SCHOOL OF COMPUTER SCIENCE

UNIVERSITI SAINS MALAYSIA

CMT223/CMM322–INFORMATION SYSTEMS THEORY & MANAGEMENT
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GROUP PROJECT 2

Title: Courier Delivery Service Information System

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GROUP 4

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No	Group Member Name	Development Role	Development Task	Description of Development Task	Status
1	Farah Mursyidah Binti Fuahaidi	Business Analyst	Requirements Gathering	Create questionnaires and spread it to the public. Determine the requirements from the features that are proposed. Design IPO table to be passed to data modeler.	Completed. No problem face
2	Nurfatin Binti Sofian	Data Modeler	Data Definition/ Modeling	Determine what type of data to be used for every action in requirement*	Completed. No problem face
3	Nurul Adilah Binti Mohd Asri	System Architect	System Flow Design	Create a flowchart for easy understanding of the proposed system	Completed. No problem face
4	Nor Athirah Binti Abdul Rahim	Project Manager	Components Integration	Explain the business strategies in terms of potential business, potential technology, potential users and potential policies	Completed. No problem face

Title: Courier Delivery Service Information System

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Abstract

Technological advancements have brought massive impacts and changes in the architecture of businesses and organizations including the courier services. These progressions digitize almost every business function that previously had been done manually to prevent mistakes and glitches in processing information. The existing information system for courier services is still lacking in providing customers with the utmost satisfaction in many aspects such as delivery processes, postage processes, and tracking processes. There are certain loopholes in the existing system that can be improved to deliver the best services to customers. Hence, the purpose of this paper is to address some new features that can be implemented in a courier company system for excellent courier services. This paper uses two approaches to analyze data which are quantitative and qualitative, it is conducted by using standardized questionnaires and the answers are all recorded. The data that is collected will be illustrated in graphs and charts. This survey involved 61 participants with only 2 of them had no prior experiences using courier services with respective reasons. The distribution of people who use courier services is bigger, thus it makes this research more effective by contemplating their requests for system enhancements. Taking every opinion of the public into considerations, this research will result in overturning the disadvantages and slits of current courier services. All of the shortcomings of current courier services have to be revamped to establish good customer-company relationships. To solve these, complex integration works will entail as designing a proper type of information system is essential in sustaining the benefits of the company.

1. Introduction

Courier or carriage services can be defined as an outsourcing medium whereby the duty or function of transporting goods of a client from one location to another is handled by a contracted company [1]. In the previous time, courier services only offered physical communication document deliveries such as packages and mail delivery. The courier industry has however progressed into delivering document packages as well as heavy items for their customers. As technology is fully automated and implements complex algorithms, it can replace almost every manual process that previously had been done by humans thus increasing efficiency and productivity. Courier services have implemented information systems in every kind of aspect to ensure customer satisfaction such as management information systems, transaction processing systems, and decision support systems. The improvements in the courier service system have benefited a lot of people that it creates customer loyalty among the public and invites a lot of people to use it. It also profits the employee and the staff of the company. Nevertheless, customer retention and loyalty however can be disengaged if the system is left without further enhancements and excellent features.

Some previous studies prove the lack of current courier systems in providing excellent customer experiences. Because of that, this research intends to dive through various perceptions and opinions of the public on the features that are suitable and progressive to be applied in the current system. This research aims to examine any vacant spaces in the existing courier service system that can be developed to levitate operational excellence, efficiencies, and rivet customer-company intimacy.

The proposed system in this paper will be used to override the limitations in the existing system by allowing easy, instantaneous, and dynamic accessibility to courier and logistics services. For example, the proposed system will provide its users an unlimited scope when it comes to package delivery, they will be able to send packages without worrying about any restriction as the system will be able to help anyone including customers, sellers, and also the workers. The service takes place in real-time regardless of the distance and how little or big an item is. This is one of the new features listed in the paper. The rest of the features will be further elaborated in the next section.

2. Literature Review

2.1 Comparison of the Previous Works

Table 1. Comparison of Previous Works

No	Author & Year	Problem	Goal	Area (Business, healthcare, etc.)	Type of Information System	Strength	Weakness
1	Wee Jun Neng, Ng Wei Yi, Lai Yong Sam (2015)	Difficulty in tracking parcels' whereabouts. Customers need frequent and precise updates.	Come out with a system with frequent and precise updates. By shortening the between batch updates, information can be closer to real time and fully synchronised with databases in many EMS servers across the country as times become shorter.	Courier Service Delivery System	Management information system	Pos laju uses barcode and radio frequency identification (RFID) where the system utilizes tracking numbers defined by the company operating system and are based on information architecture. Using this tracking number, all tracking information will follow with the product as it goes through the process. Information regarding the product will be updated constantly along the process to the central server whenever it reaches a distribution point or a touch point	Slow update of information. The information is updated in batches and only after a certain time period. Information in the EMS servers are not synchronised with the web based servers.
2	Nor Athierah bt Zainon, Angel Oon, Stefanus Rumangkit (2016)	Lack of operation management as it need to use high quality services in using technology to launch operational management to improve profit flow and meet customer demand satisfaction	Provide good service to customers for having good time e-shopping and quality goods cooperate with some companies. Improve the services by use the new technologies as like AI system for control the shipping of goods	Courier services management system	Management information system	J&T Express provide pick up services that coverage are all across Malaysia and waybill SMS to know the conditions of goods Provide application and website facilities to deliver the goods with regular price for premium services.	Need to improve their customer experience,optimizing network coverage and increase delivery speed

3	Muhammad Wafiuddin Razak,Nurnesa Liyana Roslan,Nur Anisah Jamaludin, Nurul Syahirah Mohd Sofian, Sadia Momotaj Anonna, Sukainah Hayati Adzmi, Suhaimi Mhd Sarif (2019)	Go-Exp"s existing the vision statement was too long which contained four different points. It was also vague and did not reveal the type of company business as there were no sentences that mention express carrier service in the vision statements.	Go-Exp aims to "Deliver the Most Trusted and Professional Express Carrier Services in the Countries We Operate". Go-Exp inspires to become the leader and trusted express courier services in operating countries in wherever place that they operate their business.	Professional Express Courier Services	Management Information System	Go-Exp expanding information technology(IT) for dissemination of information about business operations and providing user friendly IT platforms to track and pay for parcels. The increase in accessibility of customers to drop and collect parcel areas is one of the strengths in the aspect of marketing specifically place.	Go-Exp does not use flat rate for shipment. Operating of Go-Exp's operating expenses increased faster than revenue growth. Need to improve their delivery system as they received many complaints from customers because of the delays in shipping.
4	Jeanne W.Ross, (2001)	UPS had not always emphasized information technology in the delivery of its services. Then, UPS also not been familiar with the e-commerce business.	UPS expected to be able to leverage its data and systems to further improve service and wider their range of services. UPS's goals in electronic commerce were to enable more business and to establish a branded presence in global commerce solutions and they want to establish tighter linkages with customers.	(Shipping courier service) UNITED PARCEL SERVICE: Delivering Packages and E-Commerce Solutions	Supply Chain Management System	UPS developed a complete system with online tools that provide a few features for customers. It eases and assists them either as the shipper or recipient to track their parcel location and keep updated with the parcel details. Besides, UPS developed Web-Supported Products and Services such as UPS document exchange service, UPS return service and UPS Internet Shipping. By having all those features and facilities, it improves the efficiency and productivity of UPS operation management.	The increasing use of packages meant that UPS needed to periodically update systems in order to retain vendor support. In addition, standard technologies became outdated, making them expensive to maintain. They tend to refresh the systems and technologies instead of upgrading it.

3. Methods

In this paper, the opinions of the public were obtained by conducting surveys associated with the existing current courier service system. This survey concentrates on the customer experiences throughout using the system, improvements, or new features suggestions as well as advantages and disadvantages of the current courier system. The survey collects a total of 61 respondents with only two of them had no prior experiences using courier services. The remaining 59 participants are expected to be the potential customers once the proposed system is released and implemented. As this system is customer-oriented, it targets customer-focused courier services that want to upgrade the existing features of their system to ensure efficiency, performances, functionality, reality, and security. This survey is conducted online. The types of data analysis used area descriptive and diagnostic analysis. Data collected are being analyzed using google form and Microsoft access. Below are the details of the surveys:

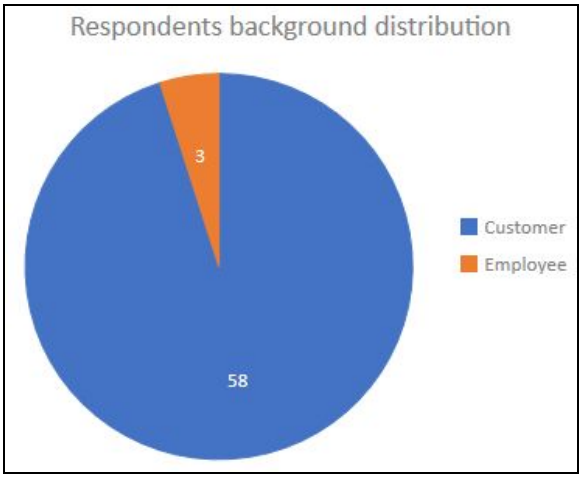


Figure 1

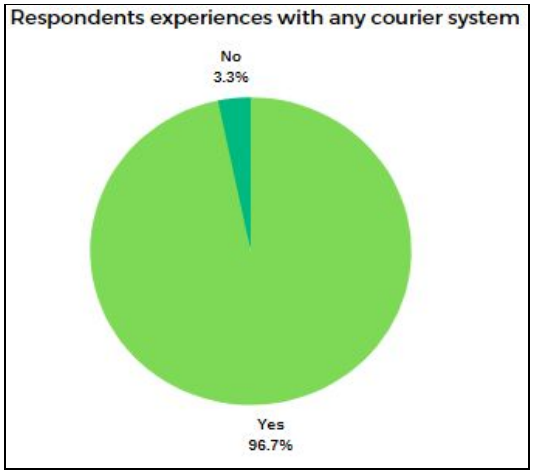


Figure 2

From the surveys, each of the courier service options is chosen by the respondents as their courier service except for Citylink. Poslaju stated a higher number from the survey followed by J&T, Gdex, and NinjaVan. One respondent chose all types of courier services except Citylink.

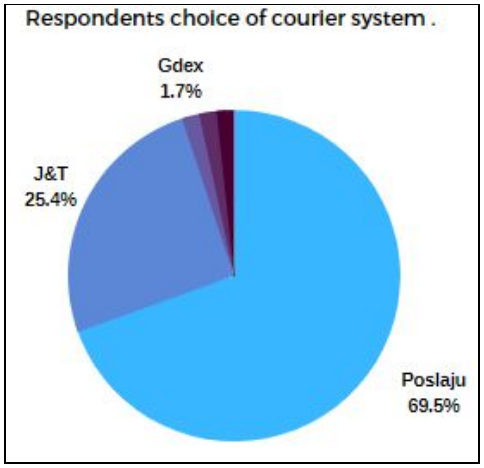


Figure 3

Respondents also state the advantages of using the courier system. Based on the survey conducted, 59 respondents answered the question and some answered the same.

ADVANTAGES
Fast delivery
Parcel arrived in good condition
More convenience for our life
No need to visit malls or shops to buy those stuff
Save time & money
free
No damage on arrived parcel
Very reliable
Received on time
cheap
Product is safe when it ‘s reached to customer and the delivery so fast
Good security

easy

Table 2

The survey also asks the respondents about the weakness or disadvantages of the courier system.

DISADVANTAGES
Sometimes the tracking system is not updated
The service of posting are low satisfaction because some of the things in the parcel are broke
Sometimes parcel stuck at KLIA HUB for more than 3 days,late delivery
Take time to receive parcel
Sometimes parcel got thrown around
Sometimes slow sometimes fast (delivery)
The condition of stuff damage
Item might be damage depend on delivery guy/parcel pass-on workers in courier department
The customer services sometimes are not respect customers
Low payment for workers
Poor customer services
Late night delivery
Slow system update tracking number
Parcel sometime not reach to customer
Has least staff
Can be complicated sometimes
No online payment to pay for the parcel
Late delivery during peak sessions
Lack of high security

Table 3

Respondents also suggest some improvement or features that can be made for system enhancements.

IMPROVEMENT
Improve tracking number
Please manage it proper and don't throw the parcel while arrange it
Improve delivery time,increase the number of staff
Take good care of fragile parcel
Can select rider
Delivery on time
Improve J&T apps
Update the location of item properly
Handle the stuff with care
Enhance from aspect of taking image of the parcel in the shipment.(upload image in system)
Increase workers payment
Make a training course for the customer service or staffs
More user friendly interface
Improve website tracking
Make website more fun like games
Delivery until evening only (not on night)
Many rider required
Increase capacity by sourcing to the third party courier company to handle late deliveries issue or backlog order during peak seasons
Can put online payment
Improve service management
Improve accuracy and enhance the security

Table 4

From the surveys only two respondents give the suggestion on the new feature that can include the courier delivery service systems.

NEW FEATURES
Add a lot of workers
To have more security system

Table 5

3.1 List of features

1. **Rider employment through system**

   This feature is for customers to apply for a job as a rider. In the dashboard of the respective customers' accounts, an advertisement will be published where it invites the customers to be a part of the big family by becoming one of the riders. The most special thing about this feature is that it considers the current reward points and the history reward points the customers had accumulated. If a person is a loyal customer of this courier service, apply for the job as a rider, the chance for him to get hired is really high. When a customer uses courier services to send parcels, they will be given reward points that will be stored by the system for further use. These reward points are also important for vouchers, rewards, promotion redemption. In other words, the chances for customers who have high courier service usage frequency to be employed is really high. The more parcels the applicant sent before, the greater reward points they will receive, the higher rate for them getting employed. Having this feature will benefit both company and customers.

2. **Games to receive rewards and promotions**

   We choose to incorporate games in our proposed information system as a method to give rewards and promotions to the customers. We want to encourage interactivity and enhance customer intimacy between the company and customers to increase the courier usage rate. In the proposed information system, we include a lot of game options for customers. By playing the games and accumulating winning points, the system will convert the points into reward points where the customer can use it to redeem a lot of things such as free postage fees, promotions, and rewards. This feature is raised by some

of our respondents from the survey where they suggest to make the system a lot more interactive and user friendly. In fact, we consider that this feature is really good at publicizing and promoting courier service in a good way.

3. **Rewards for customers**

   We introduce this feature along with the MastaGame and rider employment features. Through this feature, every parcel that has been sent will be rewarded reward points where it can be used to redeem a lot of things. The current total rewards will be displayed through the dashboard in the respective customers' accounts. Once the rewards accumulated reach the required reward points, customers can use it for any promotions, rewards that will be posted on their dashboard.

4. **Rollover zoom in image for parcels**

   Rollover-zoom image is an image and a feature where a person can enlarge an image when the mouse or cursor has hovered across the picture. One of our respondents' idea is to have an image on the condition of her parcels. The respondent proposed to enhance the system in the aspect of taking images of the parcels and upload it in the system to get an update that her parcel is in good condition. We choose to incorporate this feature in the proposed information system by having rollover zoom images from every side of the parcels uploaded to the respective customers' accounts. This image will be taken before and after shipment so that the customer can clearly see and know when and where the damages happened.

5. **Pop up live chats**

   Pop up live chat is a feature where it allows the customers to communicate directly and in real-time with the staff operators. Our proposed information system intends to make reports, feedback, and inquiries to be easily conveyed by the customers. By having a pop-up button live chat, the customer/user can directly ask any question or report any damages or improvements to the staff operators. We allow the messages to be delivered in any kind of form such as video, audio, typings, emoticons, and so on. The metadata of the conversation will be saved temporarily by the system and it will be deleted permanently from the system database after a period of time. The chats are encrypted and the data content would not be exposed.

6. **Rider selection**

   This feature allows the user to select their own riders. Some customers might prefer to get their parcels picked up at home. Our proposed system allows this but only if the riders'

current location is near to the customers. The customer has to turn on their current location or simply type their location and the list of nearest riders will be displayed. Each of the riders will have their details appeared so that the customer can choose based on price rate, reviews, location, and so on. Besides, the customer can also click on the button to navigate the location of the rider and see the estimation time for the riders to reach them.

7. **Personnel rating and feedback for rider**

   This feature is linked with the feature rider selection. After the rider picks up the parcel, it will be sent to the office to get it processed. Auto notification will be sent to the customer to rate the rider. The customer can also add reviews or recommendations for the rider to improve.

8. **GPS Real time parcel and courier tracking**

   The existing information system uses barcode and RFID to update the location of the parcel. In our proposed system, we decided to use GPS to update customers with the real-time location of their parcels. When the customers are tracking their parcels, they will know the status of their parcels whether it is in the middle of shipping, delivery, or processing. They can also click on the button to navigate the current location of their parcels. This will give a more accurate and precise location of the parcels. In the survey, a lot of respondents request for more precise and accurate location updates. By implementing this in the system, it will solve the problem.

9. **Mobile post office tracking**

   Our proposed information system has a service of mobile courier where the courier will move in a vehicle from place to place to first collect the parcels from customers. There will be a schedule in the system available. The mobile courier will be available in every state of Malaysia. The customer who wants to use a mobile courier can turn on their GPS and look through the mobile courier section, especially for their state. There is a button to navigate the current location of the courier. The location of the courier will be detected by using maps and the time estimation as well as the route will be suggested.

10. **Route navigation**

    This feature is designed especially for riders. Route navigation is for the riders to navigate their destination easily. By using this feature, the route that the rider will be using is computed. The riders can opt for the fastest route or the shortest route. In this feature, if the current location of the rider is approximately 2 km away from the

destination (customer's house), an auto notification will be sent to the customers to be prepared to receive the parcel. This is to avoid the riders from getting delayed and have to wait for customers for a long time.

