



Faculty of Computer Science and Information Technology

MyParcel: Parcel Delivery Apps for UNIMAS residents at UNIMAS

Nur Aisyah Noriamin binti Juki (72501)

BACHELOR OF COMPUTER SCIENCE WITH HONOURS

(MULTIMEDIA COMPUTING)

2023

MYPARCEL: PARCEL DELIVERY APP FOR UNIMAS RESIDENT AT UNIMAS

NUR AISYAH NORIAMIN BINTI JUKI

This project is submitted in partial fulfillment of the
requirements for the degree of
Bachelor of Computer Science and Information Technology

Faculty of Computer Science and Technology Information
UNIVERSITI MALAYSIA SARAWAK

2023

MYPARCEL: PARCEL DELIVERY APP FOR UNIMAS RESIDENT AT UNIMAS

NUR AISYAH NORIAMIN BINTI JUKI

Projek ini merupakan salah satu keperluan untuk Ijazah Sarjana Muda Sains Komputer dan
Teknologi Maklumat

Fakulti Sains Komputer dan Teknologi Maklumat

UNIVERSITI MALAYSIA SARAWAK

2023

UNIVERSITI MALAYSIA SARAWAK

THESIS STATUS ENDORSEMENT FORM

TITLE: myParcel: Parcel Delivery App for UNIMAS resident at UNIMAS

ACADEMIC SESSION: 2019/2020

NUR AISYAH NORIAMIN BINTI JUKI
(CAPITAL LETTERS)

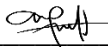
hereby agree that this Thesis* shall be kept at the Centre for Academic Information Services, Universiti Malaysia Sarawak, subject to the following terms and conditions:

1. The Thesis is solely owned by Universiti Malaysia Sarawak
2. The Centre for Academic Information Services is given full rights to produce copies for educational purposes only
3. The Centre for Academic Information Services is given full rights to do digitization in order to develop local content database
4. The Centre for Academic Information Services is given full rights to produce copies of this Thesis as part of its exchange item program between Higher Learning Institutions [or for the purpose of interlibrary loan between HLI]
5. ** Please tick (√)

CONFIDENTIAL (Contains classified information bounded by the OFFICIAL SECRETS ACT 1972)

RESTRICTED (Contains restricted information as dictated by the body or organization where the research was conducted)

UNRESTRICTED



(AUTHOR'S SIGNATURE)

Validated by



(SUPERVISOR'S SIGNATURE)

Permanent Address

Bekenu, 98150,
Miri, Sarawak

Date: 24th July 2023

Date: 31st July 2023

Note * Thesis refers to PhD, Master, and Bachelor Degree

** For Confidential or Restricted materials, please attach relevant documents from relevant organizations / authorities

DECLARATION

I hereby declare that the project work entitled “MyParcel: Parcel Delivery service for UNIMAS residents at UNIMAS” submitted by me to Universiti Malaysia Sarawak (UNIMAS) in partial fulfillment of requirement for the degree of Bachelor of Computer Science (Multimedia Computing) is a record of project work carried out by me under the guidance of Mr. Jonathan anak Sidi. The results embodied in this thesis have not been submitted to any other university of institute for the award of any degree or diploma.



25 JANUARY 2023

NUR AISYAH NORIAMN BINTI JUKI

72501

ACKNOWLEDGMENT

I would like to express my deepest appreciation and gratitude to all those who gave me the possibility to complete this project. Special thanks are due to my supervisor Mr. Jonathan anak Sidi whose help, give suggestions and encouragement to help me in all time process and in writing this report. I also sincerely thank you for the insightful feedback, unwavering support and dedication that have been instrumental in finishing this project.

I am also indebted to my examiner, Dr. Wang Hui Hui for thorough review of this project and providing valuable insight and suggestions that have helped enhance this project. The expertise and constructive comments have been invaluable in improving the overall content of this project.

I would also like to acknowledge with much appreciation all lecturers who have given their insight and full effort in guiding the team in achieving the goal as well as encouragement to maintain progress in track.

My deepest thanks go to all my classmates, especially to my family and friends for helping and giving their support throughout the journey of completing this project. In conclusion, the successful completion of this thesis would not have been possible without the support, guidance, and encouragement .

ABSTRACT

The rapid growth of e-commerce around the world contributes to the volume of parcels to be delivered including Universiti Malaysia Sarawak. However, the parcel courier service will only deliver the parcel to Pusat Mel UNIMAS and Kolej Cempaka. The parcel delivery service that is available nearby only uses WhatsApp as their platform. These problems cause inconvenience to the UNIMAS residents who wish to get their parcels faster. In this paper, we propose to help the UNIMAS residents to get their parcels delivered to their doorstep without much hassle with just MyParcel. A mobile-based application that provides a functioning application so that UNIMAS residents can collect their parcels quickly with a straightforward process without having to send messages or call for runners.

