

iPADALA: An Express Delivery System Using Mobile Platform for Tablas Island, Romblon

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Abstract

Transporting products and packages requires concrete focus to ensure that packages reach its destination safely and to the right recipient. Meanwhile, most of the remote areas including Tablas Island, particularly Zafeway Trading, a general merchandize in Odiongan are experiencing problems in the traditional delivery system. The existing system for delivery of goods and packages has not utilized mobile facilities yet and has not used information and communication technology (ICT) in managing and tracking the transport of products and packages. This system was designed to manage online booking of product for delivery utilizing the mobile phone which can monitor the location of the mover and the estimated time of arrival. This can calculate the total amount of transactions for both movers and customers. The system used Global Positioning System (GPS) and was designed with the aid of Agile Software Development Life Cycle Model. The study was tested acceptable using ISO/IEC 25010:2011 standard.

Keywords— agile software development life cycle, global positioning system, online booking, express delivery system

I. INTRODUCTION

Romblon is an archipelagic province in Region 4B, composed of Mindoro, Marinduque, Romblon and Palawan (MIMAROPA), in the Philippines separated Luzon and Visayas by Sibuyan Sea. (Govph, 2019). Tablas Island is the biggest island in Romblon consists of nine (9) municipalities and the main trade center is Odiongan wherein port is located. This is equipped with infrastructures such as hotels, resorts, food chains, restaurants, hospitals, banks and many others (Vien, M., 2017).

Zafeway Trading is a general merchandise owned and operated by Mr. Zaldy Fetalvero which is located in P. Burgos St. Odiongan, Romblon, Philippines that operates from 8:00am to 6:00pm Monday to Sunday except Saturday. It is one of the biggest grocery store in Odiongan where it caters the daily basic needs of its constituents that offers a wide variety of general merchandise to retailers as well as wholesalers. The business engaged in

trading of goods such as consumer products (canned goods, housewares, toiletries, dry goods, food products like locally made delicacies, among others) on a wholesale and retail basis.

Mostly, when a resident acquires for good/s or product/s, delivering of such is being done using “pakisuyo” or “padala”. It is a Filipino word meaning “kindly bring this” or “may I ask you to bring this”. The person who would like to send his item home will talk to someone who will pass nearby in their home area to bring the item. Sometimes, the owner of the item will ask the public utility jeepney driver or the tricycle driver to send to their house if their travel will pass-by in their area. The major problem that could be encountered is most of the time delivery is delayed and usually, there is no tracking of goods to deliver. According to “Peoplevox, (2016)”, failure to have tracking of the delivery is a big problem since the time and mis-shipment could be encountered. Turban, King, Lee, & Liang (2015) stated that for the

success of e-commerce to which clients receive orders, speed contributes major factor.

Tablas Island is a remote area, where there is no system of delivery at this moment and transaction is manual. In terms of delivery of groceries/packages and other big items, traditional delivery process is being done as well. Traditional process is being done by asking help or favor to a nearby neighbor seen in the vicinity to bring the items or packages to the owner's home.

With this, the researcher came up to design an alternative method in conducting delivery of items and packages such as local delicacies like peanut butter and pili nuts, tourists' packages, documents, groceries and special products like flowers using an express delivery system that is applicable directly to Tablas Island's present set up specifically in Zafeway Trading. Developing a mobile app that can be used in delivery of items are considered by the researcher as an alternative method in transporting products and packages through online booking system. This is also a courier system but the difference is that the online booking of delivery will be scheduled and transport directly to the customer's residence. This system will boost the delivery faster than the current method which can provide convenience to the people of Romblon.

II. REVIEW OF RELATED LITERATURE

Conceptual Literature

With the development of technology, everything is connected and delivery of goods are already very common. You don't have to go to a courier office to bring personally the package you wanted to be delivered to its recipient because right at your fingertips with the utilization of mobile app, you can have your deliveries picked up and delivered to its designated receiver.

The existence of e-commerce in the Philippines, besides the problem related to traffic jams has given way and open opportunities in the courier business. Today even the smallest motorcycle/bike riders participated in delivery services since logistics has broken down into

numerous sections. In this regard Lalamove, based in Hongkong that emphasized in logistics service for small scale businesses and individual clients came into the market. Lalamove transforms this particular segment of the logistics industry with the use of advanced technologies like for example GPS vehicle tracking. It has transformed the manner in which transports are completed. Lalamove has eliminated the traditional way of delivering packages by going directly into the companies and individuals in need of their services. This was likely done with the use of mobile application (Cahiles-Magkilat, 2017).

iSEND is a delivery system that delivers packages in several parts of Metro Manila and other parts of Rizal Province in which clients or partners are allowed to upload an excel file to consolidate deliveries in each areas. This uses a same day/next day pick-up or delivery of small-items documents with the minimum hour delivery of eight (8) hours usually applied Cash-On-Delivery (COD). GoMoto is another company focused on delivery service using app for booking usually covers Makati, Taguig, QC or Pasig only. Cliqship company is a logistic and door-to-door provider that is specialized in shipping packages in both international and local areas with just 1-cliq system. They offer same-day delivery and next day delivery and usually have an airport-to-airport services. (Sulit, 2018).