3.2 Input, Process, Output, Data dictionary and Flowchart requirements

1) Rider employment through system

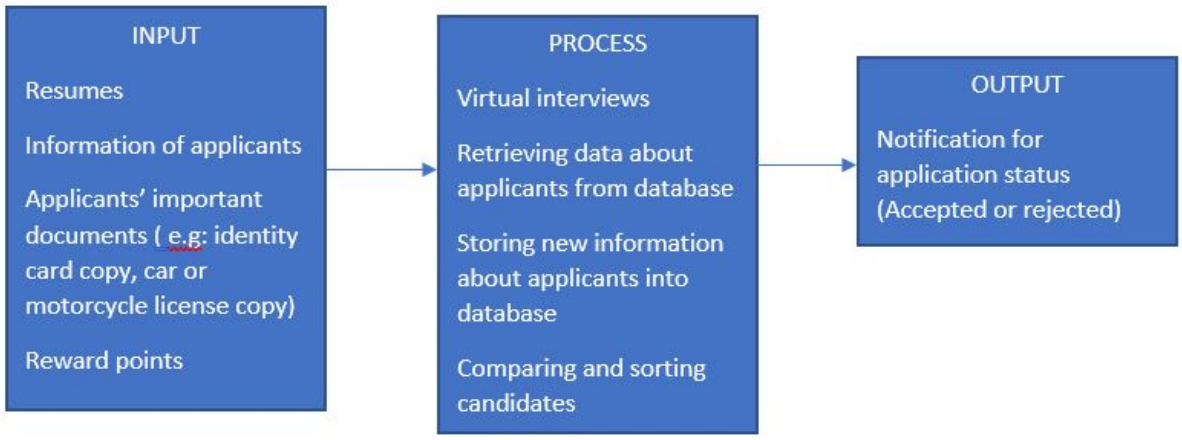


Figure 4

CAPTION	FIELD NAME	DATA TYPE	FIELD SIZE	DESCRIPTION	EXAMPLE
First name	Fname	Varchar	20	First name of applicant	Haris
Last name	Lname	Varchar	20	Last name of applicant	Muhammad Zuki
Date of birth	DOB	Date/ Time	10	Date of birth applicant	08/02/1980
E-mail Address	email	Varchar	20	E-mail address of applicant	Hariszuki@yahoo.com
Address	Address	Varchar	50	Address of applicant	Blok Lily 1-2-3, Sungai Ara, Penang

Phone number	Phone_no	Integer	15	Contact number of applicant	0123456987
Identification card	Ic_no	Integer	15	Unique number identification of applicant	800208085991
Age	Age	Integer	10	Age of applicant	25
Car license	Car_no	Char	15	Unique number char license of applicant	D
Motorcycle license	Motor_no	Char	15	Unique number motorcycle license of applicant	B2
Job position	JPosition	Varchar	50	Job position of applicant	Delivery rider
Rewards points	RewardP	Integer	100000	Collection of points when use courier service	100
Status	status	Varchar	10	Application status of rider employment	Accepted

Table 6

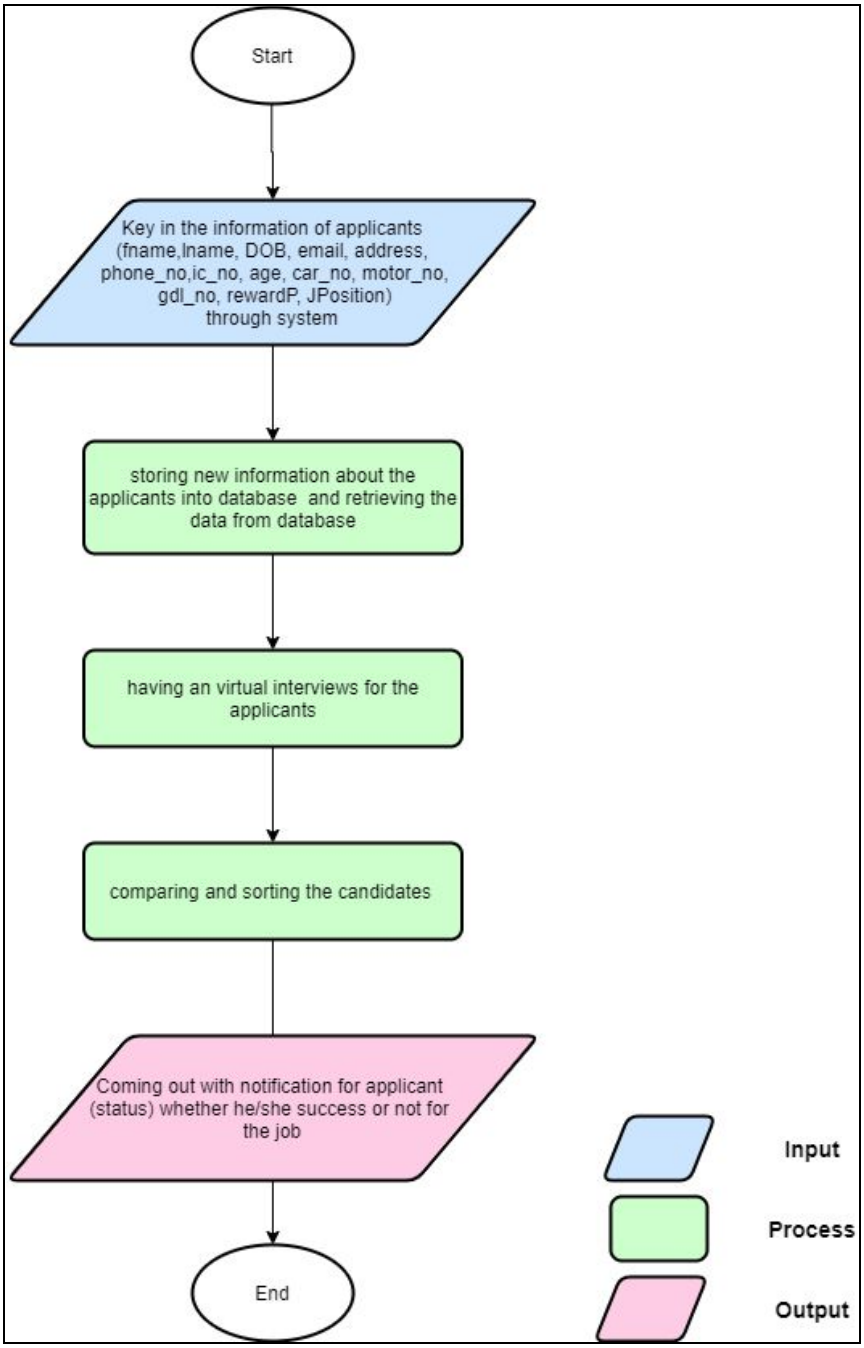


Figure 5

The user inputs their information of the applicant including first name, last name, date of birth, email address, address, phone number, identification card, job position, age, car, and motorcycle license through the system to apply for the job. The system stores and retrieves the new information of the applicant in the database. After that, the system will schedule for having a virtual interview for the applicant with the administrator. Then, the system compares and sorts

the candidates for the job. From that, the system will send the notification for application status to an applicant whether he/she succeeded or not for the rider job position.

2) Games to receive promotions and rewards

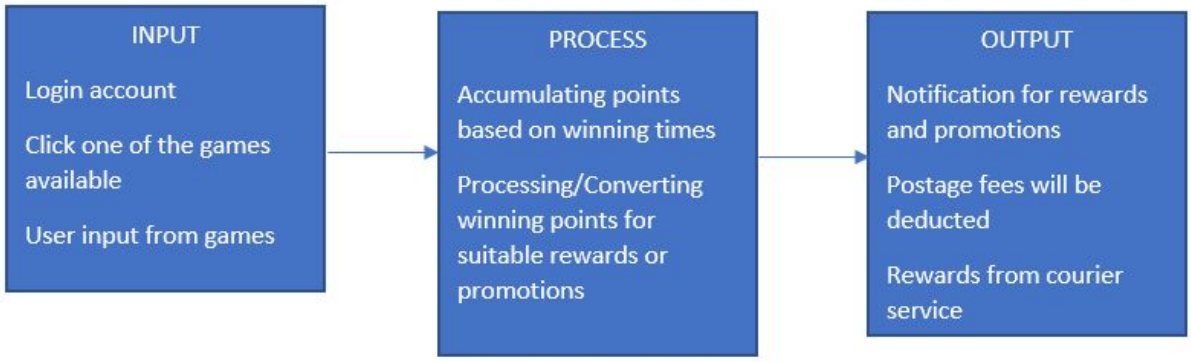


Figure 6

CAPTION	FIELD NAME	DATA TYPE	FIELD SIZE	DESCRIPTION	EXAMPLE
Username	Username	Varchar	20	Username of customer when login an system	Michiko4555
Password	ps	Varchar	20	Login password of customer	p@ssw0rd
User id	User_id	Integer	20	User_id of customer, auto generated	10025489
Winning point	win_point	Integer	1000000	Collection of winning point from playing the games	266
Reward or promotion	reward	Varchar	50	Rewards or promotions from collecting of winning point	Voucher
Games	games	Varchar	50	Type of games that available in the system	Courier flip & match

Postage fee	Post_fee	Integer	20	Postage fee will be deducted by redeem the rewards	12

Table 7

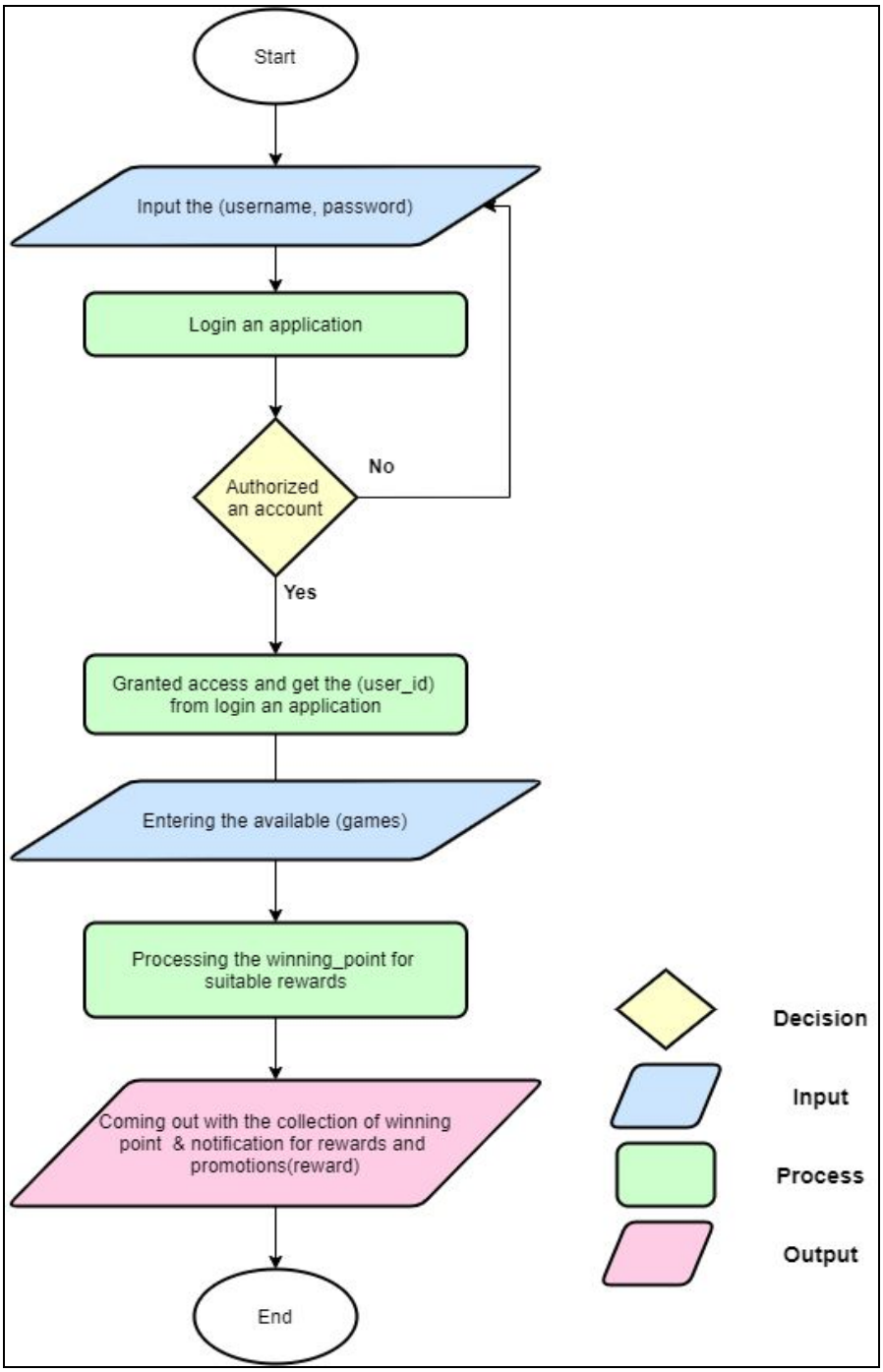


Figure 7

For the second feature, the users can play games to get rewards points or promotions by input their username and password to log in an account. Then, the system does the authorization for an account. If the account is not true, the user needs to login back for their account. When the system proves the account is true, the account is granted access to the application and gets the user-id by auto-generated. The user input or can choose to play an available game. When the user plays the games, all the winning points will be auto-recorded by the system and if the user reaches the required total winning points, the system will send the notification to the users that they could redeem their rewards or promotions.

3) Rollover zoom image for parcels

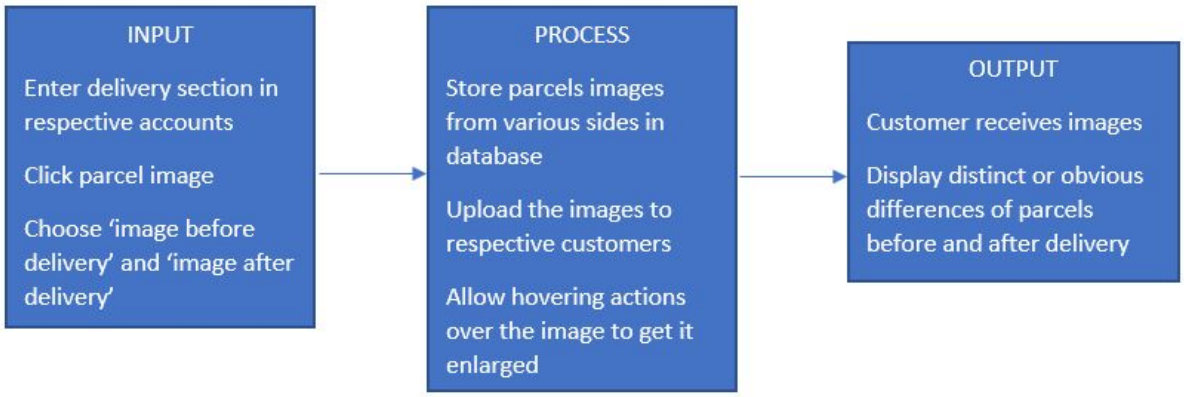


Figure 8

CAPTION	FIELD NAME	DATA TYPE	FIELD SIZE	DESCRIPTION	EXAMPLE
Parcel tracking number	Track_no	Varchar	20	Information tracking number of parcel	EF006144846MY
Username	Username	Varchar	20	Username of staff when login in system	Michiko4555
Password	ps	Varchar	20	Login password of staff	p@ssw0rd
staff ID	staff_id	Integer	50	Identification of staff, auto generated	3235

Parcel image	image_p	Image		Parcel image that allow hovering actions to get it enlarged	image144846.png

Table 8

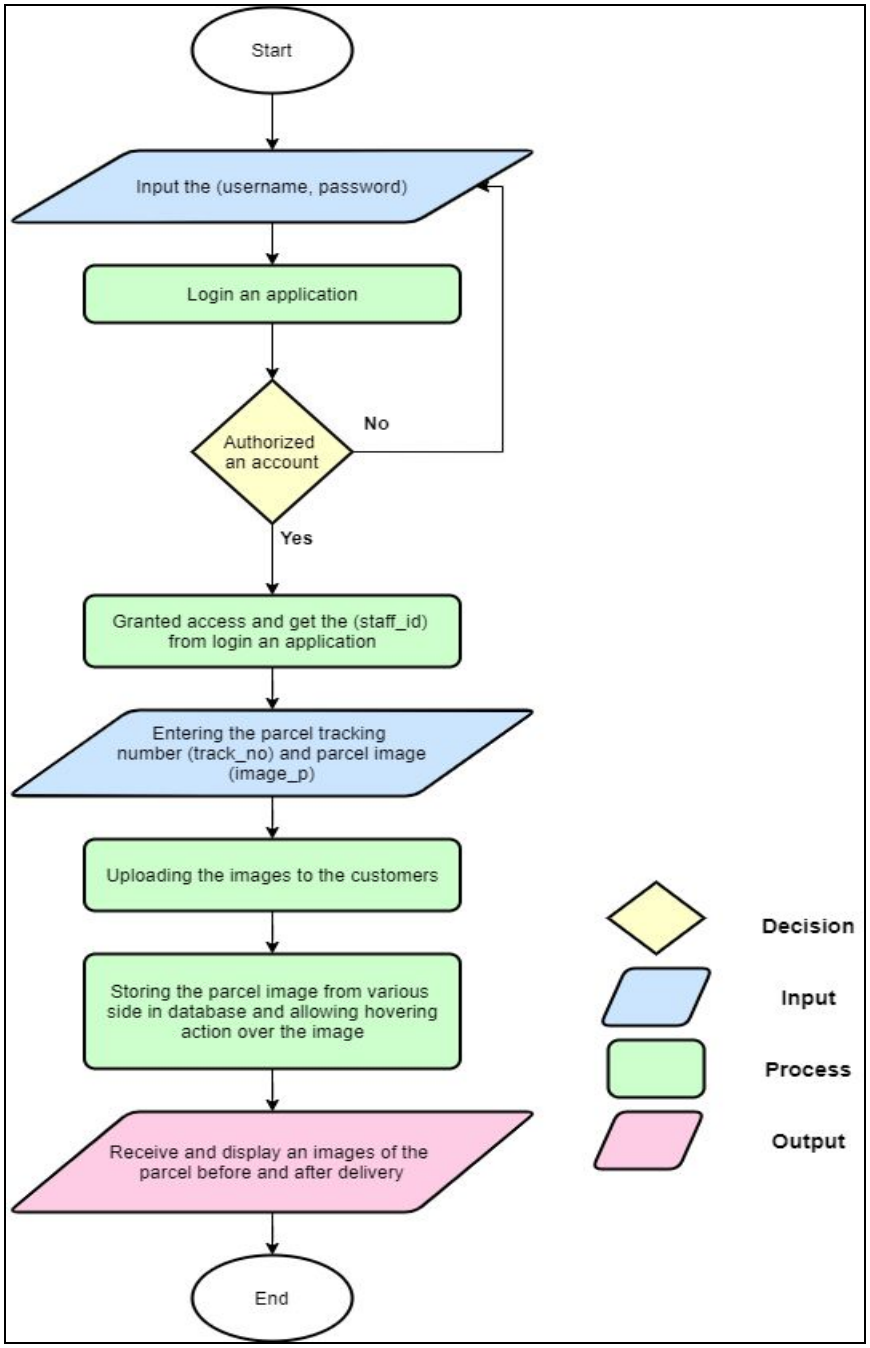


Figure 9

For the third feature, the staff needs to input their username and password to login to their account. Then, the system does the authorization for an account. If the account is not true, the staff needs to login back for their account. When the system proves that the account is true, the account is granted access to the application and gets the staff id by auto-generated. The staff needs to input the parcel tracking number and capture an image of the parcel to the system before delivery. Then, the system stores an image of the parcel from various sides in the database. After that, an image of the parcel is uploaded by the system to the customer and allows hovering actions over the image to get enlarged. The system will display an image of the parcels' condition before and after delivery to the customer.

