervasive Computing and Internet of Thing

**Moderator: Evizal Abdul Kadir, Ph.D**

**Dr. Mohd. Hafizi Ahmad**

**Room: Harbour Bay**

No	Time	Paper ID	Title	Authors with affiliation and country
1	11:00 - 11:15	1570564722	Design Analysis of Tele-operatic Supernumerary Robotic Limb	Noer Fadzri Perdana Dinata and Wei Chih Lin (National Sun Yat-sen University, Taiwan)
2	11:15 - 11:30	1570579211	Prototype of the Supply Chain Management System Using the RFID-based Fuzzy Tsukamoto Method	Ahmad Fali Oklilas (Faculty of Computer Science, Universitas Sriwijaya, Indonesia); Agung Fitrianda (Universitas Sriwijaya, Indonesia); Reza Firsandaya Malik (University of Sriwijaya & Faculty of Computer Science, Indonesia); Muhammad Fachrurrozi (Universitas Sriwijaya & Computer Science Faculty, Indonesia); Tasmi Tasmi (Universitas Indo Global Mandiri, Indonesia)
3	11:30 - 11:45	1570581014	Design of Heart Rate Monitoring System Based on Internet of Things (IoT)	Febry Yahya, Rais Mu'ammam and Saipi Ahmada (Polytechnic of Unggulan Kalimantan, Indonesia)
4	11:45 - 12:00	1570585857	Designing an IoT System for Monitoring and Controlling Temperature and Humidity in Mushroom Cultivation Fields	Tigor Hamonangan Nasution, Muhammad Yasir and Fahmi Fahmi (Universitas Sumatera Utara, Indonesia); Soeharwinto Soeharwinto (University of Sumatera Utara, Indonesia)
5	13:00 - 13:15	1570586943	Mobile Application for Noise Measurement Based on Wireless Sensor Network	Nurul Fahmi, Desi Amirullah, Ekoprayitno, Yeni Afriani (Politeknik Negeri Bengkalis - Indonesia, Indonesia)

6	13:15 - 13:30	1570588261	Topic Modelling Twitter Data with Latent Dirichlet Allocation Method	Edi Surya Negara and Ria Andryani, RA (Universitas Bina Darma, Indonesia); Dendi Triadi (Bina Darma University & Jl. A. Yani No. 3 Plaju Palembang, Indonesia)
7	13:30 - 13:45	1570591723	Classification of EEG-based Brain Waves for Motor Imagery Using Support Vector Machine	Munawar Riyadi, Teguh Prakoso and Achmad Hidayatno (Diponegoro University, Indonesia)

Batam, October 2-3, 2019

## Power System 2

**Moderator: Evizal Abdul Kadir, Ph.D**

**Dr. Mohd. Hafizi Ahmad**

**Room: Harbour Bay**

No	Time	Paper ID	Title	Authors with affiliation and country
1	13:45-14:00	1570543208	Correlation Between Global Warming and Lightning Density in Kuala Lumpur and Johor Bharu	Noor Azlinda Ahmad (Institute of High Voltage & High Current, Universiti Teknologi Malaysia, Malaysia); Muhammad Abu Bakar Sidik (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Indonesia); Zainuddin Nawawi (Universitas Sriwijaya, Indonesia); Muhammad Irfan Jambak (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Malaysia)
2	14:00-14:15	1570546307	Characteristics of Lightning Trends in Peninsular Malaysia from 2011 to 2016	Shirley Anak Rufus (Universiti Teknologi Malaysia (UTM) & Universiti Malaysia Sarawak (UNIMAS), Malaysia); Zulkurnain Abdul-Malek (Universiti Teknologi Malaysia & Institute of High Voltage and High Current, Malaysia); Noradlina Abdullah (TNB Research Sdn Bhd & Universiti Tenaga Nasional, Malaysia); Noor Azlinda Ahmad (Institute of High Voltage & High Current, Universiti Teknologi Malaysia, Malaysia)

Batam, October 2-3, 2019

3	14:15-14:30	1570546462	Three-Station Lightning Locating System Based on Magnetic Direction Finding Technique	Kamyar Mehranzamir (University of Nottingham Malaysia, Malaysia); Hadi Nabipour Afrouzi (Swinburne University of Technology, Malaysia); Zulkurnain Abdul-Malek (Universiti Teknologi Malaysia & Institute of High Voltage and High Current, Malaysia); Marwan Nafea (University of Nottingham Malaysia, Malaysia); Shirley Anak Rufus (Universiti Teknologi Malaysia (UTM) & Universiti Malaysia Sarawak (UNIMAS), Malaysia)
4	14:30-14:45	1570546720	Circuit-Based Grounding Electrode Model Considering Frequency Dependence of Soil Parameters for Different Input Current	Ruqayyah Othman and Zulkurnanin Abdul-Malek (Universiti Teknologi Malaysia & Faculty of Electrical Engineering, Malaysia)
5	14:45-15:00	1570555610	Hardware and Software Implementation of Magnetic Direction Finding Sensors	Kamyar Mehranzamir (University of Nottingham Malaysia, Malaysia); Zulkurnain Abdul-Malek (Universiti Teknologi Malaysia & Institute of High Voltage and High Current, Malaysia); Hadi Nabipour Afrouzi (Swinburne University of Technology, Malaysia); Zainuddin Nawawi (Universitas Sriwijaya, Indonesia); Muhammad Abu Bakar Sidik (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Indonesia); Muhammad Irfan Jambak (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Malaysia)

