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Creation and utilization of the my balas bag online system (MBB)

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ABSTRACT

The My Balas Bag Online System (MBB) is an online platform for recording the accumulation of reward points received by customers who buy in small shops without using plastic bags. The problem statement is that customers are less aware of the dangers of using disposable plastic bags. The second problem is because there is no encouragement from retailer grocery to customers not to use plastic bags and retailer grocery do not have an affordable platform or tools as an initiative to record the accumulation of reward points given to customers who buy without plastic bags. The objectives of this project are to design, develop and implement an online system in real situation. Methodology used is Prototype, whereby the developing of system is simultaneously administered with the implementation. In conclusion, this project helps to reduce using of plastic bag while buying goods.

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Introduction

The development of online digital technology has affected every area of life nowadays. Human, organization and technology are the essentialcomponents of IS; the impacts of HIS are assessed in the netbenefits (Yusof et al., 2008). The development of this technology has brought great implications to human life. Effective information systems have been developed using this digital technology to speed up the recording and gathering of data. To this aim, it is believed that quality and meaningful management in a commercial organisation may boost productivity and performance, hence satisfying government goals. Awareness of the importance of not using plastic bags when shopping at grocery stores has made the Avoid Plastic Bags campaign by the government less successful especially in the village communities. The use of reusable bags and the management of accumulated reward points is a requirement of the importance of the use of online technology. This makes it a very useful medium to attract the local community in fulfilling the campaign by the government can be applied and implemented digitally.

The main goal of this innovation project is to create an integrated platform to manage reward points records more efficiently by retail grocery. The purpose of system development is as an alternative to reduce using disposable plastic bags in daily life among the community. Whereby this system able to record the accumulation of reward points given to customers who buy in retail stores without using plastic bags. This project implemented in three retail stores which are Ismail Enterprise, Doa Maju Sdn Bhd and Marang Rhu Enterprise in the district of Marang, Terengganu. The system will support retailer grocery to have an

affordable platform or tools as an initiative to record the accumulation of reward points given to customer. The development of this system can indirectly foster community awareness of the dangers of the use of plastics. The system can attract customers when they find out they can collect redeemable reward points from the grocery store.That is, giving out rewards could make customers feel obligated to respond by increasing their business, which could then result in the corporation giving out additional rewards(Smith & Sparks, 2009). Indirectly the concept of rewarding customers is able to maintain customer loyalty to stores that use this system.

Plastic pollution is increasing on land and in the waters across the world. According to a frequently quoted prediction, 100 to 250 million metric tonnes of plastic debris might reach the ocean annually by 2025 (Sarah, 2022). According to Njeru (2006) plastic bag waste is linked to many environmental issues and is not just a problem of visual pollution.The issue of community awareness there was the use of reusable bags was still very low. Customers are less aware of the dangers of using disposable plastic bags. There is no encouragement from retailer grocery to customers not to use plastic bags. Based on the issue, retailer grocery do not have an affordable platform or tools as an initiative to record the accumulation of reward points given to customers who buy without plastic bags.

Literature Review

The process of system analysis aims to study an existing system to entirely design a new system. System performed to understand the process or the system clearly(Chen, 2009). As technology improves, retailer grocery should also move with the flow to assist the government in responding to the Avoid Plastic Bags Campaign. Attempts to influence consumer behavior (Convery et al., 2007) namely a small ongoing effort and very important in realizing the desire to create awareness and interest not to use plastic bags. Whenretailer groceryalso play a role, surely the practice of creating interest and awareness can be improved in the form of daily practice. The use of a computerized system will help record the rewards that can be earned by grocery store customers. Table 1 shows the comparison between similar system or product with proposed system which is My Balas Bag Online System. Depending on incentive principles, we can observe that they award clients based on total purchase amount. However, the My Balas Bag Online System rewards customers who make grocery store purchases without plastic bags. Customers receive a token and contribute to the environment by reducing plastic bag usage.