4) Pop up live chats

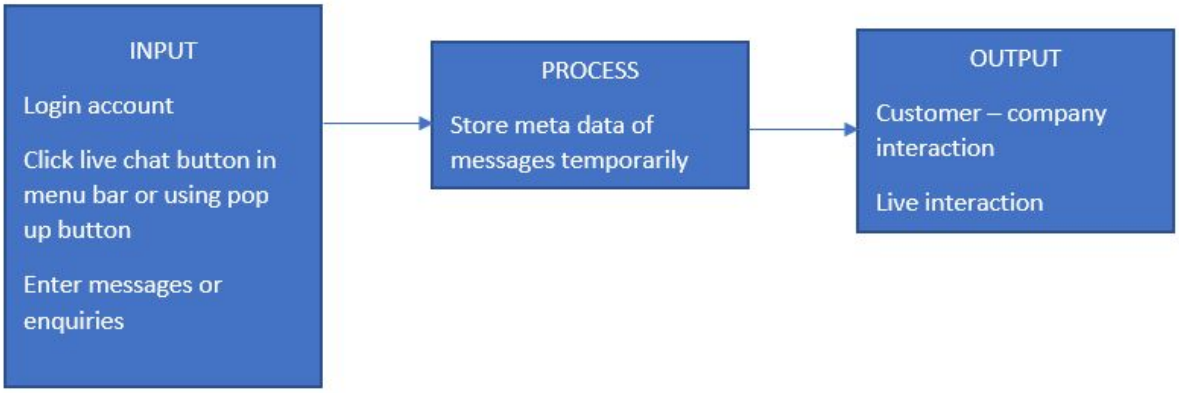


Figure 10

CAPTION	FIELD NAME	DATA TYPE	FIELD SIZE	DESCRIPTION	EXAMPLE
Username	Username	Varchar	20	Username of customer when login in system	Michiko4555
Password	ps	Varchar	20	Login password of customer	p@ssw0rd
User id	User_id	Integer	20	User_id of customer, auto generated	10025489
Message or enquiries	message	varchar	50	Message or enquiries from customer	"How do I track my parcel?"

Table 9

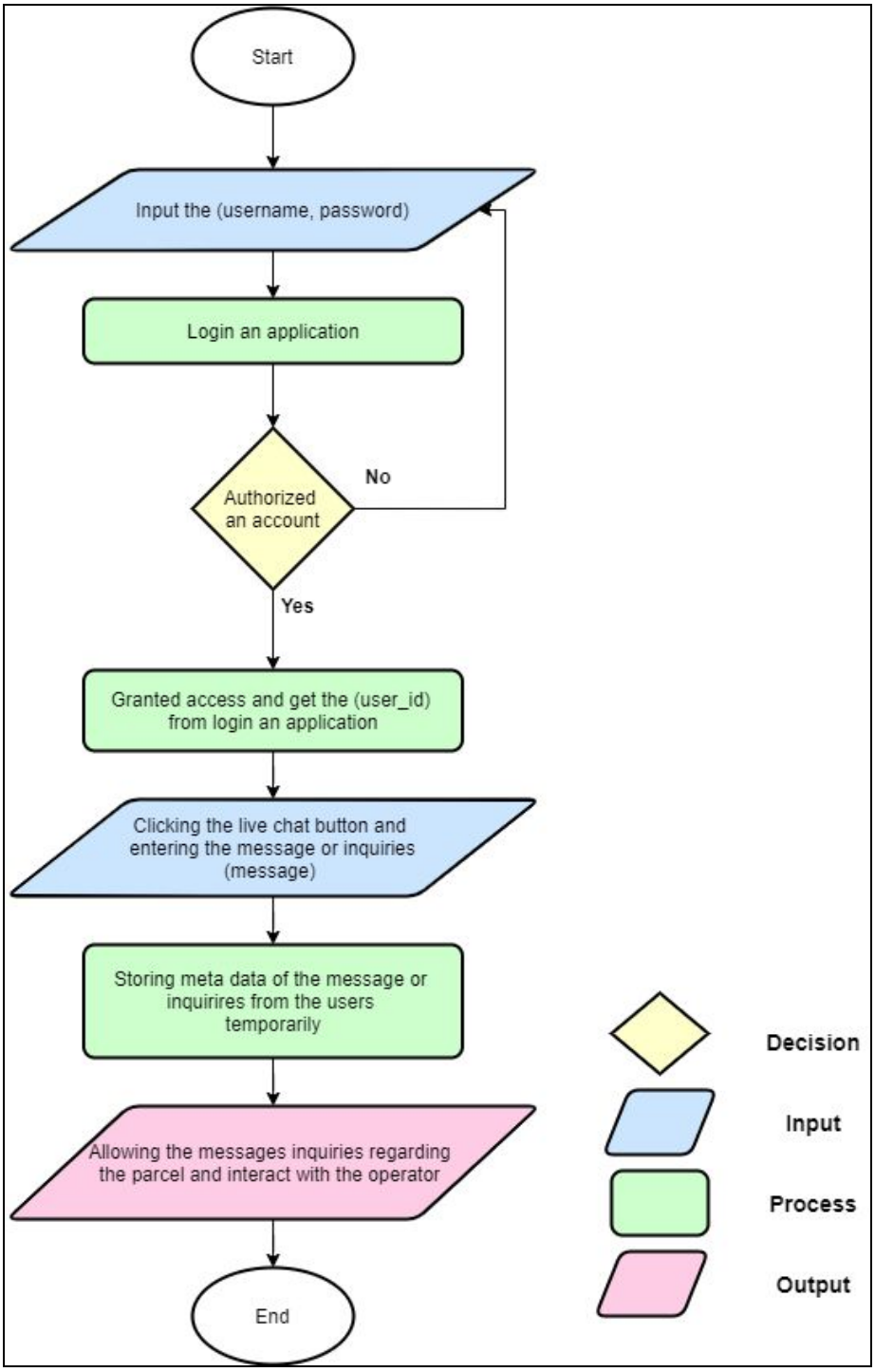


Figure 11

For pop-up live chat, the user needs to input their username and password to login to their account. Then, the system does the authorization for an account. If the account is not true, the user needs to login back for their account. When the system proves that the account is true, the account is granted access to the application and gets the user-id by auto-generated. The user can

input by asking every inquiry or question regarding parcels, complaints, reports, and feedback. To input the message or inquiries, the user can click the live chat button or use a pop-up button. After that, the system processes and stores metadata of messages or inquiries in the database. The system allows the customer to interact with the operator in the working hours and make sure the customer will get instant replies regarding their inquiries or questions.

5) Rewards for customers

Figure 12

CAPTION	FIELD NAME	DATA TYPE	FIELD SIZE	DESCRIPTION	EXAMPLE
Username	Username	Varchar	20	Username of customer when login in system	Michiko4555
Password	ps	Varchar	20	Login password of customer	p@ssw0rd
First name	Fname	Varchar	20	First name of customer	Haris
Last name	Lname	Varchar	20	Last name of customer	Muhammad Zuki
E-mail Address	email	Varchar	20	E-mail address of customer	Hariszuki@yahoo.com

Address	Address	Varchar	50	Address of customer	Blok Lily 1-2-3, Sungai Ara, Penang
Phone number	Phone_no	Integer	15	Contact number of customer	0123456987
Rewards points	RewardP	Integer	100000	Collection of points when use courier service	12560
Reward or promotion	reward	Varchar	50	Rewards or promotions from collecting of reward point	Voucher
Frequency courier usage	frequency	Integer	100	Calculate the frequency of courier usage by customer	15
User id	User_id	Integer	20	User_id of customer, auto generated	10025489

Table 10

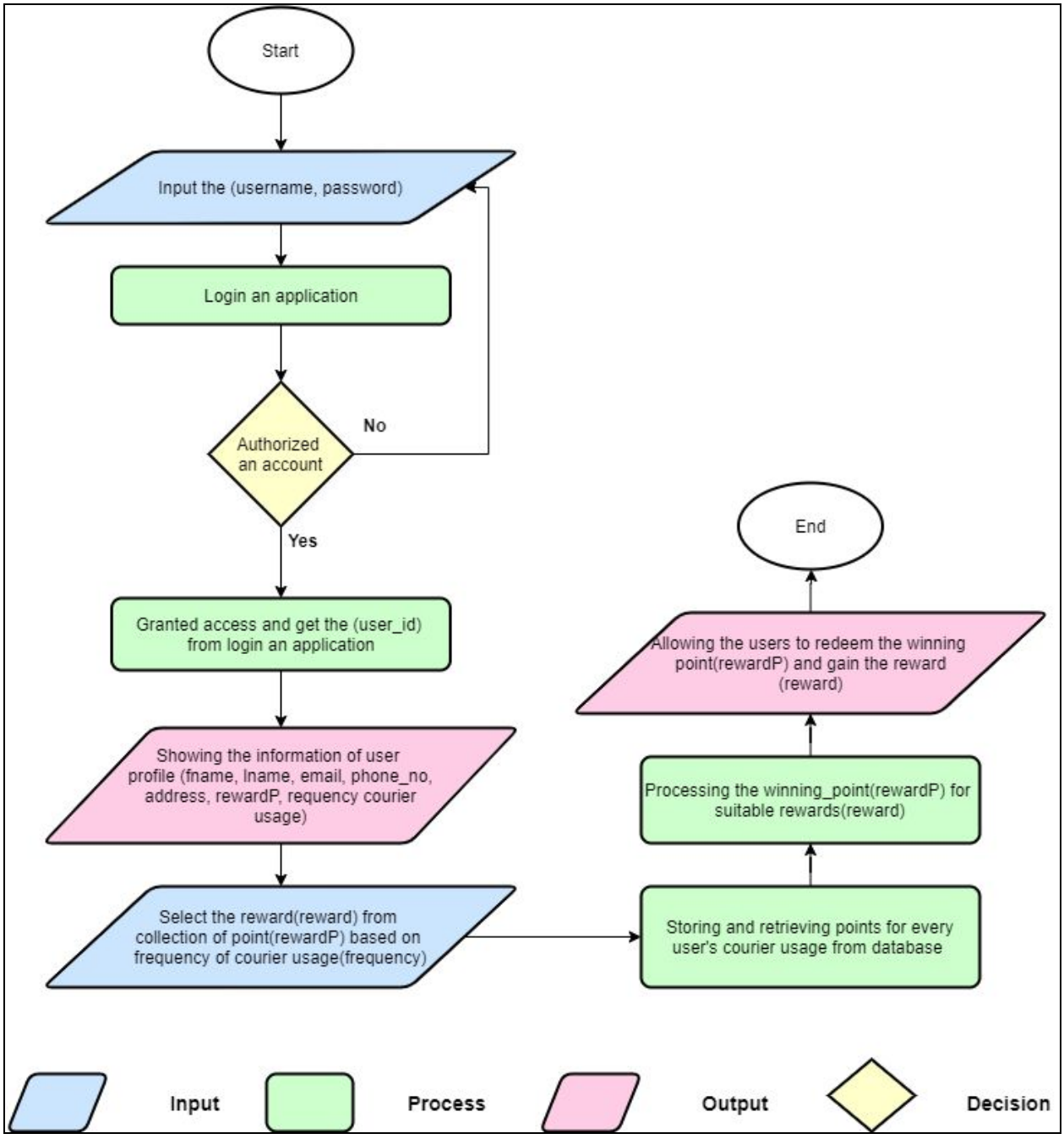


Figure 13

In the reward for customer features, the user needs to input their username and password to login to their account. Then, the system does the authorization for an account. If the account is not true, the user needs to login back for their account. When the system proves that the account is true, the account is granted access to the application and gets the user-id by auto-generated. The system will show the information of the customer profile including first name, last name, email address, phone number, address, reward point, and the frequency of courier usage by the

customer. The customer can select the reward from the collection of points based on how many customers use the courier service. After that, the system stores and retrieves for every user's courier usage from the database. From that, the system processes the points for a suitable reward. The system allows the customer to redeem the point and gain the reward.

6) Rider selection

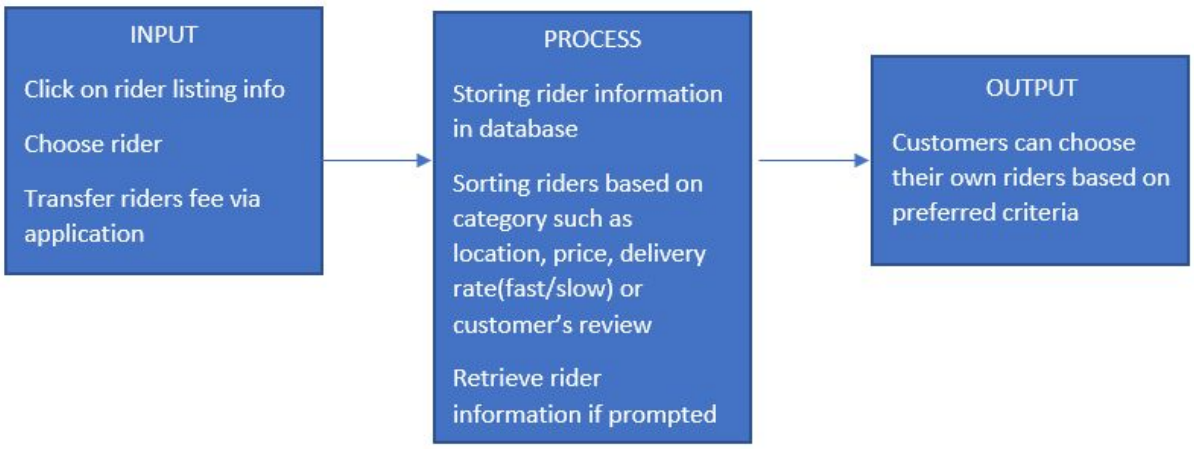


Figure 14

CAPTION	FIELD NAME	DATA TYPE	FIELD SIZE	DESCRIPTION	EXAMPLE
First name	Fname	Varchar	20	First name of rider	Haris
Last name	Lname	Varchar	20	Last name of rider	Muhammad Zuki
E-mail Address	email	Varchar	20	E-mail address of rider	Hariszuki@yahoo.com
Address	Address	Varchar	50	Address of rider	Blok Lily 1-2-3, Sungai Ara, Penang
Phone number	Phone_no	Integer	15	Contact number of rider	0123456987
Rider ID	Id_rider	Integer	50	Identification of rider	555

Rider listing information	rider_info	varchar	100	List of all the rider information in the system	Haris zaki, 0123456987
Location	Location	Varchar	50	Real time location of rider to deliver the parcel	Jalan Gelugor,USM
Price	Price	Integer	50	Price of rider to deliver the parcel	3.50
Delivery rate	d_rate	Varchar	50	Delivery rate of rider by customer when deliver the parcel	“Fast deliver”
Customer’s review	Cust_review	Varchar	100	Review of rider about deliver the parcel by customer	“The rider was very polite and friendly. Fast delivery.”
Status	status	varchar	50	Status for rider whether he/she can deliver the parcel	Active

Table 11

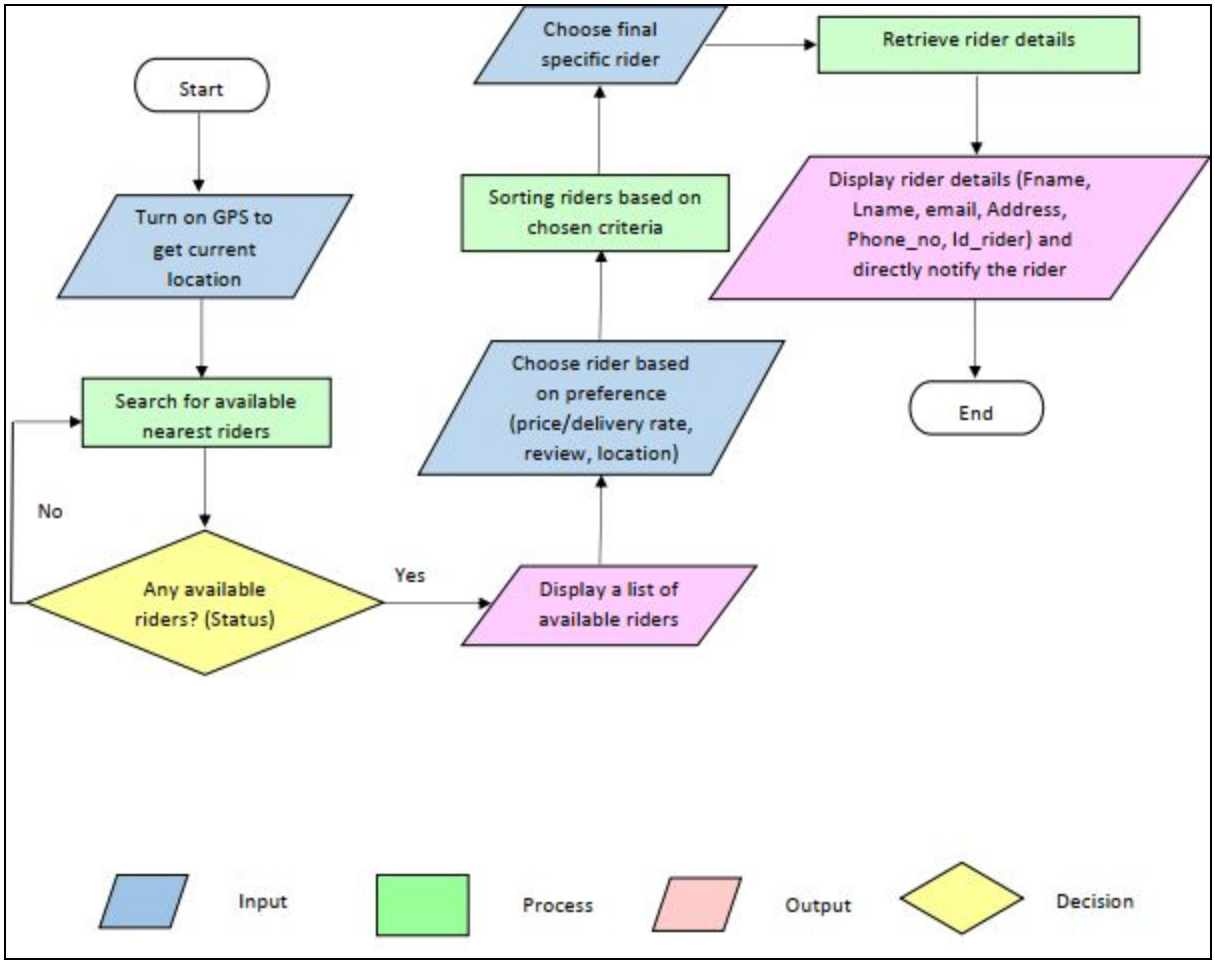


Figure 15

For the rider selection feature, the user needs to turn on GPS to get the current location. The system searches for available nearest riders to deliver the parcel. If the system cannot find the nearest riders, the system refreshes and searches back for available nearest riders. If yes, the system displays a list of available riders. The user can choose the rider based on preference such as price, delivery rate, review or current location to deliver the parcel. After that, the system sorting riders based on the chosen criteria. Next, the user can choose final specific riders and the system retrieves the riders' information from the database. From that, the system displays rider details such as first name, last name, address, email, phone number, rider ID and directly sends the notification to the rider to deliver the parcel.