6	15:00-15:15	1570555689	Hardware Installation of Lightning Locating System Using Time Difference of Arrival Method	Kamyar Mehranzamir (University of Nottingham Malaysia, Malaysia); Zulkurnain Abdul-Malek (Universiti Teknologi Malaysia & Institute of High Voltage and High Current, Malaysia); Hadi Nabipour Afrouzi (Swinburne University of Technology, Malaysia); Zainuddin Nawawi (Universitas Sriwijaya, Indonesia); Muhammad Abu Bakar Sidik (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Indonesia); Muhammad Irfan Jambak (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Malaysia)
7	15:15-15:30	1570555705	Detecting Sensor Coordination in a Calibrated Lightning Locating System	Kamyar Mehranzamir (University of Nottingham Malaysia, Malaysia); Hadi Nabipour Afrouzi (Swinburne University of Technology, Malaysia); Zulkurnain Abdul-Malek (Universiti Teknologi Malaysia & Institute of High Voltage and High Current, Malaysia); Marwan Nafea (University of Nottingham Malaysia, Malaysia); Shirley Anak Rufus (Universiti Teknologi Malaysia (UTM) & Universiti Malaysia Sarawak (UNIMAS), Malaysia)
8	15:30-15:45	1570555941	Modelling of Polymer Coated-based Optical Fiber Sensor for Moisture Measurement in Transformer Oil	Mohd Hafizi Ahmad and Chaganti Lakshmana Geetha Pavan Kumar (Universiti Teknologi Malaysia, Malaysia); M. Afendi M. Piah (Universiti Teknologi Malaysia & Institute of High Voltage and High Current, Malaysia); Muhammad Yusof Mohd Noor (Universiti Teknologi Malaysia, Malaysia); Zainuddin Nawawi (Universitas Sriwijaya, Indonesia); Muhammad Abu Bakar Sidik (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Indonesia); Muhammad Irfan Jambak (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Malaysia)

9	15:45-16:00	1570555948	Partial Discharge Characteristics of LDPE Nanocomposites Containing Plasma Treated Boron Nitride Nanofillers	Mohd Hafizi Ahmad and Noor 'Aliaa Awang (Universiti Teknologi Malaysia, Malaysia); Zulkurnain Abdul-Malek (Universiti Teknologi Malaysia & Institute of High Voltage and High Current, Malaysia); Norhafezaidi Mat Saman (Institute of High Voltage & High Current, Malaysia); Zainuddin Nawawi (Universitas Sriwijaya, Indonesia); Muhammad Abu Bakar Sidik (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Indonesia); Muhammad Irfan Jambak (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Malaysia)
10	16:00-16:15	1570556149	Plasma Jet System with Glow Discharge Mechanism for Nanoparticle Surface Treatment: A Simulation Study	Mohd Hafizi Ahmad (Universiti Teknologi Malaysia, Malaysia); Norhafezaidi Mat Saman (Institute of High Voltage & High Current, Malaysia); Zolkafle Buntat (Universiti Teknologi Malaysia, Malaysia); Zainuddin Nawawi (Universitas Sriwijaya, Indonesia); Muhammad Abu Bakar Sidik (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Indonesia); Muhammad Irfan Jambak (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Malaysia)
11	16:15-16:30	1570556162	Low-cost Transient Earth Voltage Probe for Partial Discharge Detection	Mohd Hafizi Ahmad (Universiti Teknologi Malaysia, Malaysia); Nurul Atikah Abdul Malek (Institute of High Voltage & High Current, Malaysia); Zainuddin Nawawi (Universitas Sriwijaya, Indonesia); Muhammad Abu Bakar Sidik (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Indonesia); Muhammad Irfan Jambak (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Malaysia)



12	16:30-16:45	1570556176	Partial Discharge Detection Using Developed Low-cost High Frequency Current Transformer	Mohd Hafizi Ahmad (Universiti Teknologi Malaysia, Malaysia); Nur Hidayah Md Rahim (Institute of High Voltage & High Current, Malaysia); Zainuddin Nawawi (Universitas Sriwijaya, Indonesia); Muhammad Abu Bakar Sidik (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Indonesia); Muhammad Irfan Jambak (Faculty of Engineering, Universitas Sriwijaya Ogan Ilir, Malaysia)
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