Analysis and Design of Revival TV Shop Mobile Application

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Abstract— **Mobile phone technology has undergone developments which makes it can provide a variety of facilities to support productivity and efficiency in the form of smartphones. Emarketer digital marketing research institute estimates that in 2018 there will be more than 100 million active smartphone users in Indonesia. In early 2019, the number of smartphone users reached 355 million, which is more than 33% of the total population of Indonesia reaching 268.2 million. With the large number of smartphone users, the number of mobile application downloads will also increase. This phenomenon is accompanied by Esports (Electronic Sports) development in Indonesia. The RevivalTV as one of Esports companies in Indonesia will develop a mobile application to help the company to sell game merchandise, and the application will be accessed and downloaded by mobile users so that people can still carry out daily activities without opening a browser or devouring a lot of internet data. The method used for designing systems in RevivalTV is the SDLC (System Development Life Cycle) method.**

Index Terms- **Esport; Mobile Application; Smartphone.**

I. INTRODUCTION

Technology is a facility that is made to ease all things related to the continuity and comfort of human life. Smartphones, iPads, tablets, and personal computers are now easier to carry around. It can be concluded that smartphone technology is a mobile phone that has undergone the latest (present) transformation and provides a plethora of content that supports the sophistication of the device.

Indonesian smartphone users are growing rapidly. The digital marketing research institute Emarketer estimates that in 2018 the number of active smartphone users in Indonesia is more than 100 million people. With such a large number, Indonesia will become the country with the fourth largest active smartphone users in the world after China, India and America. Data from the We Are Social website shows that smartphone users in Indonesia in January 2019 were 355 million users, 33% greater than Indonesia's total population of 268.2 million.
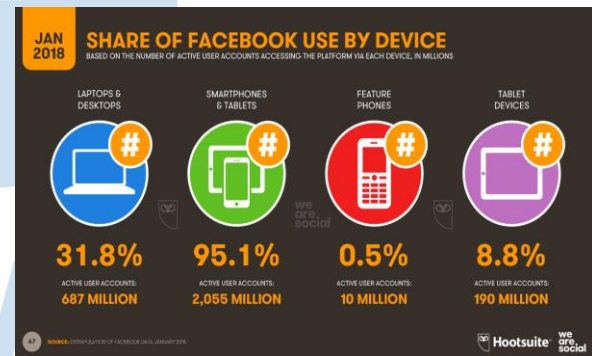

Fig. 1. Comparison of App Users on All Devices (Source: We Are Social 2018)

Fig. 2. Game Development Globally (Source: Newzoo 2019)

Data from We Are Social shows that the use of mobile applications outperforms website access. For example, Facebook application users on mobile show 95.1% or about 2.055 million, while for website usage it is only 31.8% or about 687 million of the total Facebook users. It can be concluded that the use of mobile applications is preferred over website access.

This phenomenon is accompanied by the development of Esports (electronic sports) in Indonesia. Some people quell their boredom by playing games on smartphones. However, it is not uncommon for some people to make esports a profession, not just a hobby. Based on the Newzoo report, as quoted from techinasia, in 2019 the global game market value will reach US $ 152 billion (around Rp. 2.15 quadrillion), an increase of 9.6 percent compared to the previous year. This shows that the trend of esports in the global market continues to increase. This is due to the ease of use of gadgets that are more compact to carry or use than PCs, laptops, and others.

Exhibit: Global mobile games revenue by region, 2017-2019

Region	Mobile games revenue 2019 H1 USD million	Mobile games revenue 2018 H1 USD million	Mobile games revenue 2018 USD million	Mobile games revenue 2017 USD million
Global	33,453	28,650	60,786	51,134
Asia (excluding China)	11,321	10,134	20,901	18,643
North America	8,547	6,999	14,850	12,487
China	8,318	7,032	15,627	12,127
Europe	3,474	3,088	6,391	5,307
Oceania	515	489	1,012	916
Latin America	442	293	665	528
Middle East	341	268	566	490
South America	299	196	446	346
Central America	139	95	214	178
Africa	57	56	114	112

Source: Sensor Tower, Niko Partners 2019

Fig. 3.   Global Games Revenue by Region, 2017-2019

Esports or Electronic Sports is a term for video game competitions between professional teams, video game genres that are usually symbolic of electronic sports are real-time strategy, fighting, shooter games, and multiplayer battle arenas. For esports fans, there are many websites that provide information about match schedules, player transfers, information about teams, information about players, and so on. However, it is very rare to find developers who think to make the website into a mobile application.