7) Real-time tracking

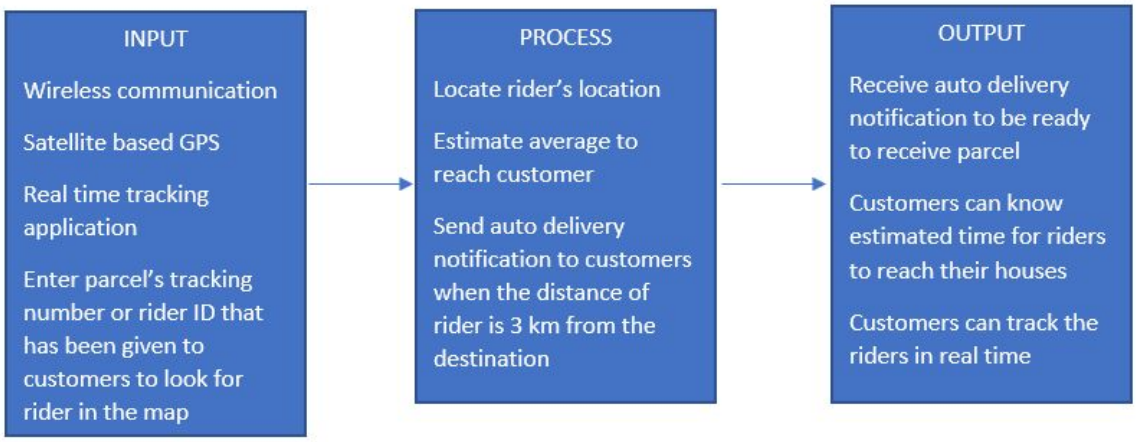


Figure 16

CAPTION	FIELD NAME	DATA TYPE	FIELD SIZE	DESCRIPTION	EXAMPLE
Parcel tracking number	Track_no	Varchar	20	Information tracking number of parcel	EF006144846MY
Rider ID	Rider_id	Integer	20	Information of identification rider	555
GPS information	gps_track	Integer	20	GPS tracking information (longitude & latitude)	0x02 0x7A 0xC7 0xEB
Device ID	device_id	Integer	20	Information of device ID	3343402BDEA00610
Map information	map_info	Varchar	50	Information of google maps	Showed the route in Google Maps
Notification	notify	varchar	50	Notification of delivery to the customer when the distance is 3KM from the destination.	"The parcel will be in 10 minutes."

Location	Location	Varchar	50	Real time location of rider to deliver the parcel	Jalan Gelugor,USM

Table 12

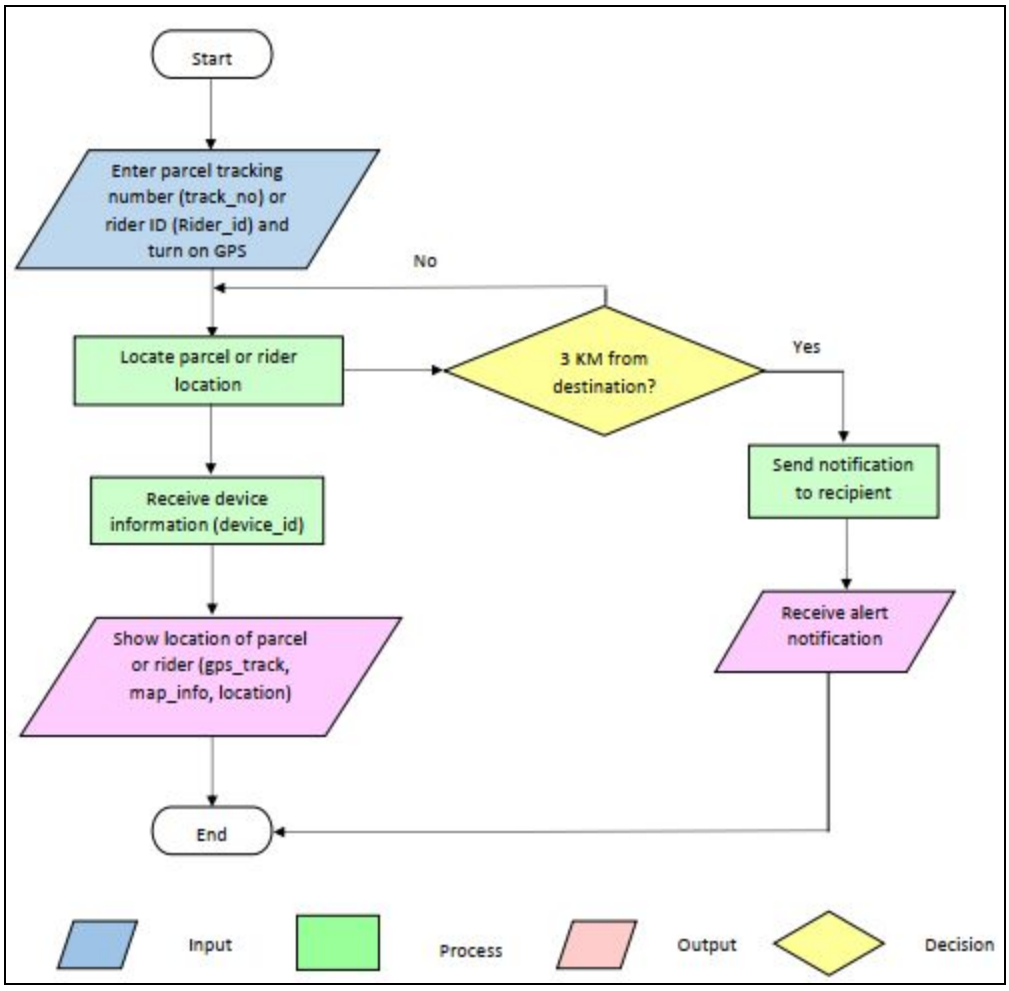


Figure 17

For real-time tracking, the user needs to input parcel tracking number or rider ID and turn on their GPS to track their parcel. The system will locate the parcel or the rider where their current location. The system also receives device information by turn on its GPS. they system shows the location of parcel or rider. If the parcel reaches 3KM from the destination, the system will send the notification to the recipient and the receiver will receive alert notification of their parcel.

8) Route navigation

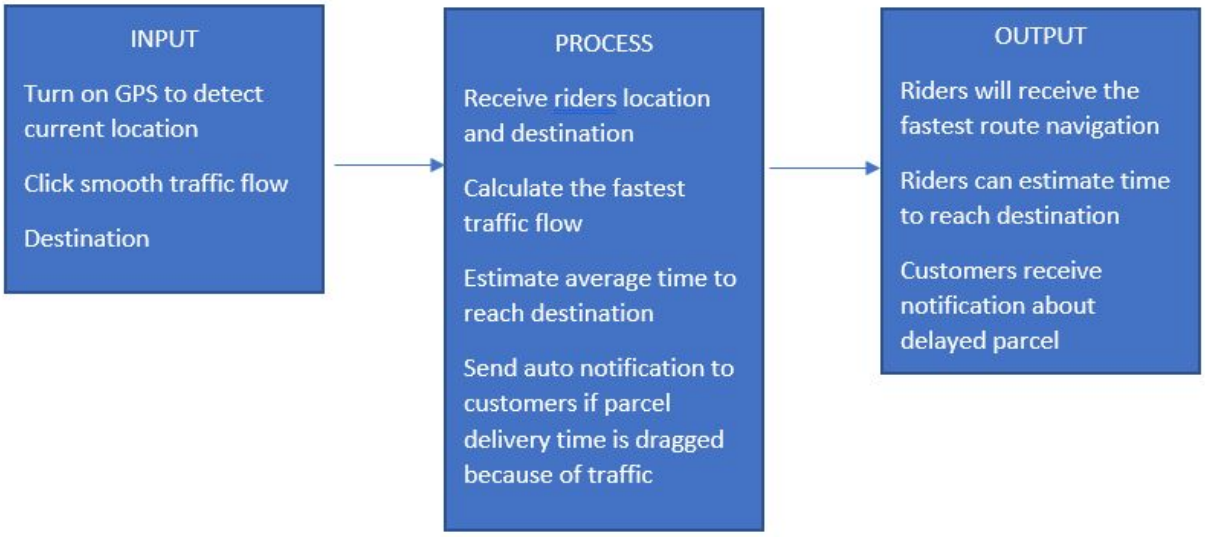


Figure 18

CAPTION	FIELD NAME	DATA TYPE	FIELD SIZE	DESCRIPTION	EXAMPLE
GPS information	gps_track	Integer	20	GPS tracking information	0x02 0x7A 0xC7 0xEB
Rider ID	Rider_id	Integer	20	Information of identification rider	555
Notification	notify	varchar	50	Notification to customers if the delivery time is take too long because of traffic	" The delivery will take another 15 minutes to reach the destination because of traffic flow."
Location	Location	Varchar	50	Real time location of rider to deliver the parcel	Bayan Lepas, Penang
Route	route	varchar	50	Showed route navigation information for rider to deliver the parcel.	15 minutes (12.4km) via Route 6
GPS information	gps_track	Integer	20	GPS tracking information(longitude & latitude)	0x02 0x7A 0xC7 0xEB

Device ID	device_id	Integer	15	Information of device ID	3343402BDEA00610
Map information	map_info	Varchar	50	Information of google maps	Showed the route in the Google Maps
Average time	average_time	integer	15	Average time information to calculate delivery time to the customers	15min (starting point to destination point)
Starting point	start_point	Varchar	25	Starting point of the rider to deliver the parcel	Bayan Lepas, Penang
Destination point	dest_point	varchar	25	Destination point of the rider to reach the destination to deliver the parcel.	Universiti Sains Malaysia, Penang

Table 13

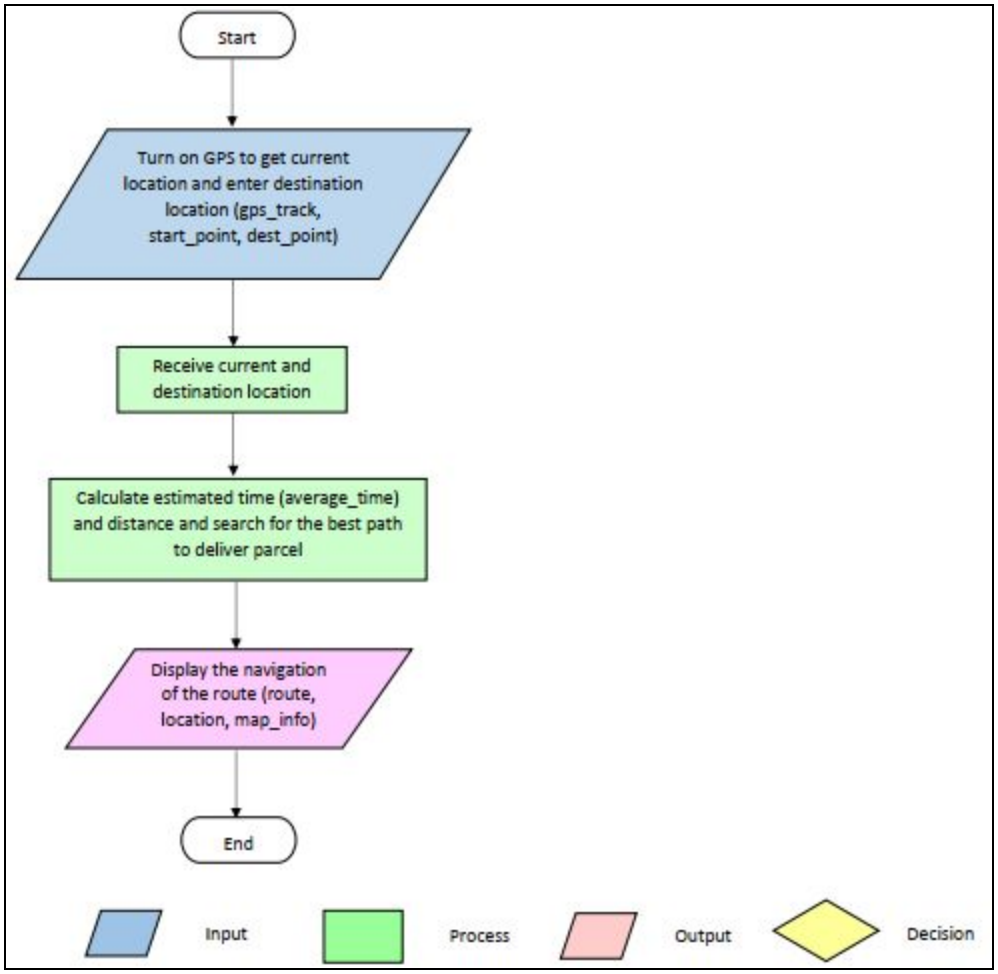


Figure 19

For the route navigation, the user needs to turn on on their GPS to get the current location and enter the destination location. The system receives and processes the current and destination point. The system also calculates the estimated time, distance, and search for the best path or route to deliver the parcel using the fastest route. From that, the system displays the navigation of the fastest route with no traffic problems and delays. an auto-delivery notification will automatically be sent to the customer to be prepared to take their parcel. The auto-delivery notification is sent one hour before the delivery is made and 10 mins before the parcel arrives.

9) Mobile post office tracking

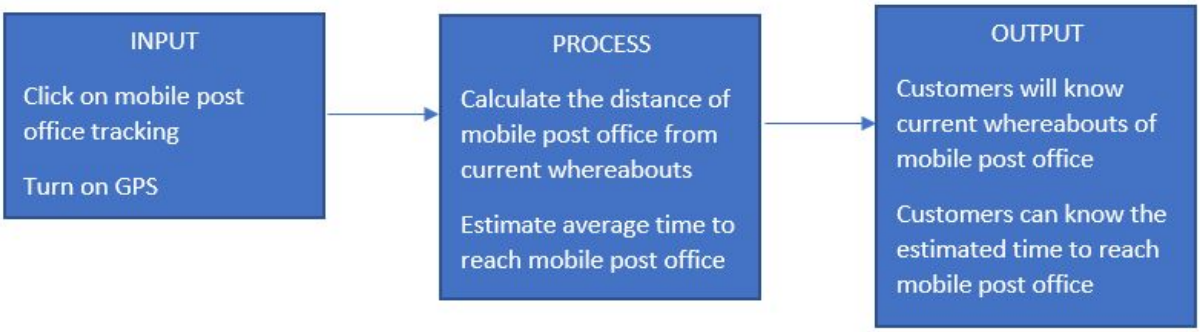


Figure 20

CAPTION	FIELD NAME	DATA TYPE	FIELD SIZE	DESCRIPTION	EXAMPLE
Mobile post office ID	mpost_id	integer	15	Information of mobile post office ID	2389-9
Distance	dist	integer	15	Distance of mobile post office from starting to destination point	15 minutes (12.5km)
Real time location	Location	Varchar	50	Real time location of mobile post office	Bayan Lepas, Penang
GPS information	gps_track	Integer	20	GPS tracking information(longitude & latitude)	0x02 0x7A 0xC7 0xEB
Map information	map_info	Varchar	50	Information of google maps	Showed the mobile post office in the Google Maps

Status	Status	Varchar	20	Status of mobile post office whether its open or not	Active
Vehicles number plate	Vehicle_num	Varchar	10	Mobile post office use vehicles	VK 123
Starting point	start_point	Varchar	25	Starting point of the rider to deliver the parcel	Bayan Lepas, Penang
Destination point	dest_point	varchar	25	Destination point of the rider to reach the destination to deliver the parcel.	Universiti Sains Malaysia, Penang

Table 14

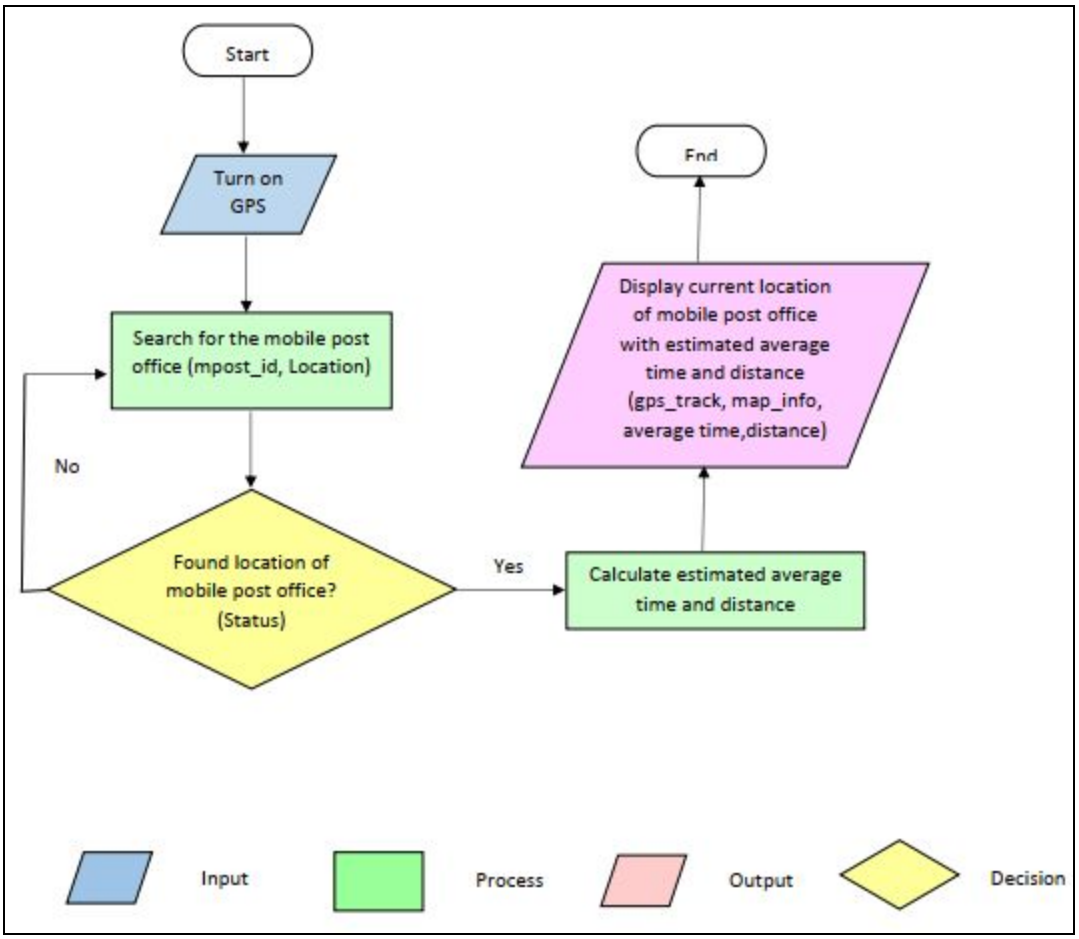


Figure 21

For the mobile post office tracking, the user needs to turn on their GPS to search for the mobile post office. The system searches the mobile post office nearest to them. if the system cannot found the location of a mobile post office, they need to input a new location or turn back on the GPS. If the location is found, it will show that the mobile post office is nearest to the user and show the status of whether the mobile post office is active or not. The system will estimate the average time and distance from the starting point to the destination point. After that, the system displays the current location of the mobile post office with an estimated average time and destination. The user can know the estimated time to reach the mobile post office nearest them.