Table 1 <Comparison Table>

Specifications	BONUS LINK Card (SHELL)	MESRA Card (Petronas)	Membership Card (Supermarkets)	My Balas Bag Online System
1. Equation	Reward points from *stakeholders*	Reward points from *stakeholders*	Reward points from *stakeholders*	Reward points can be set by the trader himself
2. Redemption of Rewards	High redemption points	High redemption points	Limited / Limited reward options	Retailer grocery set their own rewards
3. Location	Shell stations only	Petronas station only	In certain supermarkets only	Can be extended to all registered business premises
4. Purpose	Increase customers	Increase customers	Increase customers	Reduce the use of plastic bags
5. ID requirements	Card serial number	Card serial number	Card serial number	Phone number
6. Cost of Fees	Free	Free	Paid	None / Free
7. Development Cost	External vendors	Vendor External vendors	External vendors	Dibangunkan secara Developed in-house
8. Reward Chain	Consumer → Company	Consumer → Company	Consumer → Supermarkets	Retailer Grocery → Customer

Method

Many methodology or findings from this field mainly generated into journal for others to take advantages and improve as upcoming studies. For this system prototype model is selected and will implement it to the system. The prototyping model is a method of creation of systems which a prototype is constructed, tested and then reworked as required until an appropriate result is obtained from which the entire system or product can be produced(Sommerville, 2007).Figure 1 shows the prototyping model phases. Have four main phase namely the investigation and initial planning phase, the system analysis phase, the system design phase and the system implementation phase.

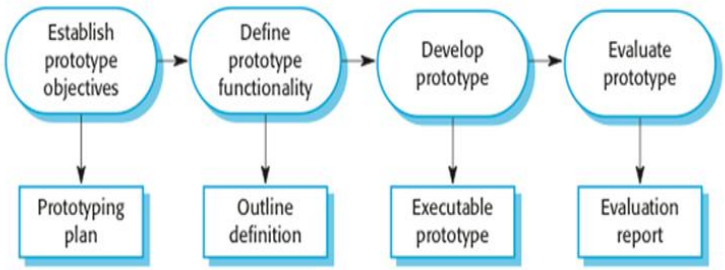

Figure 1 <The process of prototype development>

In the first phase which is planning phase, important information related to grocery retailer will be collected and documented. The method of obtaining information is to conduct an interview session with retailer grocery and customers. Specification analysis will involve evaluating, recording, verifying and handling software or hardware requirements. After identifying the initial requirements, information collection and analysis will be conducted to determine the Context Diagram (CD) and Entity Relationship Diagram (ERD) to show the relationships between entities and also to identify and show the processes and data flow in the system. Next in the design phase, functional module design, flowchart, system's database design and user interface design will be created. The results of this phase will produce and describe the actual system presentation. Various factors will be taken into account such as risk, technology to be used and also team skills. In the implementation phase, the actual prototype will be coded and developed according to the user's requirements. Improvements will be made after receiving feedback, corrections and repairing processes to ensure the application meets customer requirements.

Entity Relationship Diagram

An entity relationship diagram (ERD) is a specialized graphic that illustrates the relationships between entities in a database.ERD provides developers with an overall grasp of the data requirements, modeling and database structures of the information system before the implementation phase(Cagiltay et al., 2013).Figure 2 shows the Entity Relationship Diagram in this system. The diagram describes the sketch between the entities in the database, where it shows the data used in each process and how the files related to each other. The entities are involved are retailer grocery, reward and customer.

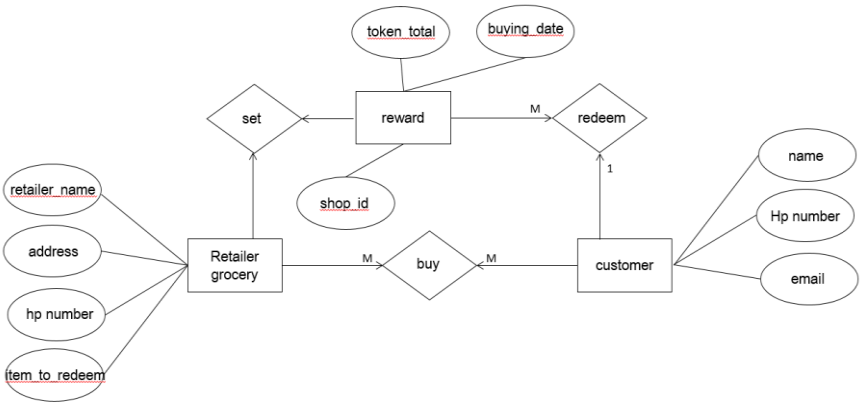

Figure 2 < Entity Relationship Diagram (ERD)>

Context Diagram

A context diagram is a graphic design that clarifies the interfaces and boundaries of the project or process at hand. It not only shows the process or users. Further the context diagram shows the interactions between a system and other factors with which the system is designed to interface. System context diagrams can be helpful in understanding the context which the system will be part of.