ABSTRACT

Pertumbuhan pesat e-dagang di seluruh dunia menyumbang kepada pertambahan jumlah bungkusan penghantaran yang akan dihantar termasuk di Universiti Malaysia Sarawak (UNIMAS). Bagaimanapun, perkhidmatan kurier bungkusan hanya akan menghantar bungkusan-bungkusan tersebut ke Pusat Mel UNIMAS ataupun Kolej Cempaka. Perkhidmatan penghantaran bungkusan yang terdapat berhampiran hanya menggunakan applikasi Whatsapp sahaja sebagai platform mereka untuk berkomunikasi dengan pelanggan. Masalah-masalah ini menyusahkan warga UNIMAS yang ingin mendapatkan bungkusan mereka dengan lebih cepat. Dalam kertas kerja ini bercadang untuk membantu warga UNIMAS untuk mendapatkan bungkusan mereka dengan lebih pantas dan terus dihantar ke hadapan pintu rumah tanpa perlu bersusah payah hanya dengan applikasi MyParcel. Aplikasi berasaskan mudah alih yang menyediakan applikasi yang berfungsi supaya warga UNIMAS dapat mengambil bungkusan mereka dengan lebih cepat dengan proses yang mudah tanpa perlu menghantar mesej atau membuat panggilan servis penghantaran.

CHAPTER 1: INTRODUCTION	1
1.1 Introduction	1
1.2 Problem Statement.....	2
1.3 Scope	3
1.4 Objectives	3
1.5 Methodology.....	4
1.6 Significance of Project.....	6
1.7 Project Schedule	6
1.8 Expected outcome.....	7
1.9 Conclusion	7
CHAPTER 2: LITERATURE REVIEW	9
2.1 Introduction	9
2.2 Parcel industry in Malaysia	9
2.3 Reviews on similar existing project.....	10
2.3.1 Pickupp.....	10
2.3.2 Bungkusit	12
2.3.3 uParcel	14
2.3.4 Comparative table	16
2.3.5 Proposed application	17
2.4 Tools and technologies use.....	18

2.4.1	Android studio.....	18
2.4.2	Firebase	18
2.5	Conclusion.....	18
CHAPTER 3: REQUIREMENT ANALYSIS AND DESIGN		20
3.1	Introduction	20
3.2	Methodology.....	20
3.3	Identification Stage.....	21
3.3.3	Use Case diagram.....	29
3.3.1	Sequential diagram.....	41
3.3.2	Class Diagram	44
3.4	Design Stage	45
3.4.1	User Interface	46
3.5	Develop.....	49
3.6	Prototyping	50
3.7	Testing	50
3.8	Deploy	50
3.9	Management	51
3.10	Summary.....	51
CHAPTER 4: IMPLEMENTATION.....		52
4.1	Introduction	52

4.2 Required components.....	52
4.3 Introduction of user roles.....	52
4.3.1 Resident.....	52
4.3.2 Runner.....	53
4.3.3 Admin.....	53
4.4 myParcel interface.....	53
4.4.1 Login interface.....	54
4.4.2 Register interface.....	55
4.4.3 Main page for resident.....	56
4.4.4 Create new order interface.....	57
4.4.5 View order interface.....	58
4.4.6 Track order interface.....	59
4.4.7 Runner Main Page.....	60
4.4.7 View order interface for runner.....	61
4.4.8 Update order interface.....	62
4.4.9 Verify Runner.....	63
4.5 Pseudocode.....	64
4.5.2 Create Order.....	65
4.5.3 View Order detail.....	66
4.5.4 Updating Order Status.....	67

4.6	Summary.....	67
CHAPTER 5: TESTING & EVALUATION.....		68
5.1	Introduction	68
5.2	Testing	68
5.2.1	Functional testing	68
5.2.1.1	Test case 1	69
5.2.1.2	Test case 2	69
5.2.1.3	Test case 3	69
5.2.1.4	Test case 4	70
5.2.1.5	Test case 5	70
5.2.1.6	Test case 6	71
5.2.1.7	Test case 7	71
5.2.1.7	Test case 8	71
5.2.1.8	Test case 9	72
5.2.1.8	Test case 10	72
5.2.1.8	Test case 11	72
5.2.1.8	Test case 12	73
5.2.1.8	Test case 13	73
5.2.1.8	Test case 14	74
5.2.1.8	Test case 15	74