10) personnel rating and feedback for rider

Figure 22

CAPTION	FIELD NAME	DATA TYPE	FIELD SIZE	DESCRIPTION	EXAMPLE
First name	Fname	Varchar	20	First name of rider	Haris
Last name	Lname	Varchar	20	Last name of rider	Muhammad Zuki
E-mail Address	email	Varchar	20	E-mail address of rider	Hariszuki@yahoo.com
Phone number	Phone_no	Integer	15	Contact number of rider	0123456987

Rider ID	Id_rider	Integer	50	Identification of rider	555
Delivery rate	d_rate	Varchar	50	Delivery rate of rider by customer when deliver the parcel	“Fast deliver”
Customer’s review	Cust_review	Varchar	100	Review of rider about deliver the parcel by customer	“The rider was very polite and friendly. Fast delivery.”
Rewards points	RewardP	Integer	100000	Collection of points based on review from customers	50
Rating	rating	Varchar	100	Rating for rider by customer	“5-Stars”
Suggestion	suggest	Varchar	150	Suggestion from customer for riders to improved their delivery service	“ Please call the customer before deliver the parcel”

Table 15

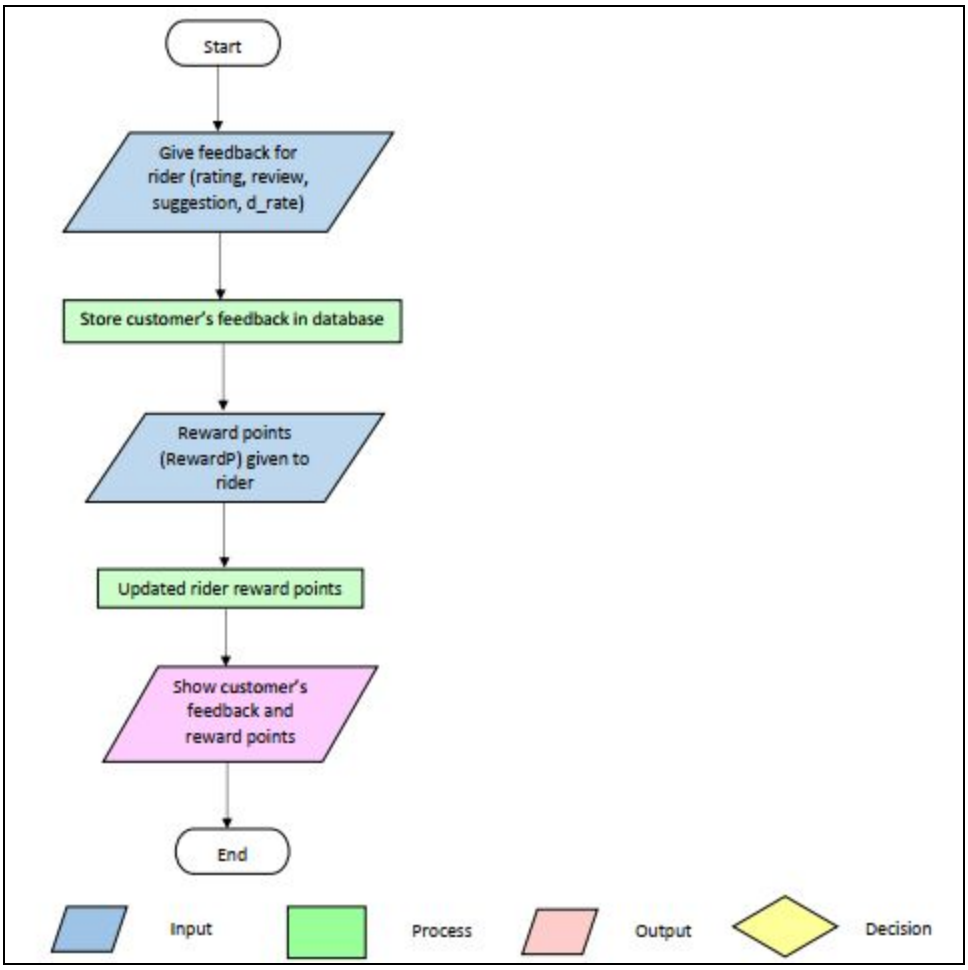


Figure 23

For the personnel rating and feedback feature, the user needs input rating, review, delivery rate or suggestion/recommendation to be improved for riders when delivering the parcel. Then the system stores the customer's feedback in the database. From that, the system will show the customer's feedback and reward points to the rider. The system updates the rider reward point and the rider can see the review, recommendations, rating, and how many they get for their reward point.