Figure 3 <Context Diagram (CD)>

Results and Discussion

This application of My Balas Bag Online System (MBB) was designed and dedicated to record the accumulation of reward points given to customers who buy in retail stores without using plastic bags. In constructing the modules, the language used is Hypertext Preprocessor, database is MySQL and Windows Operating System as a platform. For the generated applications, data classification is provided based on the objectives of the system. Below as screenshots of some of the modules that offered by the application.

Figure 4 <Login Page MBB Online System>

The login page is the main access page for the My Balas Bag Online System. Based on figure 4, user can access the system by entering the username and password.

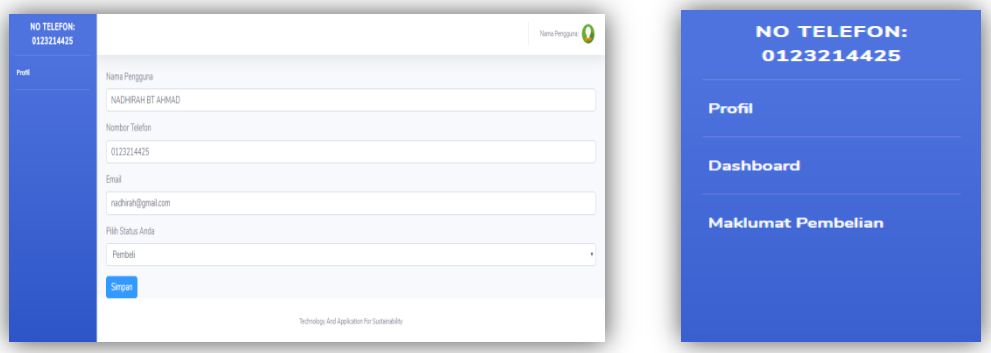

Figure 5 <Interface Customer Registration and Dashboard Menu >

Figure 5 shows the example of registration page and dashboard menu for customer. If the customer do not have the account, retailer grocery need to register them first before they can use the system.

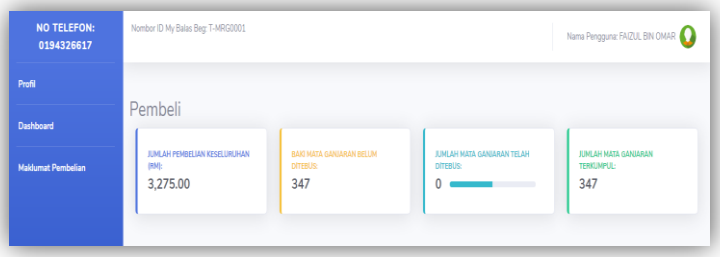

Figure 6 <Dashboard Customer>

Figure 6 shows the dashboard for customer.Purchase information and the amount of rewards earned will be displayed.

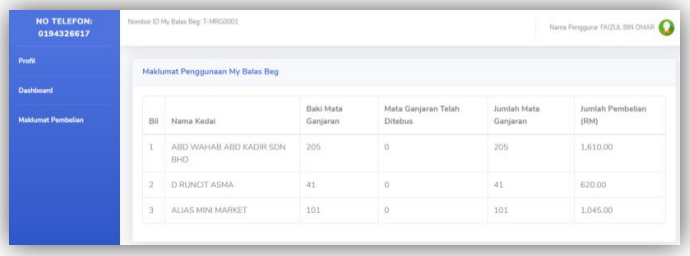

Figure 7 <Interface for Total Point for Each Retailer Grocery While Purchase>

Figure 7 shows thepurchase information made by customers who buy without using plastic bags will be recorded by the retailer grocery in the Consumption Information menu. Customers can find out the number of points earned from each store that participates in this system.

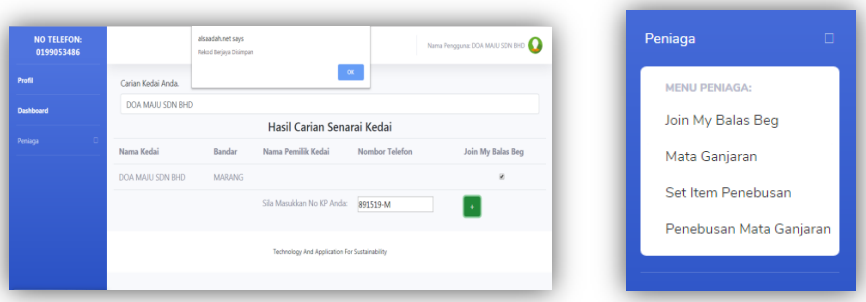

Figure 8 <Interface Retailer Grocery after Successfully Login to System>

Figure 8 shows about the dealer menu list is displayed after the dealer successfully registers. The retailer grocery menu list is displayed after successfully Join My Balas Bag Online System.