5.2.1.8 Test case 16	74
5.2.1.8 Test case 17	75
5.2.1.8 Test case 18	76
5.2.1.8 Test case 19	76
5.2.1.9 Test case 20	77
5.3 Evaluation from Users	77
5.4 Overall result	87
CHAPTER 6: CONCLUSION AND FUTURE WORKS	90
6.1 Objective achievements	90
6.2 Limitation and constraints	90
6.3 Future works	90
6.4 Conclusion	91
REFERENCE	92
APPENDIX A	94

LIST OF FIGURES

Figure 1.1 MADLC (Lethumanan Shanmugam et al., 2019).....	4
Figure 1.2 Gantt Chart for project schedule	7
Figure 2. 1 Main page Pickupp	11
Figure 2. 2 Create order Pickupp.....	12

Figure 2. 3 Main page for Bungkusit	13
Figure 2. 4 Create Order page.	14
Figure 2. 5 Main page for uParcel	15
Figure 2. 6 Request Delivery interface.....	16
Figure 3. 1 Phases in MADLC Methodology.....	21
Figure 3. 2 Pie chart of the result of question 1	22
Figure 3. 3 Pie Chart of result of question 2	23
Figure 3. 4 Bar graph of result of question 3.....	23
Figure 3. 5 Result for question 4	24
Figure 3. 6 Result for question 5	25
Figure 3. 7 Result for Question 6	25
Figure 3. 8 Result for question 7.	26
Figure 3. 9 Result for question 8	27
Figure 3. 10 Result for Question 9	28
Figure 3. 11 Sequential diagram for Register and Login	41
Figure 3. 12 Sequential diagram track order, view order, delete order, and chat.	42
Figure 3. 13 Sequential diagram for runner	43
Figure 3. 14 Sequential diagram for chat	43
Figure 3. 15 Sequential diagram for Admin.....	44
Figure 3. 16 Class Diagram.....	45
Figure 3. 17 Register page.....	46
Figure 3. 18 Login page	46
Figure 3. 19 Main page for Resident.....	46

Figure 3. 20 Create order page 47

Figure 3. 21 Track order page 47

Figure 3. 22 Payment page 47

Figure 3. 23 Main page for Runner 48

Figure 3. 24 View Order detail page 48

Figure 3. 25 Update order status 48

Figure 3. 26 Chat interface 49

Figure 4. 1 Login interface.....54

Figure 4. 2 Register page for Resident 55

Figure 4. 3 Register page for Runner 55

Figure 4. 4 Main page for Resident..... 56

Figure 4. 5 Create order page 57

Figure 4. 6 Payment page 57

Figure 4. 7 View order 58

Figure 4. 8 Confirmation popup message 58

Figure 4. 9 Track order interface..... 59

Figure 4. 10 Main page for runner 60

Figure 4. 11 View order detail..... 61

Figure 4. 12 Update order status page 62

Figure 4. 13 External messaging app 62

Figure 4. 14 Verify Runner interface. 63

Figure 4. 15 Pending verification page. 63

Figure 4. 16 Application rejected page 63

Figure 4. 17 Pseudocode for Registration 64

Figure 4. 18 Pseudocode for Creating order..... 65

Figure 4. 19 Pseudocode for assigning orders to runner. 66

Figure 4. 20 Pseudocode for update order status..... 67

Figure 5. 1 Survey result.....78

Figure 5. 2 Survey result 79

Figure 5. 3 Survey result 80

Figure 5. 4 Survey result 81

Figure 5. 5 Survey result 82

Figure 5. 6 Survey result 83

Figure 5. 7 Survey result 84

Figure 5. 8 Survey result 85

Figure 5. 9 Survey result 86

Figure 5. 10 Survey result 87

Figure 5. 11 SUS Adjective Rating (Brook, J. H, 2013)..... 88

CHAPTER 1: INTRODUCTION

1.1 Introduction

In this digital era, online shopping is nothing new to us. According to a survey done by Statista (2022), approximately 52% of online shoppers between 18 and 25 years old worldwide had already purchased directly through social networks. Everyday, there will be lots of new parcels delivered to UNIMAS because a lot of students including the workers prefer to buy stuff through online platforms as it is much easier and cheaper rather than buying it in store. Furthermore, according to Statista, 56% of the consumers chose to shop online because they can shop any time of the day (Statista, 2021). Since the UNIMAS residents consist of students and staff who are always busy, they also preferred to shop online because they don't have to go out of campus to shop because it can cost them more to pay for the ride fee. However, for UNIMAS residents that are using the UNIMAS's address as their parcel delivery address, the courier that is responsible to deliver the parcels will only deliver it to Pusat Mel UNIMAS and Kolej Cempaka depending on the courier service itself. So, the recipients have to collect their parcel at Pusat Mel or Kolej Cempaka which is very inconvenient and tiring.