SYSTEM FLOW CHART

1)Rider Employment

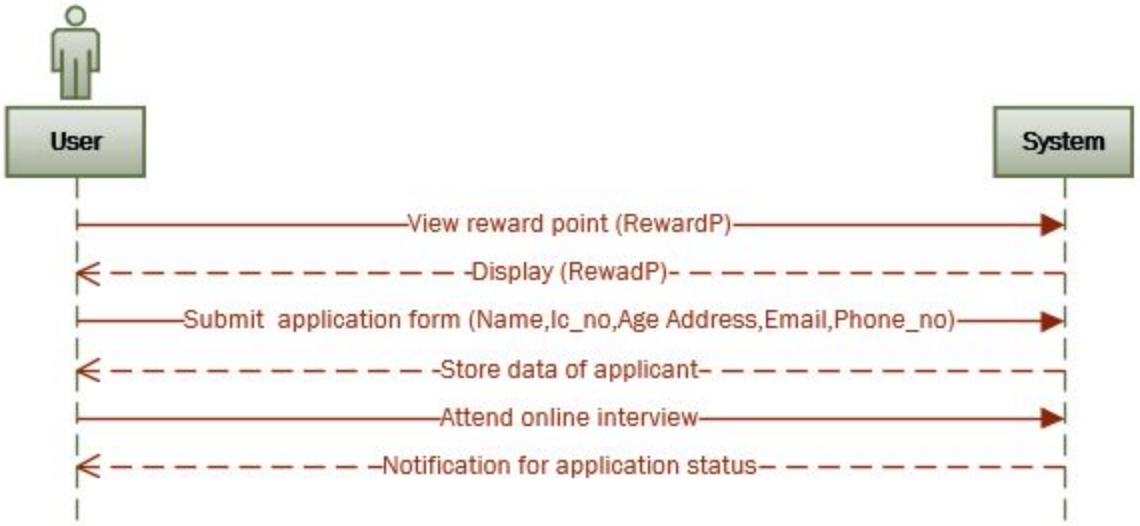


Figure 24

2)Games to receive rewards and promotions

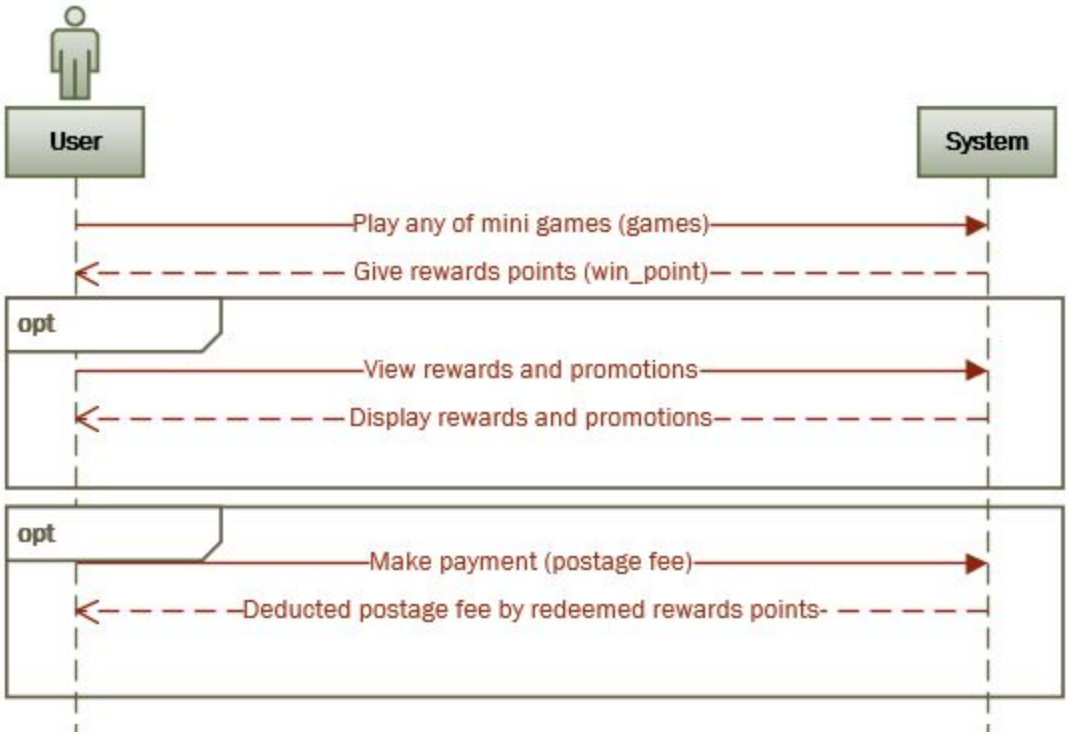


Figure 25

3)Rollover zoom image for parcels

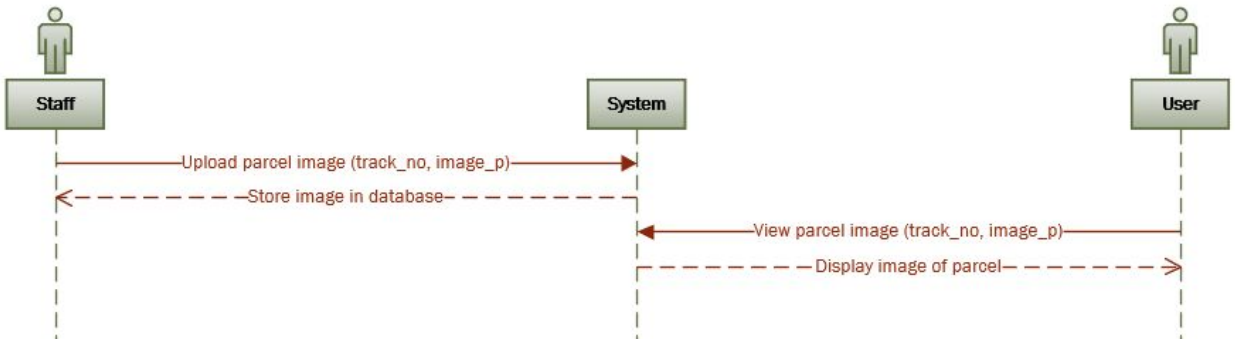


Figure 26

4)Pop up live chats

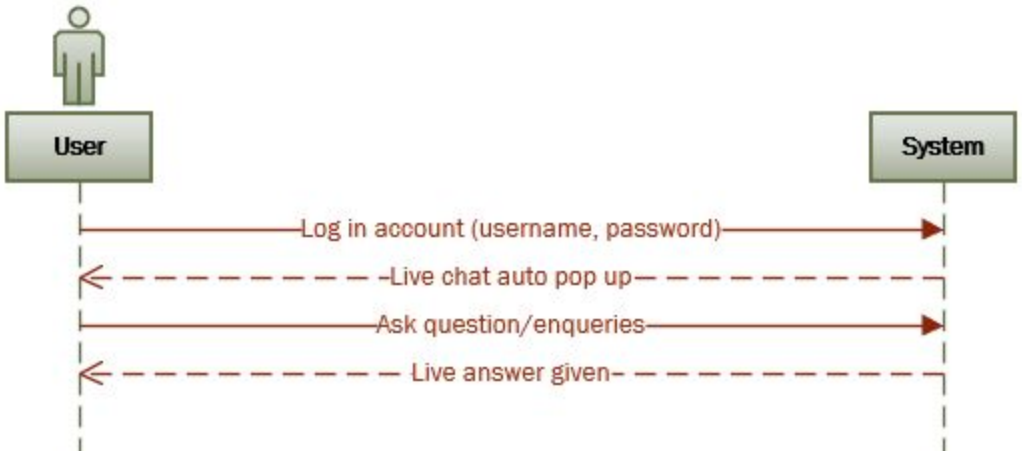


Figure 27

5)Rewards for customer

Figure 28

6)Rider selection

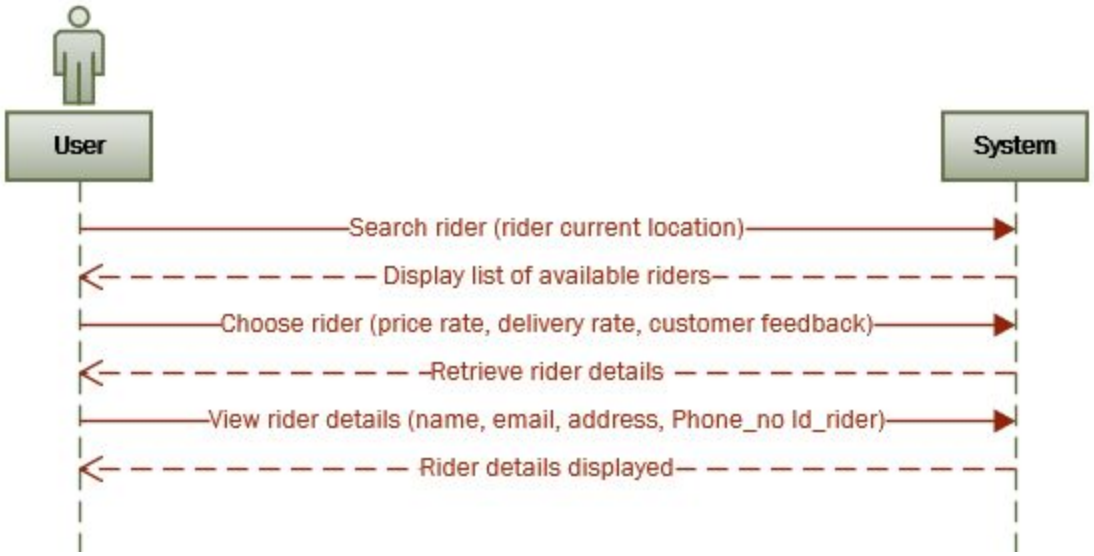


Figure 29

7)Real-time tracking

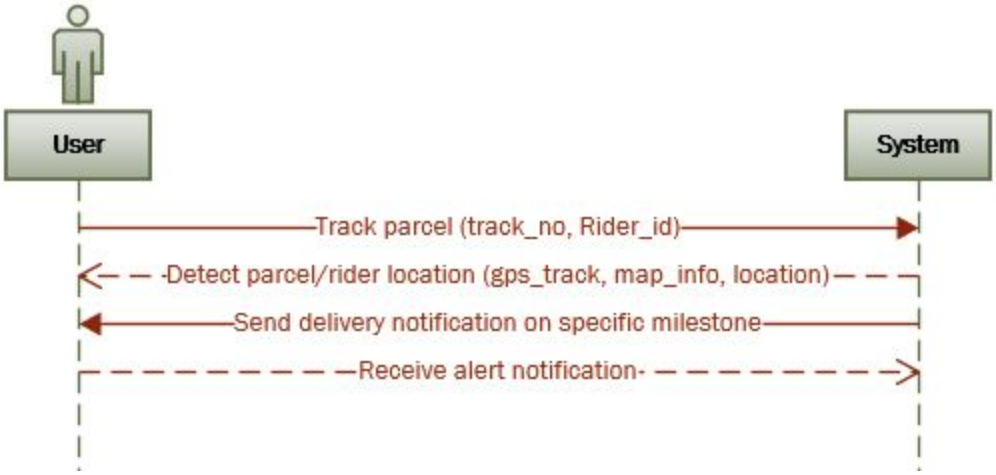


Figure 30

8)Route navigation

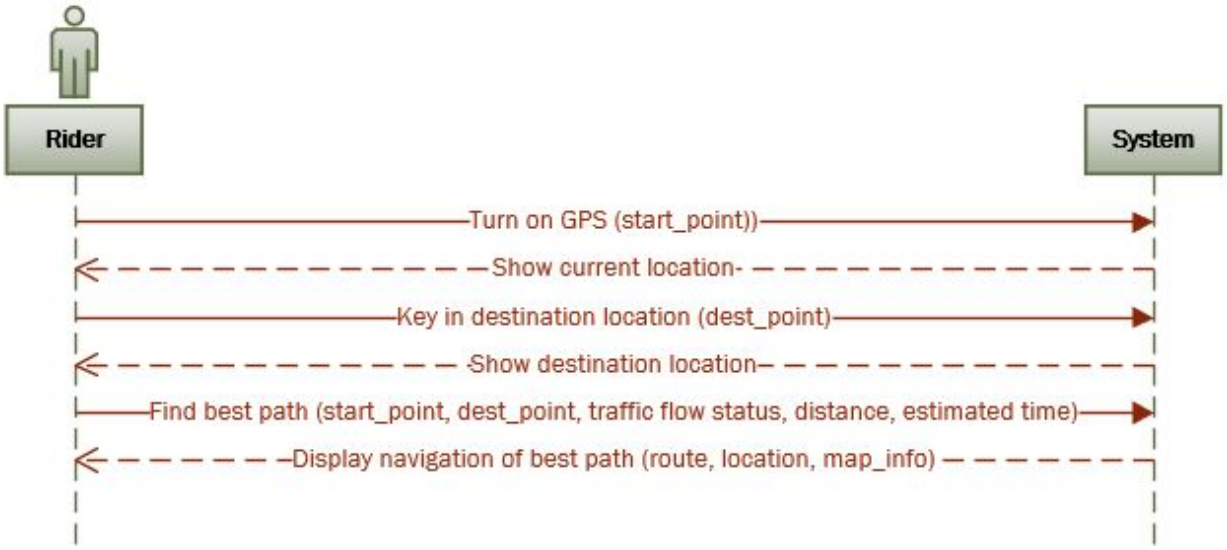


Figure 31

9)Mobile post office tracking

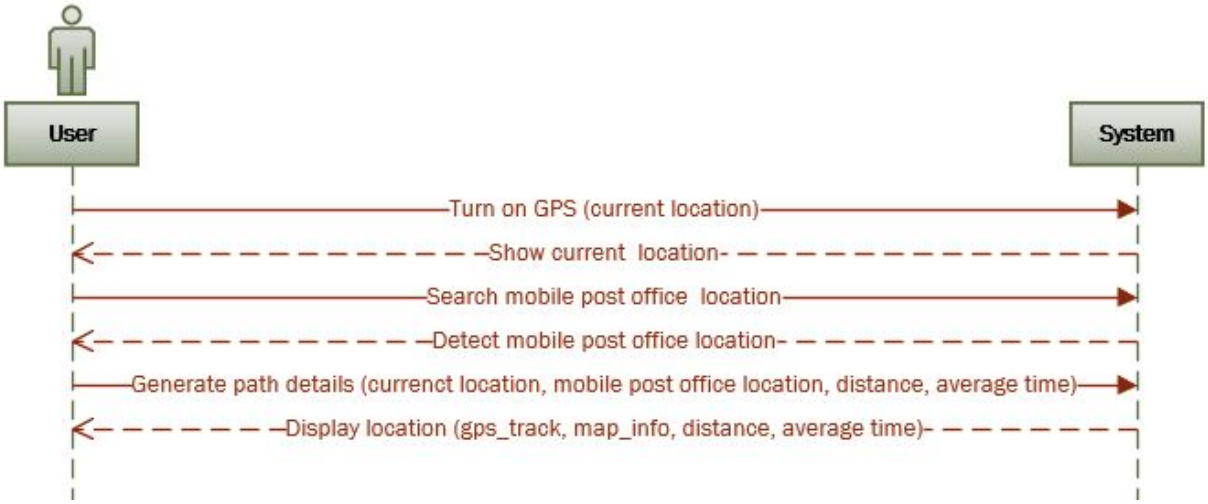


Figure 32

10)Personal rating and feedback

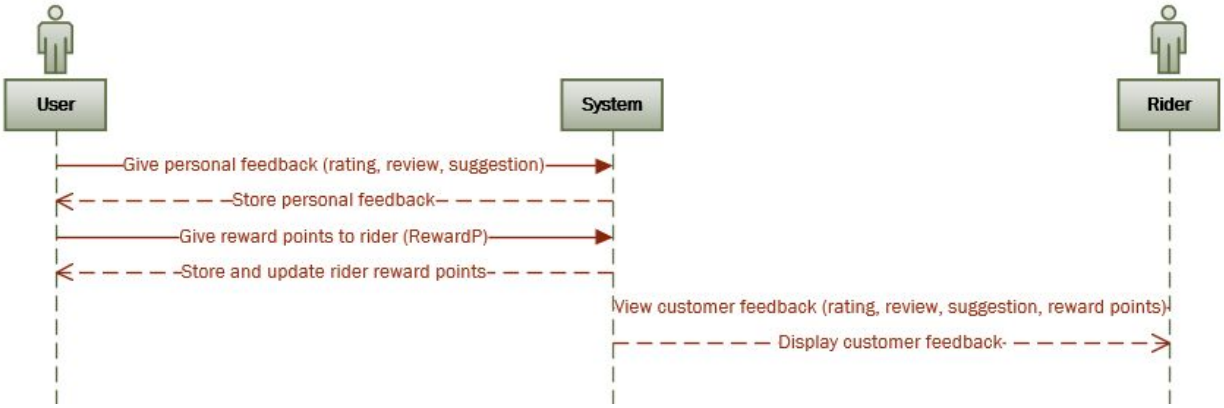
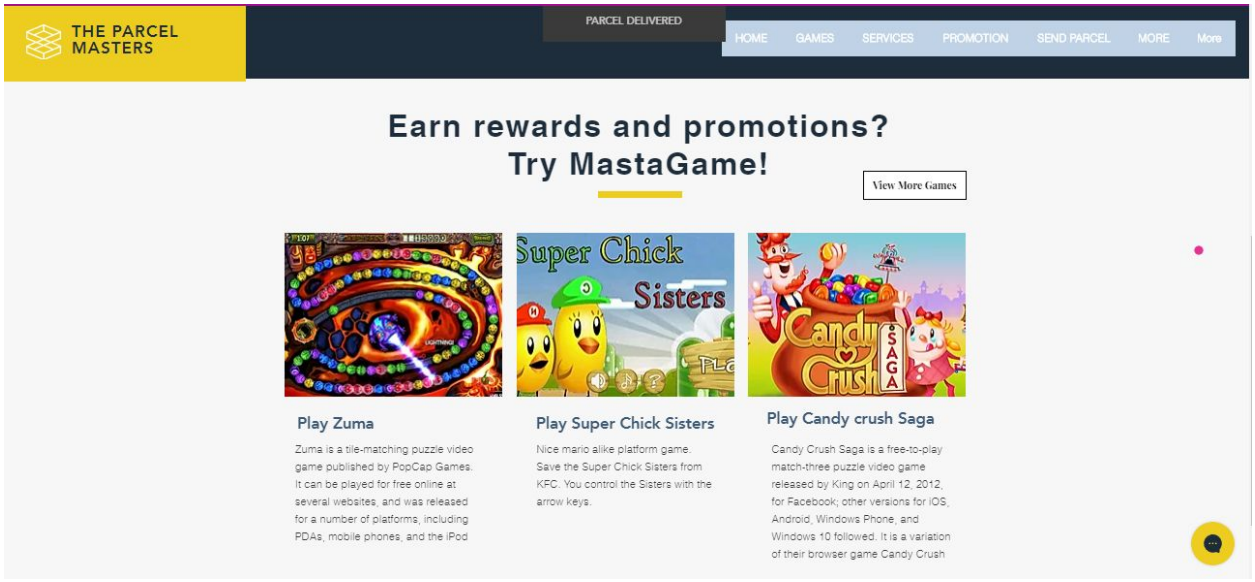

User
System
Rider
Give personal feedback (rating, review, suggestion)
Store personal feedback
Give reward points to rider (RewardP)
Store and update rider reward points
View customer feedback (rating, review, suggestion, reward points)
Display customer feedback

Figure 33

4. Expected results

This system intends to enhance the intimacy between courier services and the customers as well as the riders. All of the 10 features that have been added are developed and improved to increase the functionality of the system, make it more user friendly and to ensure that the customers know the updates of their parcels. Not only that, but there are also some features that are created especially for riders to ease their jobs, hence make their job enjoyable and less stressful. Both the customers and riders need to login to their respective accounts which will lead them to different interfaces of the system. They are required to enter their username and password that have been created before and login to the system.

In the customer interface, a dashboard will appear where it records the summary of their parcels delivered, total saving, total rewards, promotions redemption, total referral, and so on. **The first feature that we introduce in the customer interface is MastaGame**. This feature is suggested by one of the respondents as an effort to make it more interactive and user friendly. MastaGame is a concept where the users can play games to get rewards points or promotions such as postage fee deduction, vouchers, t-shirts, or any exclusive items from courier services. When the user plays the games, all the winning points will be auto-recorded by the system and if the user reaches the required total winning points, they could redeem their rewards or promotions that will appear in their dashboard. This will make the system more user friendly and interactive as promotions are offered. The user can choose to play a lot of games, they can click the 'View more games' button to go through all the games. The interface is as below:



Want rewards and promotions? Try MastaGame!

View More Games

Play Zuma

Zuma is a tile-matching puzzle video game published by PopCap Games. It can be played for free online at several websites, and was released for a number of platforms, including PDAs, mobile phones, and the iPod

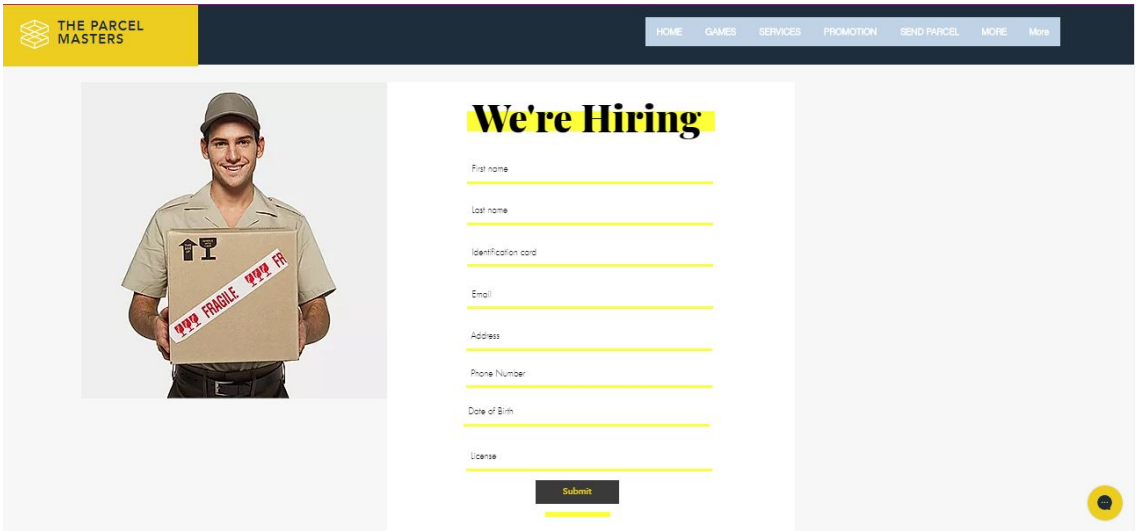
Play Super Chick Sisters

Nice mario alike platform game. Save the Super Chick Sisters from KFC. You control the Sisters with the arrow keys.

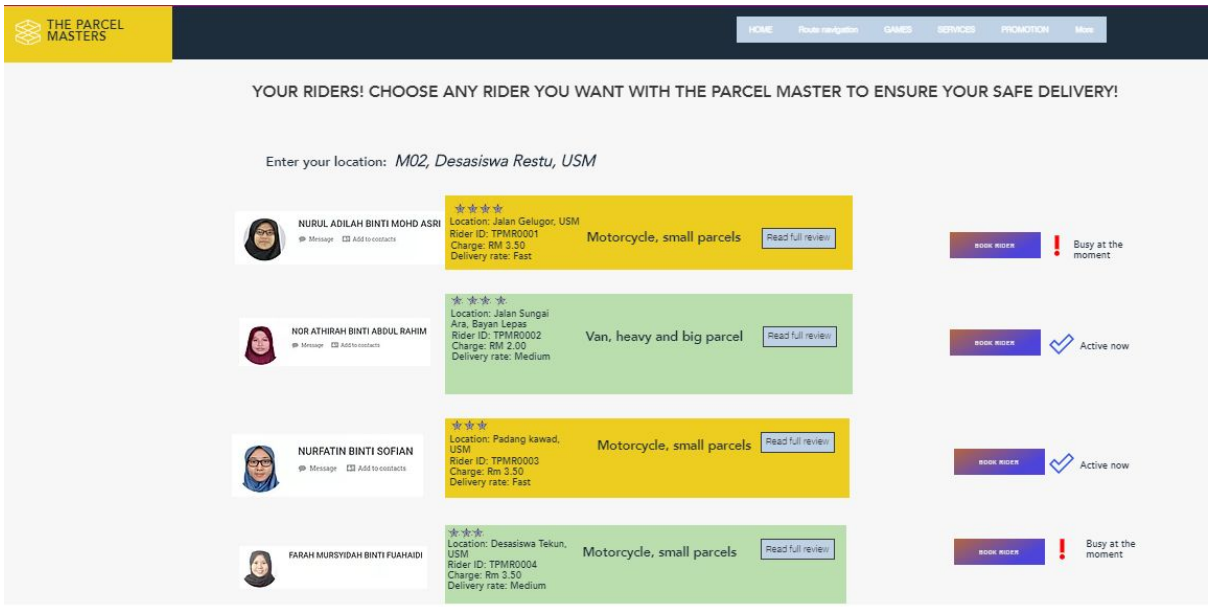
Play Candy crush Saga

Candy Crush Saga is a free-to-play match-three puzzle video game released by King on April 12, 2012, for Facebook; other versions for iOS, Android, Windows Phone, and Windows 10 followed. It is a variation of their browser game Candy Crush

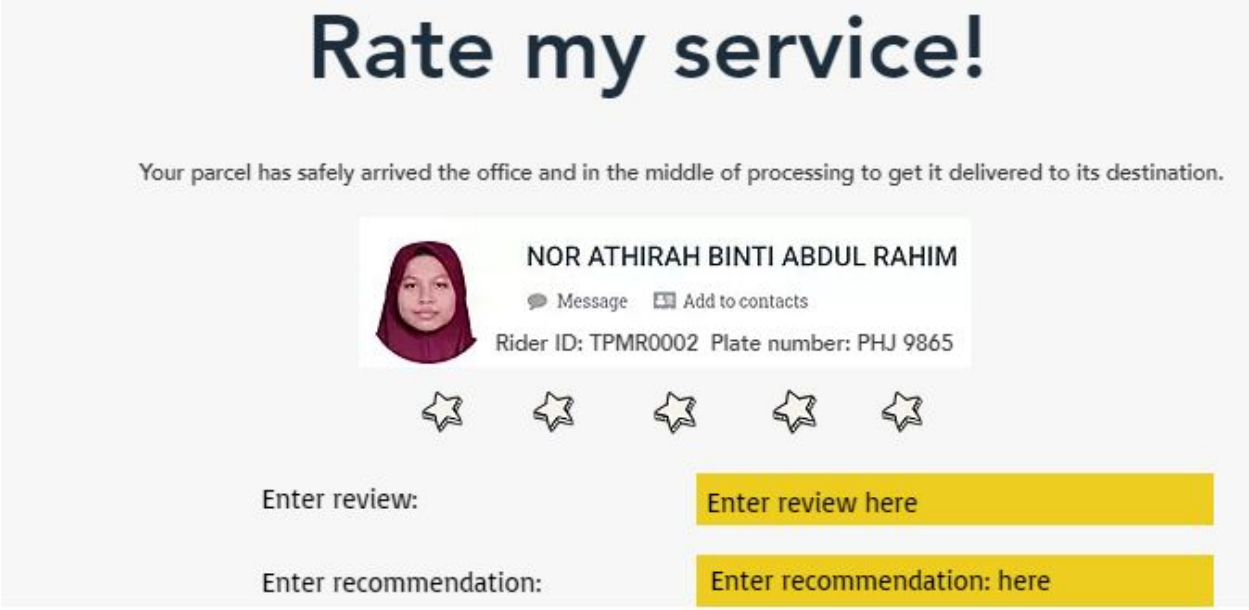
Apart from that, **the second feature we introduce is rider employment**. This added feature serves in case any of the customers are interested in becoming one of the riders. This advertisement will appear in the customers' interface to encourage applications. Courier service targets its customers first to apply for the job. The job can be applied through the application where the users have to submit their information details like names, emails, addresses, IC number, Date of Birth, License, and so on. As this job needs no requirements, everybody's free to apply for it without submitting resumes. Applicants' application through the system will be filtered, sorted, and processed by the system. One of the requirements to get recruited is to accumulate high reward points. Reward points can be obtained by sending parcels or playing MastaGame. However, the reward point for MastaGame is not as high as sending parcels. In other words, the chances for customers who have high courier service usage frequency to be employed is really high. The more parcels the applicant sent before, the greater reward points they will receive, the higher rate for them getting employed. This feature will benefit both the company and its customers. Notifications will be delivered to respective accounts after their applications to notify their employment status. The interfaces are as below:



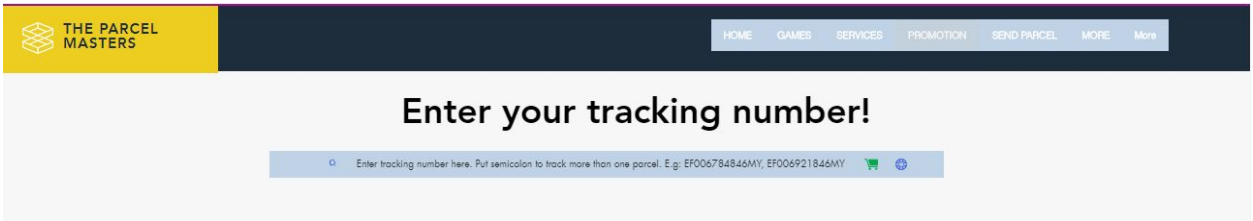
The third feature is rider selection. Some courier services provide a service to pick up parcels at the customer's home and bring it to the office to get processed. However, in our system, the customer can choose their own riders by going through the list of riders available in the system. First, the user has to enter the location of the parcel to be picked up, and the system will sort the list of the nearest riders to the customer. The customer can exercise their choice by going through the details of the riders. If the customer wants to send big parcels, they have a van, and if for small parcels, they have to go for a motorcycle. The current location of the rider will be stated and shown in the google map by clicking at the location that is written. The riders' current status will be shown next to the 'book rider button'. If the rider is busy at the moment, customers cannot book the rider. The current location of the rider is tracked in real-time by using real-time GPS tracking. This feature will be elaborated on in the next feature along with the tracking system. This feature is also addressed by one of the respondents.