Research Literature

The development of an express delivery system dedicated to Zafeway Trading in Odiongan, Romblon was framed to provide a convenient and safe delivery of goods and packages to different places.

The strategies to implement a same-day delivery standard for Amazon Prime clients was declared this Spring and just in second quarter this significant logistics venture was said to cost \$800 million. The development of Amazon's center retail deals had been reducing, so speculators trusted that offering millions of additional items readily accessible would get clients to spend more on its site. According to

the company's chief financial officer, Brian Olsavsk the outlays for the fast delivery were greater than he had predicted. "Millions more one-day packages went out this quarter than last and customers are responding and they like it" he added (Weise, 2019).

Companies engaged in express delivery services grow faster. The more important thing that companies should consider is the quality of service since it becomes the core competitive advantage in this kind of business. Based on the study in the quality of express delivery, indicators such as safety, character, economy, function, speed and aging are the dimensions that must be considered by the delivery company to obtain customer satisfaction. (Zhou, 2016).

III. METHODOLOGY

The system used both descriptive and developmental method of research. It is descriptive since gathering of data was conducted through series of interviews, surveys and literature reviews. Evaluation of acceptability was conducted through survey by means of a five (5) point Likert scale measuring also the general functionality of the system. This is developmental since system was designed, developed and evaluated to assess its effectiveness. Attributes were taken during the series of tests conducted by the participants composed of systems administrator, customers/suppliers of Zafeway Trading and movers who are the primary users of the system. An adopted questionnaire was used to evaluate the acceptability of the system using the five (5) point Likert Scale.

In evaluating the acceptability of the designed system, The ISO/IEC 25010:2011 standard was used applying the eight (8) characteristics to evaluate this system under this standard, and all sub-characteristics are used in the evaluation of the system. The 8 characteristics that were used were performance efficiency, reliability, security, functional suitability, maintainability, compatibility, portability and usability. In the interpretation of data, the statistical tool that the researcher used was arithmetic mean. Arithmetic mean of a list of the numbers is the

sum of all the members of the list divided by the number of items in the list. Number of items refers to the number of respondents who evaluated the system. The purposive sampling was used in the study. Questionnaire was distributed to the movers, customers/suppliers and systems administrators.

The system was developed using Agile Software Development Life Cycle (SDLC). "Every software development organization today seems to practice the agile software development methodology, or a version of it. Or at least they believe they do. Whether you are new to application development or learned about software development decades ago using the waterfall software development methodology, today your work is at least influenced by the agile methodology." (Sacolick, 2018). Building mobile applications can be as easy as opening up the integrated development environment (IDE), combining together everything, conduct a quick bit testing, and submit to the Play Store and all are finished in the afternoon. Or this can apply an extremely involved process that comprises of rough up-front layout, testing the usability, testing the quality assurance (QA) on a lot of devices, creating a full beta lifecycle, and then deploying in different ways. The mobile development life cycle was used in developing the system. The process is composed of a lifecycle which includes the inception, design, develop, stabilize and deploy (Microsoft Xamarin, 2016).

IV. RESULTS AND DISCUSSION

The main system was applied using mobile phone that was used by the movers and the customers that use the express delivery system. The main system was deployed using client-server technology. The main system in the server is used by the administrator which is the main operator of the system. The transactions for the day, the registrations of the movers and customers, the amount of the collected money, the reports and other major information of the system can be managed by the operator or administrator of the system. Drivers of the motorcycle in which system is deployed or

integrated are required to register to the system and requirements of the operators must be accomplished before the driver becomes official mover. Each mover will be given an access to use the system through mobile application. The customers(sender) of delivery express service are also required to register before they can use the system.

The software is deployed in the main server. The entire system runs using internet connections. Once the system is installed in the main server, an icon will be displayed in the monitor. Clicking the icon will direct the display to the main menu to where the login of the operator will be asked. Once, the correct password is accepted, the main menu will be displayed. The same with the movers and customers, “iPADALA” installer should be downloaded and installed to their mobile phone. This will produce an icon labeled as “iPadala”. Once it is pressed and enabled, a password menu will be displayed to enter the assigned password to both movers and users. The following illustrates the screenshots to show the flow of the system.