MyParcel: Parcel Delivery App for UNIMAS residents at UNIMAS provides an efficient and hassle free for the residents to get their parcel delivered directly to their doorstep. They just have to fill in their parcel's tracking number and personal details in the apps. Then, the runner or delivery men will collect their parcel and deliver it to the user's doorstep. This mobile application aims to make the parcel delivery process easier and straightforward.

1.2 Problem Statement

Online shopping has become an emerging trend since the last two decades. According to Commision Factory (2022), the number of online shoppers in Malaysia grew by 47% year-on-year, with 14.43 million buying consumer goods online at the start of 2022. The major reason for online shopping is convince in term of shop at any time and having bundles of items delivered at doorstep (Jati, Agnes, Mohd Khairol, Noraini & Gloria, 2020).

However, for UNIMAS residents, the parcel will only be delivered to Kolej Cempaka and Pusat Mel UNIMAS which is at Bangunan Hal Ehwal Pelajar dan Alumni (HEPA). The location is far from any college residential as it takes 20 minutes to 30 minutes' walk from Kolej Bunga Raya to Pusat Mel while it takes 30 minutes to 35 minutes' walk from Kolej Dahlia to Kolej Cempaka. It is also very time-consuming, especially for students who are always busy and have classes to attend every day. Some of them have to look for their free time just to collect their parcel because Pusat Mel only operates during office hours. So, it is difficult for the students to match their time with Pusat Mel's operational time.

There is also a delivery service done by other party however the process of requesting for the delivery service is long because they use WhatsApp as their platform to communicate with customers. Sometimes, it takes a long time for the admin to respond to the customer and they also have bad customer service. Millennials (born between 1981 and 1996) and Generation Z (born between 1996 and 2015) find phone calls "too time-consuming" as they prefer more quick and straightforward communication with clear results (goDeskless, 2021). Furthermore, the requesting process through WhatsApp was also inefficient because the customers had to fill in the forms required each time to ask for a delivery service. Therefore, the launch of MyParcel:

Parcel Delivery App for UNIMAS residents at UNIMAS will be useful and convenient for UNIMAS residents.

1.3 Scope

The scope of this project are as follows:

1. The app will have three types of users which are admin, runner and resident.
2. The parcel collection place will only for Pusat Mel UNIMAS and Kolej Cempaka
3. The end user of this app is UNIMAS residents.
4. The app will be implemented in UNIMAS.
5. This app will be available for android version only.

1.4 Objectives

The objectives of this project are as follows:

1. To develop a mobile app that will help the UNIMAS residents to get their parcel delivered directly to their doorstep without much hassle.
2. To evaluate the usability of user experiences of Parcel Delivery Apps at UNIMAS among the UNIMAS residents using Heuristic Evaluation method.

1.5 Methodology

The methodology that will be used to develop this project is Mobile Application Life Cycle (MADLC) methodology to accomplish its objectives. The MADLC method contains 7 stages as illustrated in Figure 1, in which each phase is describes as follows:

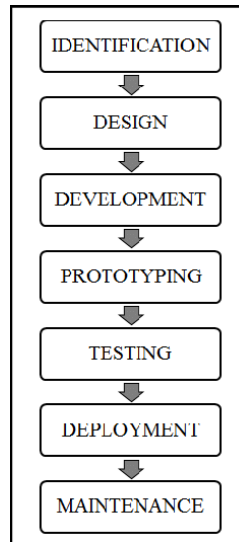


Figure 1.1 MADLC (Lethumanan Shanmugam et al., 2019)

i. Identification Stage.

The first stage of this methodology would be the identification process where all the requirements for the application will be proposed and collected. Then, all the data will be analysed to gather the requirements of the user and system.

ii. Design Stage.

In this stage, all the interface and interaction will be designed. Use case diagrams will be created before the designing process starts. Use case diagrams help software developer designs processes from a user's perspective (Nulab, 2021). The resulting

interface design will be implemented in a mobile development environment. The interface designed is designed based on the functional requirements of the software.

iii. Development Stage

The coding will be done in this stage based on the result of the design conducted in the design phase. The Android Studio is used for application development.

iv. Prototyping Stage

This stage contains the testing and evaluating results of code implementation. The resulting application prototype will be further tested to ensure that it meets the requirements. The prototype is required to conduct additional tests until it satisfies the requirements with no programming error.