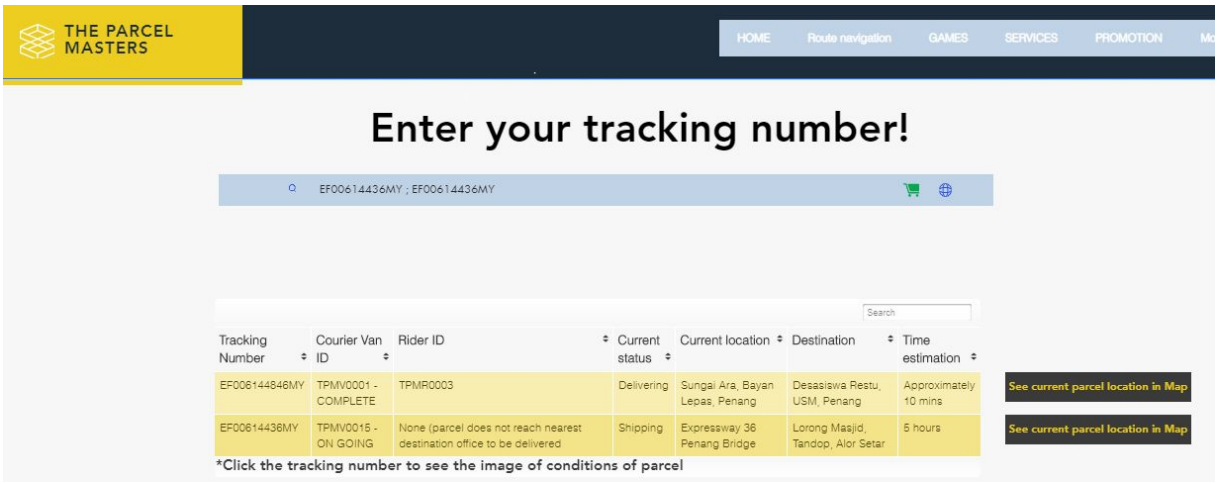
If the booking is successful, the rider will come to the customer's house to pick up parcels and do every process that is needed. When the parcel has reached the office to get processed, a notification will pop up to notify that their parcel has safely reached the office and in the middle of the process to get it delivered. Along with that, the customer will have to rate the rider's service and give any reviews or recommendations which are optional. **This will be the fourth feature - personnel rating and feedback.**

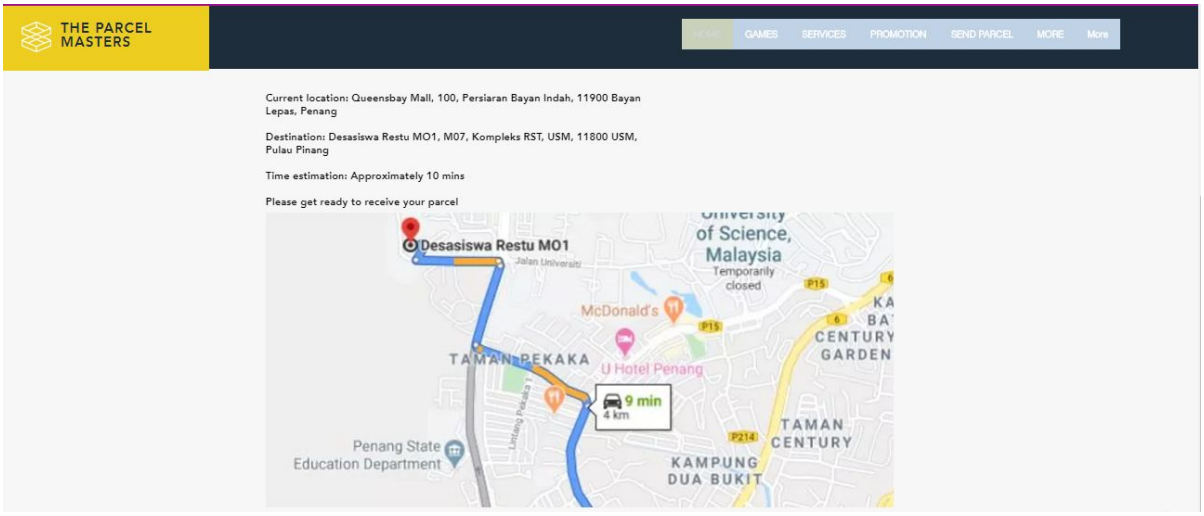


The fifth feature is tracking parcels in real-time. For this system, everything that can be tracked will be traced by using GPS real-time tracking system. Whether it is in shipping processes or delivery processes or parcel processing processes, users will know the locations if they track it. This means that, if a customer sends a parcel from Penang courier to Alor Setar, and the parcel is pushed in a van and the middle of shipping processes, the customer will know the current location of their parcels as well as the van that is shipping their items. The van GPS will be turned on and every parcel that it carries with will likely hold the same location as the van. The location of the parcels will be linked to the location of the van. Once a particular parcel reaches its destination, it will be scanned by the staff and the parcel's location will disconnect from the van's location. The parcel will be assigned with a new location which is the destination. To do this, the customers will only have to enter their parcel's tracking number as usual, and all of the information will be displayed. For the location, it can also be seen through maps. The time estimation to receive their parcels will be displayed. This feature will likely solve the problems that are addressed by the respondents where they requested the tracking system will give a more precise and accurate location.



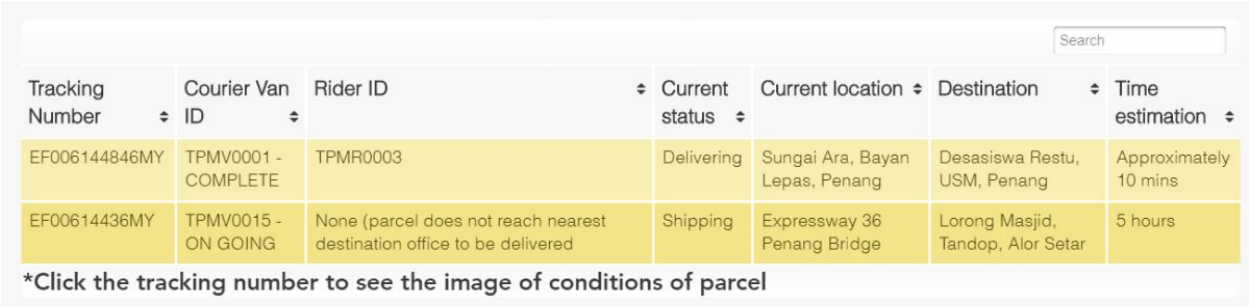
If the shipping process is completed and the parcel in the middle of delivery, it will display the Rider ID. If it is still shipping and not yet delivered, the rider ID will not be available while the Courier Van ID is displayed.

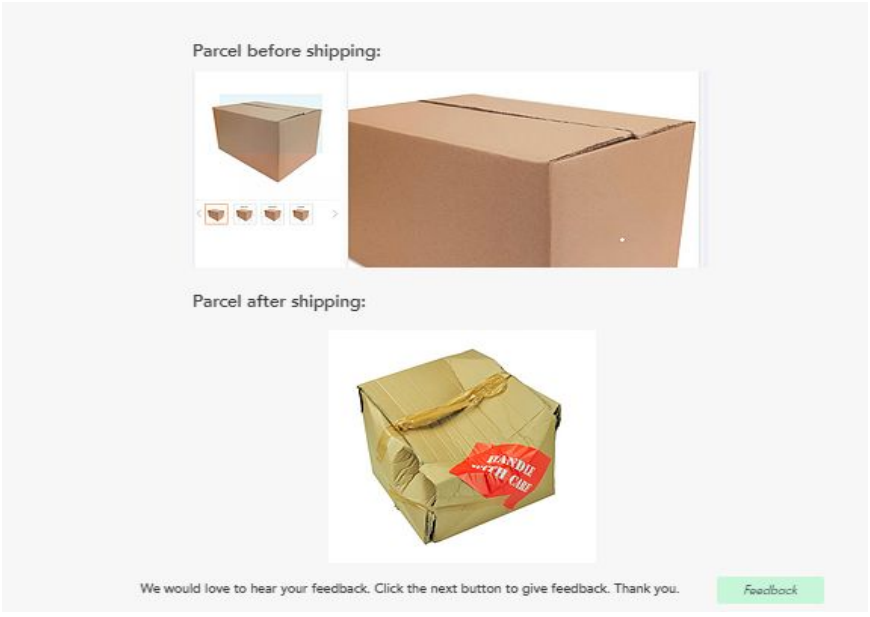




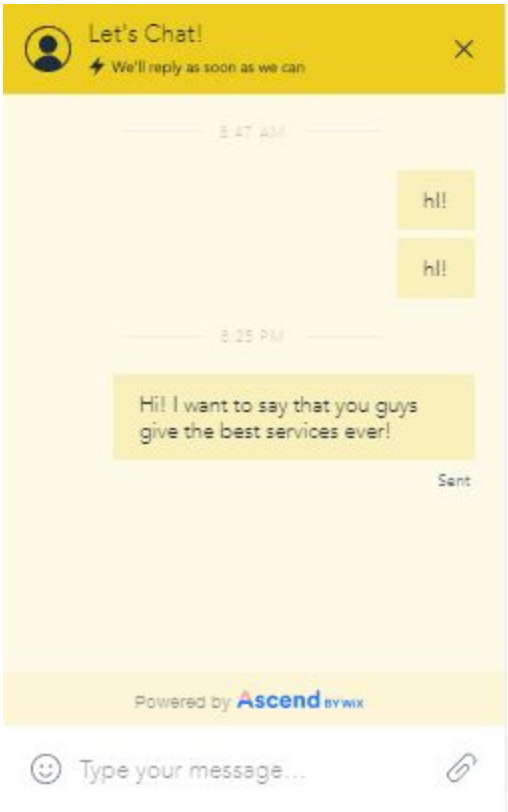
The sixth feature will be - rollover zoom in the image. One of our respondents' idea is to have an image on the condition of her parcels. The respondent proposed to enhance the system in the aspect of taking images of the parcels and upload it in the system to get an update that her parcel is in good condition. When the user tracks their parcels, they can check the condition of the

parcels before and after. This feature will only be available for parcels that are heavy and use boxes. Parcels that use flyers pack or courier envelope do not have this feature because the differences before and after shipping and delivery are not too obvious. In contrast with the box, the damage on it will be really clear and obvious. The courier service company has to have a system to take the picture of the parcel on every side and upload it to the respective customer's account. ‘Rollover zoom in’ image helps detect even small differences of the parcels’ condition before and after. When the customers want to see the image, they only have to click on the tracking number and everything will be displayed. The customer can hover their mouse over the box parcel to get it enlarged and they will be able to see any damage that occurs on the box. They can report any damage to the courier service and through several procedures, they might get compensation fees.

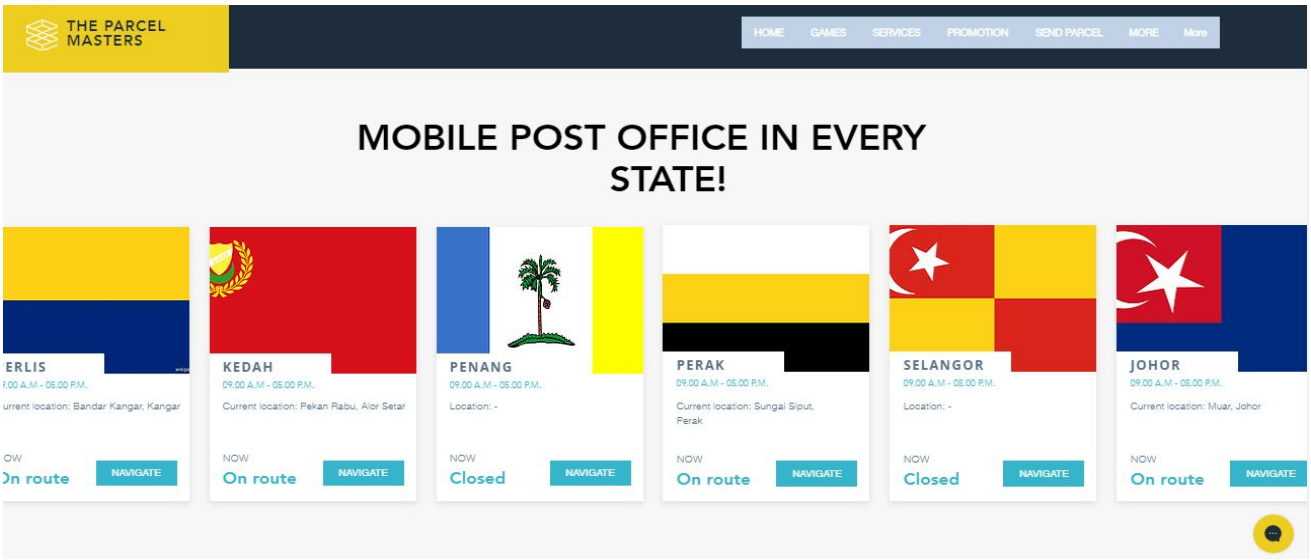


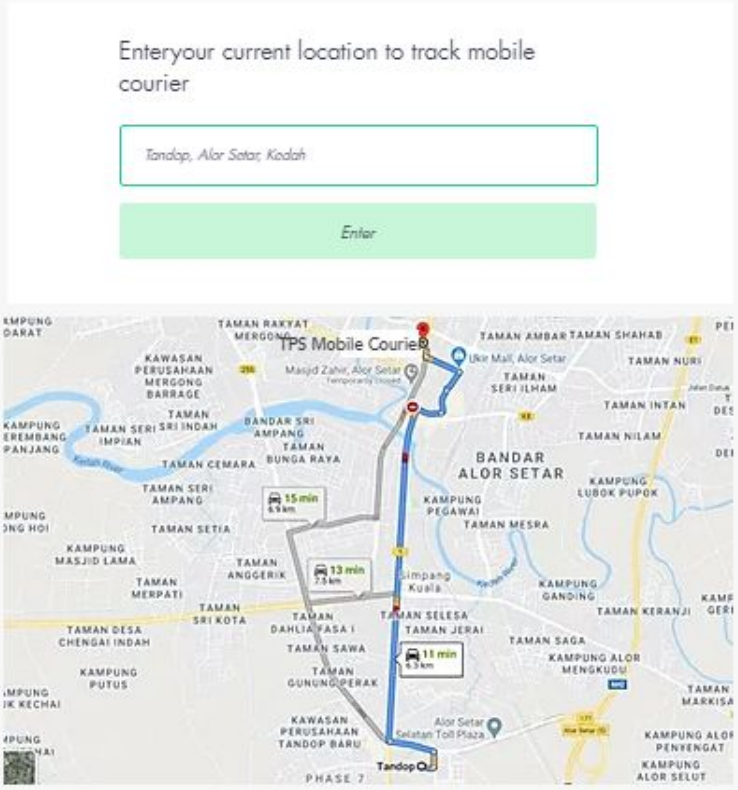


The seventh feature will be a pop up live chat. Every inquiry or question regarding parcels, complaints, reports, feedback will be entertained live. The customer can interact with the operator in the working hours and we will make sure the customer will get instant replies regarding their inquiries or questions.



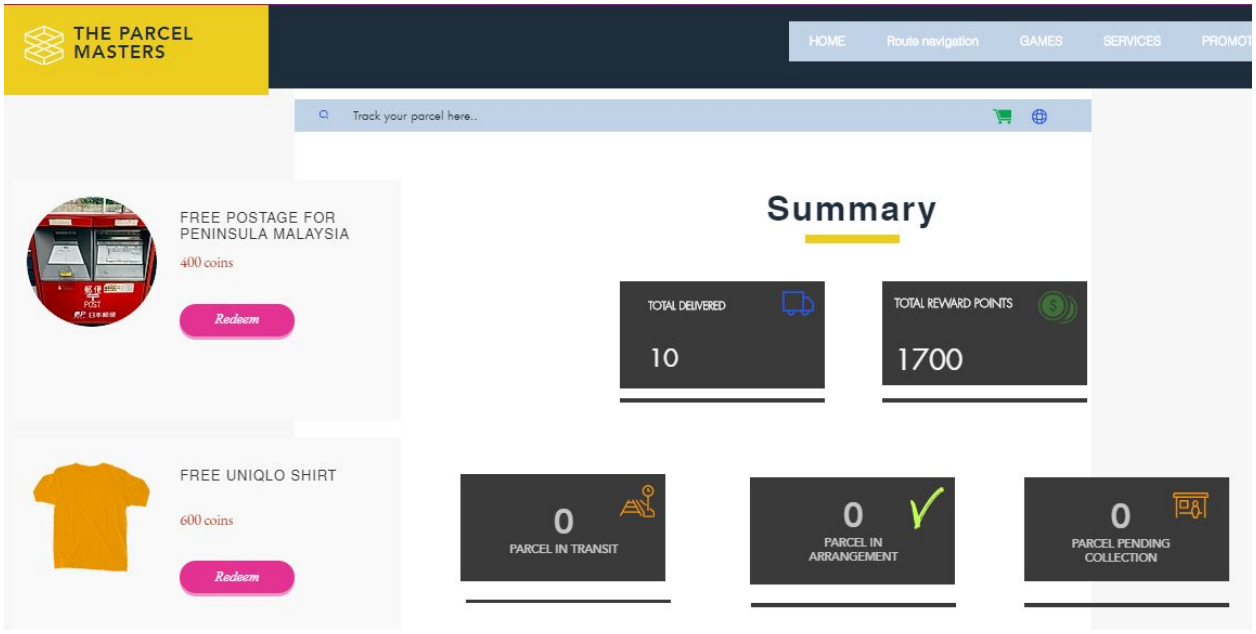
The eighth feature is a mobile post office tracking where the customer does not need to go to the post office to get their parcels delivered. This mobile courier will be available in every state in Malaysia and operated according to their schedules. The customer or user can click on any state they are currently in and navigate the current location of the mobile courier nearest to them. For some customers, the actual location of the post office is not so close, probably they will likely opt for a mobile courier if the courier happens to be near them. After clicking on the preferred state, the user will be asked to input their current location or simply turn on their GPS. The map will be automatically shown the distance of the mobile courier from their current location and give time estimation to reach the courier with the fastest route. Along with that, the timetable for the courier will also be shown for the whole week.