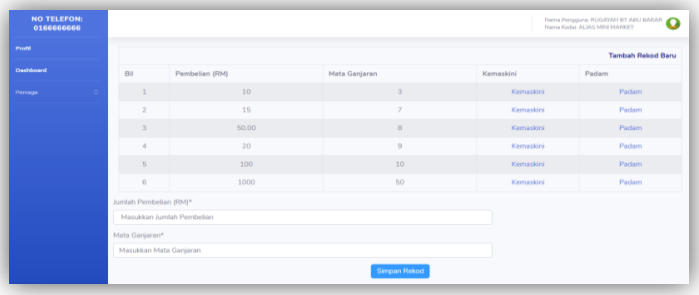

Figure 9 <Interface retailer grocery setting redeem token>

Figure 9 shows about interface for retailer grocery to setting redeem token. Each grocery retailer can set any value for redeem by customer.

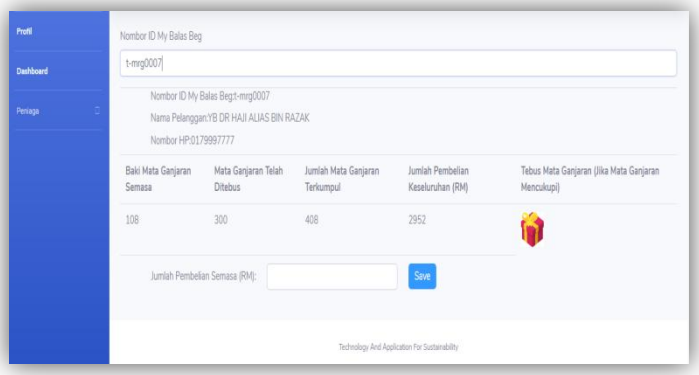

Figure 10 <Selection item to redeem based on point>

Figure 10 shows about selectionitem to redeem based on point. If the total value recorded is successfully achieved, the retailer grocery will be rewarded with a gift as set.

Conclusions

As conclusion, this project successfully achieved the objectives of project to design, develop and implemented in real situations. This system has been used by three retail stores in the district of Marang, Terengganu. This project is seen to affect buyers not to use plastic because this system be able to record the accumulation of reward points given to customers who buy without plastic bags. Indirectly the system can be used as an alternative to reduce the use of plastic in daily life. As a result of the use of the system has been able to foster awareness of the dangers of the use of plastics. This system can also help retailer grocery to have an affordable and easy -to -use system application. The selection of a prototype methodology is appropriate for system development because it can speed up the system development process that meets the needs of the project.

References

Cagiltay, N. E., Tokdemir, G., Kilic, O., & Topalli, D. (2013). Performing and analyzing non-formal inspections of entity relationship diagram (ERD). Journal of Systems and Software, 86(8), 2184–2195. https://doi.org/10.1016/j.jss.2013.03.106

Chen, E. (2009). The design and implementing of University Personnel Dossier Management System based on web services. 2009 WASE International Conference on Information Engineering. https://doi.org/10.1109/icie.2009.160

Convery, F., McDonnell, S., & Ferreira, S. (2007). The most popular tax in Europe? lessons from the Irish Plastic Bags Levy. Environmental and Resource Economics, 38(1), 1–11. https://doi.org/10.1007/s10640-006-9059-2

International Journal of Medical Informatics, 77(6), 386–398. https://doi.org/10.1016/j.ijmedinf.2007.08.011

Njeru, J. (2006). The urban political ecology of plastic bag waste problem in Nairobi, Kenya. Geoforum, 37(6), 1046–1058. https://doi.org/10.1016/j.geoforum.2006.03.003

Sarah J. , M. (2022, March 2). Plastic pollution is a global problem – here's how to design an effective treaty to Curb it. The Conversation. Retrieved July 27, 2022, from https://theconversation.com/plastic-pollution-is-a-global-problem-heres-how-to-design-an-effective-treaty-to-curb-it-176226

Smith, A., & Sparks, L. (2009). Reward redemption behaviour in retail loyalty schemes. British Journal of Management, 20(2), 204–218. https://doi.org/10.1111/j.1467-8551.2008.00561.x

Sommerville, I. (2007). Software engineering. Addison-Wesley.

Yusof, M. M., Kuljis, J., Papazafeiropoulou, A., & Stergioulas, L. K. (2008). An evaluation framework for Health Information Systems: Human, organization and technology-fit factors (hot-fit).