Screenshots of iPADALA Android Mobile Application (Mover and Sender)

This part of the system shows the screenshots on how the system works. Figure 1 shows the iPADALA icon. Once the smartphone is turned-on, the iPADALA icon upon installation will be displayed in the screen of the phone. Clicking the icon will display the environment of the app. Menus will be seen to navigate directly with the system. This icon is for the use of the customers to book a delivery.

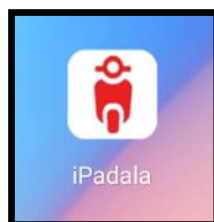


Figure 1: iPadala App Icon Display

Figure 2 shows the main menu display which provides an option to login as user or mover. Clicking the icon will ask for an account number and password as shown in figure. Once

the account id and password are correctly entered, it will directly go to the following display: Login could be a customer login or a mover login.

Figure 3 shows the map to where the items will be delivered. It also shows the total amount of fare to be paid by the sender.

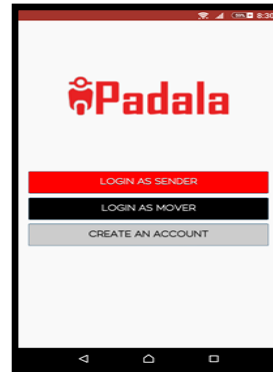


Figure 2:
Menu Display

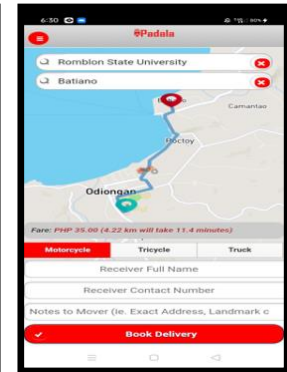


Figure 3:
Booking Delivery

Figure 4 shows the map while mover is in transit to pick-up location. There is an option that the mover can call the sender or he can click the button “Im Already Here” to notify the sender that he already arrived at the pick-up point.

On sender side while mover is in transit to pick-up point, a map showing the exact location of the mover as well as the estimated time of arrival can be viewed in mobile app. Also there is an option that the sender can call the mover for additional instructions as shown in Figure 5.

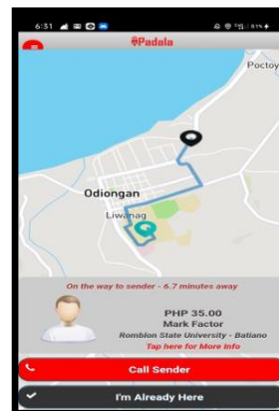


Figure 4: Mover in
Transit to Pick-up
Point (Mover Screen)

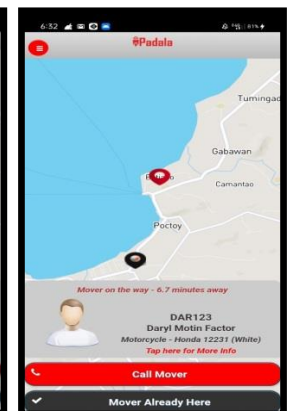


Figure 5: Mover in
Transit to Pick-up
Point (Sender
screen)

If the receiver already encoded the correct delivery code, payment fee will be displayed as shown in Figure 6.

After the transaction was completed, the sender will have to give a rating to the mover from 1 star to 5 star with regards to his overall service performance as shown in Figure 7.



Figure 6: Display Payment Fee

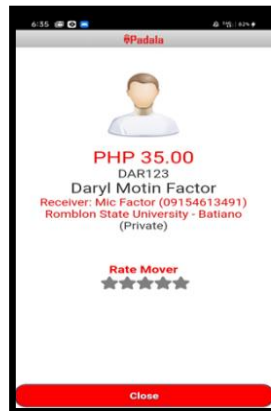


Figure 7: Rate Mover

Screenshots of iPADALA Web Application (Admin)

Upon entering the system using the right login name and password, the system will direct to the admin menu screen display as shown in Figure 8.

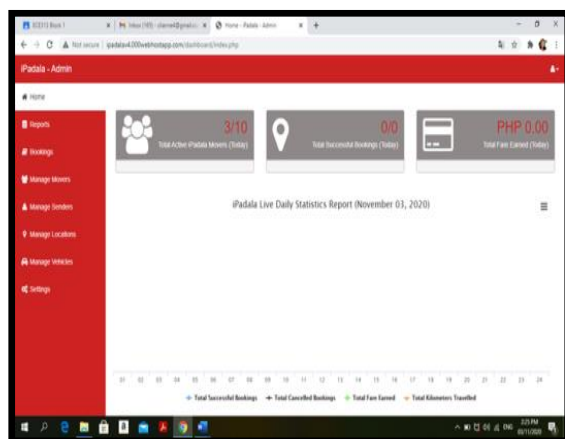


Figure 8: Admin Main Menu Screen

Figure 9 shows the sample details of the customer who requested for bookings. The booking ID was automatically generated and the mover's ID is being searched as per display. The pick-up point is stated together with the delivery point. The status of the booking is also

reflected and action option could be clicked to see more details.