THE PARCEL MASTERS
HOME
GAMES
SERVICES
PROMOTION
SEND PARCEL
MORE
More
MOBILE POST OFFICE IN EVERY STATE!
ERLIS
KEDAH
09.00 A.M - 05.00 P.M.
Current location: Pekan Rabu, Alor Setar
NOW
On route
NAVIGATE
PENANG
09.00 A.M - 05.00 P.M.
Location: -
NOW
Closed
NAVIGATE
PERAK
09.00 A.M - 05.00 P.M.
Current location: Sungai Siput, Perak
NOW
On route
NAVIGATE
SELANGOR
09.00 A.M - 05.00 P.M.
Location: -
NOW
Closed
NAVIGATE
JOHOR
09.00 A.M - 05.00 P.M.
Current location: Muar, Johor
NOW
On route
NAVIGATE


Enteryour current location to track mobile courier
Tandop, Alor Setar, Kedah
Enter
TPS Mobile Courier
Masjid Zahir, Alor Setar
Ukir Mall, Alor Setar
BANDAR ALOR SETAR
TAMAN RAKYAT MERGONG
KAWASAN PERUSAHAAN MERGONG BARRAGE
TAMAN AMBAR
TAMAN SHAHAB
TAMAN NURI
TAMAN SERI ILHAM
TAMAN INTAN
TAMAN NILAM
TAMAN SERI IMPIAN
TAMAN SRI INDAH
BANDAR SRI AMPANG
TAMAN BUNGA RAYA
TAMAN CEMARA
TAMAN SERI AMPANG
TAMAN SETIA
KAMPUNG PEGAWAI
TAMAN MESRA
KAMPUNG LUBOK PUPOK
KAMPUNG MASJID LAMA
TAMAN ANGGERIK
TAMAN MERPATI
TAMAN SRI KOTA
TAMAN DESA CHENGAI INDAH
TAMAN DAHLIA FASA I
TAMAN SELESA
TAMAN JERAI
TAMAN SAWA
TAMAN SAGA
KAMPUNG GANDING
TAMAN KERANJI
KAMPUNG ALOR MENGKUDU
KAMPUNG PUTUS
TAMAN GUNUNG PERAK
KAWASAN PERUSAHAAN TANDOP BARU
Alor Setar Selatan Toll Plaza
Tandop
PHASE 7
KAMPUNG ALOR PENYENGAT
KAMPUNG ALOR SELUT
15 min
13 min
15 min

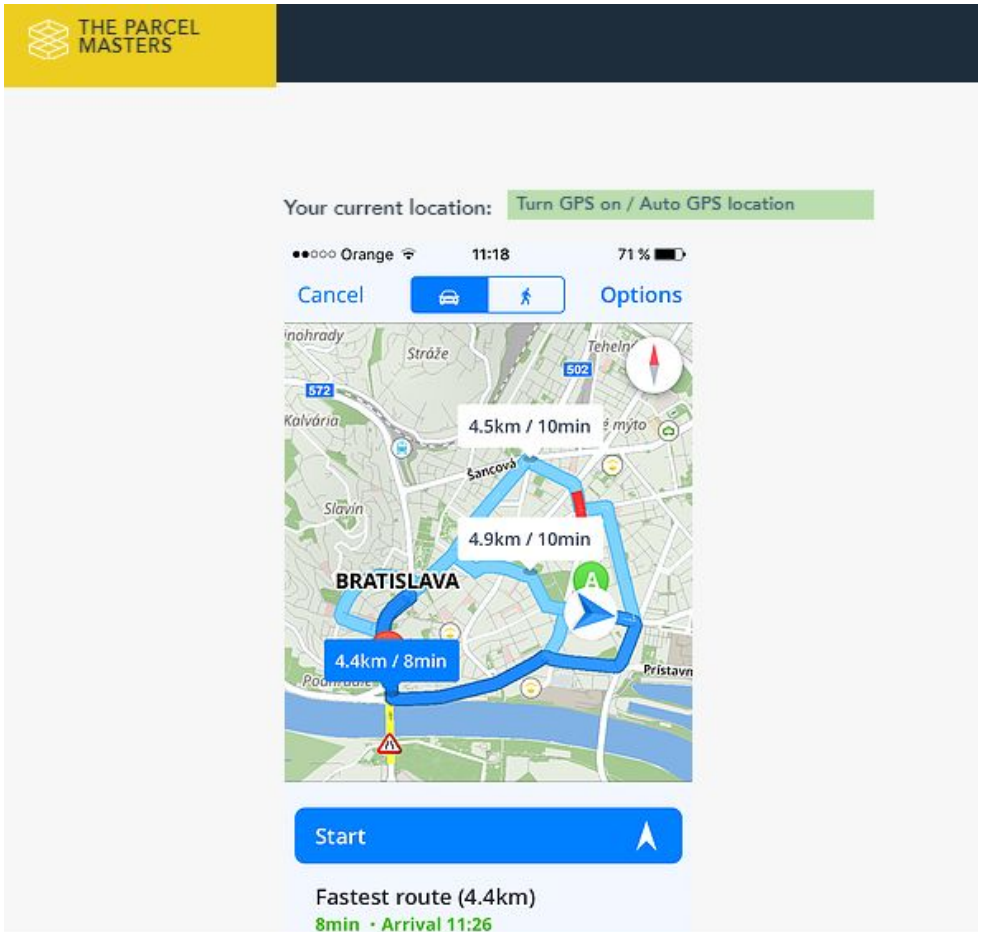

KEDAH MOBILE COURIER DELIVERY SCHEDULE
ISNIN
14.10.19
SELASA
15.10.19
RABU
16.10.19

The ninth feature will be rewards and promotion redemption. As aforementioned, when customers send their parcels or play MastaGame, they will earn reward points and when they accumulate the required total of coins, they can redeem a variety of promotions and rewards. This feature will increase the interactivity between customers and the company and make this system more user friendly. This can help in increasing customer intimacy which is one of the visions of any courier services. After they accumulate enough points, the rewards or promotions will be posted on the dashboard. The customer only has to click the 'redeem' button to get their rewards or apply for their promotions.



The last feature is route navigation. This feature is designed especially for the riders. We understand that the riders must be juggling in sending a lot of parcels in a day. As mentioned in the survey, one of the features requested by the respondent is to give auto-delivery messages to customers so that when they reach the customers' location, they do not have to wait for the customers for too long. Customers often delay the riders' time by picking up the parcel late. Because of this problem, we opt for a route navigation feature where it will navigate the rider to the destination using the fastest route. For every available route, a time estimation will be labeled beside it. For example, from the current location of the rider, there will be 3 routes to reach the destination. This system will compute which route is the fastest with no traffic problems and delays. If the nearest route is 4.4 km which will take 8-10 mins, an auto-delivery notification will automatically be sent to the customer to be prepared to take their parcel. The auto-delivery notification is sent one hour before the delivery is made and 10 mins before the parcel arrives.

This way, the probability for the riders to wait for the customers will decrease by having the customers ready to pick up their parcels by notifying them twice.



Based on the expected interface above, we believe that we solve the requirements and features that are proposed by the potential users as explained. One of the problems that we faced is to turn some of the ideas that are proposed by the respondents to make it match with the courier service system. For example, one of the users suggested that we incorporate game features into the system. Some of us thought it is unrealistic to implement games in the courier system. But we try to fulfill our respondent's request and look for ways on how to get this feature incorporated. In the end, we manage to get the idea included in the system by making it a reward program for the customers. Besides, features like rider selection are also hard to implement. It involves a lot of extra work for the riders to go pick the parcel up at the customers' house. However, we solve this problem by adding the delivery fee to the customer where they have to pay the riders for picking their parcels at home. We had problems in customizing our proposed systems with the proposed requirements, but after going through discussions after discussions, we managed to solve it.

Establishing a good and powerful information system is just as important as fulfilling the potential users' requests. The relevance of this system is to develop a strong business strategy and to mitigate the cost and put customers at the center of operations. We manage to get feedback from potential users regarding the newly created features and through this feedback, we manage to identify the success factors. Top 3 features with the highest votes are rider employment through the system, rewards for customers, and real-time tracking. The success factors are quality of service (including security), performances in terms of accuracy, customer intimacy and engagement (reward system), and speed. From our observations, these 5 success factors are important for the system to stay relevant and valued among customers. The quality of service such as security is really important in a feature like capturing parcels' images and rider selection. Accuracy in terms of location of the parcel is vital as well so that the customers will not get confused to know the actual location of the parcels. Sustaining intimacy with customers will definitely lead to a successful system such as giving rewards and promotions to the customers so that they will feel included and appreciated. Lastly, customers would want to know every information in a short amount of time, selecting the nearest riders to consume fewer minutes. In fact, even the riders are concerned with time and they do not want their seconds to be wasted. And this is why speed is included as a success factor.

5. Marketing Strategy For Your Proposed Information System

To survive and thrive an organization needs to operate deliberately and strategically. Great marketing strategies can help the success of the new app or the system. In the realm of courier delivery systems as well, marketing ideas are used in the initial stages to get the business up and running. The most efficient method to promote can be done by creating ads to promote the new system using Google Adwords. Ads will be displayed when people search for services like courier service. Ads will appear on Google Search and Maps. Next is a website, creating an appealing looking website containing contact information, rates and the services provided is a formal way to tell the customers and users what we can do for them. Business listing on Google may help to promote the new system. Visit Google My Business and claim for listings by putting our location on Google Map. This way, if one searches courier services near the location, Google will put out the list of various services including ours. Besides that, Email Marketing also may help the new system to be promoted.

Strategic business goals are concrete goals that can be measured and quantified, which is vital because an unmeasurable goal for an organization does not serve any practical purpose. The management and leadership are often tasked with setting these business objectives and establishing the direction the organization is aiming to go in. The proposed framework will be used in this paper to overcome the shortcomings of the current framework by enabling fast, rapid, and dynamic access to the courier and logistic service because there is still a lack of the existing information system for courier services to offer customers the utmost satisfaction in many aspects such as delivery processes, postal processes, and tracking processes. For example, when it comes to package delivery, the proposed system will provide its users with unlimited scope, they will be able to send packages without worrying for any limitations as the system will be able to help anyone, including customers, sellers, and also workers. The service takes place in real-time regardless of the distance and how small or large an item is, in addition to adding some additional features to make it different and more beneficial for users.

The proposed system's strategic business objectives include operational excellence that can improve operational efficiency to achieve greater profitability. Information systems and technology are among the most valuable resources available to managers to achieve higher levels of business operations efficiency and profitability, particularly with changes in business practices and management behavior. For example, this new system will enable it to operate better than the previous system as many improvements to smooth the management have been made. Next, the proposed system can satisfy the intimacy of customers and suppliers, as increased awareness with and service to customers which increases profits and improves communication with suppliers. Competitive advantage is another strategic business objective that can be explained here. By implementing efficient and effective information systems, the organizations can deliver better performance and respond in real-time to customers and suppliers which can add up to higher profits than their competitors. Not only that, this system proposed could even improve decision making. With real-time data access, the management of organizations is much better equipped to set strategic business goals based on accurate and real-time information. Decision-making based on data is much more effective in enhancing the organization's functions.

Some earlier studies demonstrate the lack of a current courier system in providing excellent customer experience and management of the system. Because of that, this proposed system is designed to solve the limitations of the existing courier system according to the different public perceptions and opinions on the features that are appropriate and progressive to be applied and focused more on the management information system. Our strategy is to project the best in the industry courier service, and the current situation does not reflect this. The new courier delivery service will ensure all the limitations of the current system can be solved and improve the

management of the system. Since this system is customer-oriented, it targets customer-focused courier services that want to update their system's existing options to ensure efficiency, performance, reliability, reality, and protection. The new system is designed with more features that would benefit all types of users which is different from the previous system besides can increase the customer's intimacy and improve the management of the system. This new system would bring a lot of benefits such as improved customer relationship management as for the organization, users would benefit from other aspects such as job platforms, users are given more options to make a delivery with a standard charge also it eases users to do a delivery to their recipient because of the features provided.

This proposed system targeted users including all types of users. The Courier Delivery Service is available to all types of customers. No specific criteria required for the customers to use the system except for certain features like rider employment which were specified to the users who had the vehicle license. The system is also available for their employees to manage the system.

The development of this proposed system involves many software, hardware, and also communication networks. Each feature interface is designed using Wix software. Not only that, other software used are Java, Javascript, Oracle DBMS, and also Microsoft Visio. For the hardware, laptop, and server involved in the development. The proposed system can not operate without a properly built communication network infrastructure. Data can be transmitted by several different communication channels, such as optical fiber cables, similar to conventional copper telephone lines, but distinguished by the use of optical fibers made of glass or plastic, and the use of light to transmit data is faster and has fewer losses than copper wire.

Required Policies and procedures for the proposed program like shipping which is processing time for couriers. Cut-off times are necessary to allow shipping to prepare the required documents and to meet the pick-up times and departure connections for couriers. To ensure that outbound courier items are shipped on the same day, package the item properly and attach a completed Shipping Form including speed code and account number of the recipient, if applicable.

Step to use the shipping courier service app:

1. Download and install Courier Delivery apps from the google store/ apple store.

2. To use the application users are required to sign up by clicking on [Sign Up] button.

3. Users can enter their contact number and click continue.

4. Next, users are required to fill in the details such as username, password and confirmation for password.

**Note that passwords created must contain at least 8-16 long characters , at least one uppercase and one lowercase letter.

5. Optional to set the profile picture.

Step to use features

- **Rider employment through application**

  1. Users should log in to the shipping courier system if they have an account, if not please sign up first.
  2. Users are required to fill in the information of applicants.
  3. Users can undergo virtual interviews after the requirement is complete.
  4. **users can claim reward points after that.

- **Games to receive promotions and rewards**
  1. Log in the account first
  2. Choose any game and start to play

- **Rollover zoom image for parcels**
  1. Log in the account
  2. Enter details of the parcel
  3. Choose the delivery section
  4. Click on parcel image
  5. Choose image before delivery to view image condition before delivery and click on image after delivery to view image after delivery.

- **Pop UP live chat**
  1. Log in the account
  2. Click on the button live chat
  3. Start message

- **Rewards for customers**
  1. Log in the account
  2. Claim the reward from by clicking the button [reward] in the system.

- **Rider selection**
    1. Log in to the account.
    2. Click on the rider listing info
    3. Choose rider when the parcel out of the HUB
    4. Make payment for the riders fee via the application

- **Real-time tracking**
    1. Log in the account
    2. Click on the notification to track the delivery

- **Route navigation**
    1. Log in the account
    2. Enter the tracking number of the parcel
    3. Turn on GPS to detect the current location of the parcel
    4. Click on the button [traffic] to check the traffic

- **Mobile post office tracking**
    1. Log in the account
    2. Turn on GPS
    3. View the post office in the area
    4. View path

- **Personnel rating and feedback for the rider**
    1. Log in the account
    2. Click on the Feedback button
    3. Give feedback and personnel rating in the box.

6. Discussion and Conclusion

Based on the expected results and marketing strategy that had been discussed, some expected problems will occur in the future for organizations that are involved in courier delivery service. As we can see that this proposed system had been implemented with a lot of improvement and had been made into it, by upgrading the courier delivery service into another level of achievement. Therefore, when the proposed system is not implemented in real-life, one of the obvious problems is the highly competitive situation between an organization with other existing courier company services. Most of all they provide a service with similarities in their features. So, an organization may encounter difficulties staying connected with their customers in the long term if they do not compete enough with its competitors. The solution to this problem is the organization needs to provide specialized services for their customers. The approach can be done by differentiating some of the services from the rest of the competitors. Making it unique by some innovations in their way is already enough to grab customer attention. Besides, it can increase the relationship intimacy between the organization and the customer. It can build customer trust by using their courier services. The use of a good marketing strategy also can help the organization gain a competitive advantage.

Besides, throughout the planning of the proposed system, we did not consider the estimated cost for development and estimated cost for support. Courier delivery services that want to implement this information system might have to labor a huge cost to make this system successful. To solve this problem, the organization has to make an analysis called Cost/Benefit Analysis. Cost/benefit analysis is a process of comparing costs and benefits to see whether investing in a new system will be beneficial. If cost is much higher than the benefit, we would probably have to disintegrate features with fewer votes from the system.

Other than that, the organization will be facing difficulties in adjusting to changes in market demands. It involves the courier company where they need to be alert with the market data to better understand the demands. With market dynamics changing drastically, staying up-to-date with the data requires extra efforts to deliver exactly what customers are looking for. It shows that understanding the customers is understanding the market. That's why customer satisfaction needs to be considered precisely. This can be solved by always being responsible for every complaint or feedback was given by customers. Then, for every single problem that occurs during the use of service, the organization must take quick action by trying to anticipate problems from the customers' end and solve them in advance ahead of the time. Respond to all their queries to assure a smooth and relationship between organization and customers.

Based on the feedback from users, we manage to identify the success factors of the system. As aforementioned, the first success factor is the quality of service. We have always prioritized this aspect in our system by introducing some new features like rollover zoom image, pop up live chats just to ensure the quality of our services, and to serve the customers at our best. Besides, we try to enhance our performances in terms of accuracy. This can be seen in our newly addressed feature which is GPS real-time tracking where it can locate everything precisely and with accuracy. Speed is also one of the success factors that we identify from the feedback as the potential users as well as the riders do not prefer to wait for a long time. Auto-delivery notifications and tracking updates will be sent to customers to avoid waiting. Lastly, customer engagement is the most important success factor for this system. Based on the survey, we conclude that cultivating customer intimacy and engagement is one of the biggest factors for a system or organization to stay relevant and valued.

Briefly, this project is completed by choosing the courier delivery service information system as our proposed system. Throughout the developing process for this system, we know the details process on how to solve the problem in real business. This project work has exposed a lot of information relating to the courier delivery service information system. Besides, each of us had been assigned to our roles to ensure that this project completed on time. We had been implemented new features for the system. The purpose is to enable an organization to have a great competitive advantage along with a good business strategy. Besides, we also want to ensure that our system meets the customer's satisfaction and requirements. They can get new experience in using an upgrading system of courier service. However, even though this project is already completed, the system needs to be well observed from time to time. It is because the system still needs future enhancement following the market demands in the future.

In conclusion, the proposed information system will benefit the customers in many ways as this system is customer-centric where every feature added is to aim for the convenience and comfortability of the users. We believe that although the existing system is not yet to satisfy customer satisfaction, there will always be a space for improvements, solutions, and alternatives to elevate its functionality, usability, reliability, performance, and security. The 10 features that we introduced are the features that are suggested by none other than the potential users, implementing them surely will bring a lot of benefits and profits to the company. With satisfying customers' needs, it will help the courier delivery service to stay relevant and propagate to a better future.

7. References

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