V. Testing stage

Testing stage implements the actual device for testing, as most comprehensive tests use targeted users. The testing stage is carried out to identify bugs, functionalities, overall interaction and resolve problem that arise. Heuristic Evaluation method also will be used in this stage to evaluate the usability of the User Experience (UX) of the application because the evaluation helps to optimize usability by minimizing design deficiency thus, guarantees the effectiveness of the interface of digital device (Chatenet & Jaâfour, 2022)

VI. Deployment stage

This stage manages the application distribution. The application will be deployed once the testing stage is done and receive the final feedback. Then, the application is uploaded to the relevant app store for users to use.

VII. Maintenance stage

Maintenance is the last phase of MADLC where it is a continuous process of making improvement based on user feedback.

1.6 Significance of Project

The outcome of this project is significant for the UNIMAS residents, especially the students who don't have transportation to go to Pusat Mel or Kolej Cempaka to pick up their parcel. It will help to save a lot of their time and energy as they only need to fill in details that were asked in the MyParcel apps, then the system will send the details to the runner that are available at the moment. This app also will make the requesting for delivery service process easier as the user doesn't have to send messages or call any runner or delivery man anymore.

1.7 Project Schedule

The project proposed schedule will be used as a guideline and remainder to develop the MyParcel: Parcel Delivery Service App for UNIMAS residents at UNIMAS.

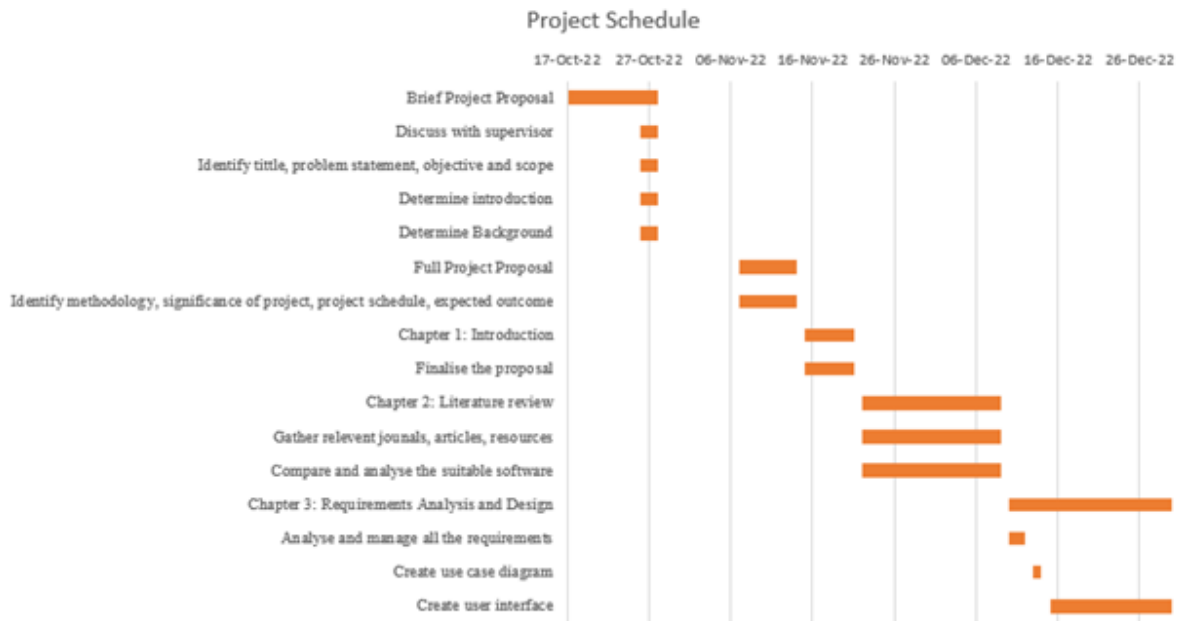


Figure 1.2 Gantt Chart for project schedule

1.8 Expected outcome.

The expected outcome of this project is a Mobile-based application that provides a functioning and working application so that UNIMAS residents can collect their parcel quickly with a straightforward process without having to send messages or call for runners.

1.9 Conclusion

This chapter discussed and focused on the problem statement and the objective of the project. The objective of this project is to help the UNIMAS residents to get their parcel delivered directly to their doorstep without much hassle with just an application. It is efficient and improves the process of requesting delivery service. This chapter also discussed about the MADLC Methodology that will be used to develop the application. Significance of the project,

project schedule and expected outcome are stated along in this chapter to give a clearer view on the project.