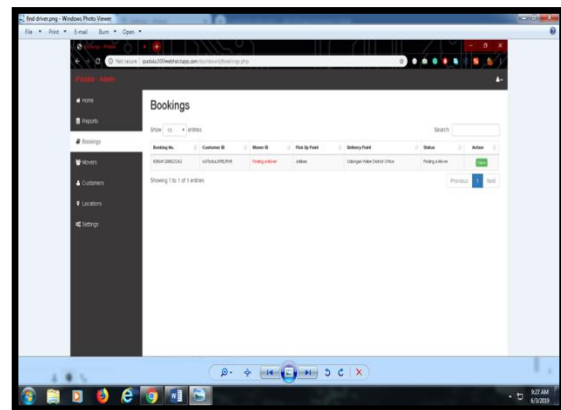


Figure 9: Booking Entry Display

V. SUMMARY

Romblon Island especially in Tablas Island has the manual delivery system of items. They use to ask for help to different people, car or tricycle that may pass by in their area to send or bring their items or packages in their home or other people. With this, the researcher came up in designing a system that could do express delivery system using mobile phone, GPS and mapbox. The developed system is centralized running in client-server model utilized using mobile phone. The administrator of the system, drivers usually called “movers” and customers also called “senders” are the primary users of the system. Both movers and customers are required to register in the system after downloading the mobile application and installed in their phone. The car or motorcycle of the mover should also be registered to the central office to become part of the iPadala system. The system works by means of booking a delivery service by the customer and wait for the acceptance of the mover. Moreover, on the side of the mover, he waits for a booking and accepts once request is received. When the mover reaches the area of the customer, delivery code will be confirmed. All transactions will be monitored by the use of mapbox and GPS. Upon arrival of the mover, code from the receiver will be verified before item is given. All of the transactions are recorded in the main server and the shares of both movers and owner of iPadala system are

transacted in the main system. The system answers the objectives of the mobile express delivery system and resulted to customer satisfactions.

The express delivery system that can facilitate fast and safe transporting of items and packages to desired destination was designed and developed to answer the needs of the Romblon people particularly in deliveries of items or packages to and from Zafeway Trading. The design was easy to use since mobile phone is used applying GPS and mapbox. This design system contributes to the comfortable, safe and accessible ways of delivering products or items. Developing this kind of system led to achieve customer satisfactions to the customers of iPadala in Tablas, Romblon. The system that was developed and designed to manage the records of transactions of both movers and customers which led the researcher to address the needs of Romblon in terms of delivery system. The systems efficiency and accuracy was tested obtaining general weighted average of 4.64, which means that the developed system is "Very Acceptable" to both users and drivers.

VI. RECOMMENDATION

The researcher recommends that the designed system should also be used to the different rural areas of the Philippines since most of the areas in other parts of the country also use motorcycle as their primary means of transportation.

This also recommends that the system should be upgraded and enhanced to cater the use of e-payment system like G-Cash and Pay Maya.

Future researchers should enhance the capabilities and functionalities of the designed online booking system such as providing alerts to the drivers when booking is being made and alerts to users if booking is approved. Providing security such as identification if the motorcycle suffered from accident or hijack could be considered to ensure that help could be provided to the mover. Other security features are recommended to be added to make this system better and more improved.

It is also recommended that future researchers should integrate or incorporate reward system such as application of points system that can

encourage and motivate to the user to utilize the iPadala app.

VII. CONCLUSION

This is to conclude that the development of the iPadala Express Delivery System provides great support in the fast and safe transaction of delivery of items and products in Tablas, Island in Romblon, particularly in the municipality of Odiongan. The system provides major contribution to the express delivery system of Romblon by providing fast and accurate sending or delivery of item. This also provides convenience since there is no need to look for anyone anymore who will pass by the sender's area to ask for help as part of current system. Bringing or sending of items can be done through mobile phone which provides convenience and satisfaction to the customers.

The monitoring and tracking of the delivery is one of the good features of the designed system that could boost the trust and confidence of the customers to patronize the system. The major impact is that the application promotes comfortable user experience to satisfy the need of the constituent in Odiongan in terms of sending or transporting products challenged by reviewers if the results are not supported by adequate data and critical details.

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