By considering the opportunities regarding technological developments and internet users with the potential for downloading applications on smartphones. The RevivalTV mobile application can be accessed and downloaded by mobile users so that people can still carry out daily activities without opening a browser or devouring a lot of internet data, and battery. The RevivalTV application will help gamers to buy game merchandise via the mobile application because the current company website does not support for shopping game merchandise. The RevivalTV application will help the company to increase revenue from selling game merchandise.

II. THEORETICAL BASIS

A. Mobile Application

According to the Mobile Marketing Association [1], the mobile application is software that is operated on mobile devices including smartphones or tablet PCs. The Mobile application itself is known as an application that can be downloaded and has certain functionalities in accordance with the content that has been provided by the application to support the performance of mobile devices. The Mobile application is a software unit created to serve the needs of several activities such as commerce systems, games, public services, advertising, or all processes needed by humans on an ongoing basis.

B. Esports

Esports is an abbreviation of Electronic Sport [2]. Electronics has something that works by using many small components, especially microchips and transistors, that control an electric current. Sport means an agility competition activity between individuals or groups that is not limited to physical activities.

It can be concluded that Electronic Sport is a form of sport in which the main aspects of sports are facilitated by electronic systems [8-11]. "In more practical terms, Esports is usually a video gaming competition which is often organized by various event organizers, player levels, and types of tournaments (major/minor), where players are usually in teams or "games" community forums. Even though Esports is called a sport only because there is the word 'sport' in its use, the categorization of Esports as a sport is still debated until now [6]. This is in contrast to the existing ecosystem, with esports athletes, spectators, sponsors, and even esports championships.

C. SDLC

SDLC consists of 4 main stages, namely planning, analysis, design, and implementation [3]. Each phase consists of a series of stages, which rely on techniques that produce results. The 4 stages are:
1) Planning,

A basic process for understanding why a system should be built. In this phase, a feasibility analysis is needed by looking for data or requirement gathering for users.
2) Analysis

A process of investigating an ongoing system with the aim of getting answers about system users, how the system works, and when the system is used. This

analysis process will produce an appropriate way to build a new system.

3) Design

A process of determining how the system works in terms of architecture design, interface design, database and file specifications, and program design. This design process will produce system specifications.

4) Development

The process of developing and coding the system application based on user requirements.

5) Testing

The process of finding the error and bugs in systems, and fixing them. The process will continue until the software is completely free of bugs, works stably, and functions as expected.

6) Implementation

The process of implementing the new system development.

7) Maintenance

The process of system installation, and system support plans.

This paper uses Waterfall SDLC model, this framework emphasizes moving from one stage to the next. So we must complete one stage before moving on to the next stage. This framework is suitable for small projects with an end result that is easy to define from scratch.

D. UML

Unified Modeling Language (UML) is a set of structures and techniques for modeling object-oriented programming OOP (object-oriented programming) designs and their applications [4]. UML is a methodology for developing OOP systems and a set of tools to support the development of these systems.

III. METHOD

The method that will be used in the design and manufacture of a mobile application information system in this thesis is the SDLC (System Development Life Cycle) method [5]. Due to various limitations, this paper only carry out several stages of the SDLC method, including:

A. Project Initiation

Identifying problems and designing new mobile application systems.

B. Project Planning

A basic process for understanding why a system should be built. In this phase, a feasibility analysis is needed by searching for data or conducting an information gathering process for users. As well as organizing and scheduling projects.

C. Requirement Analysis

A process of investigating an ongoing system with the aim of getting answers about system users, how the system works and when the system is used. Looking for the needs of users or gamers to build a mobile application system.

D. Design

A process of determining how the system works in terms of architecture design, interface design, database and file specifications, and program design [5]. The process of designing a mobile application includes the following diagrams:

1) Activity Diagram

a diagram used to describe the sequence of business process activities from start to finish.

2) Use Case Diagram is a diagram that is used to describe anyone who interacts directly with the system that has been designed.

3) Class Diagram is a diagram used to describe the structure of the system in the form of objects.

4) Sequence Diagram is a diagram used to describe a sequence or flow system based on the cases contained in the Use Case diagram.

5) User Interface is a system interface that facilitates the user to interact with the application.

6) Implementation phase

At this stage we do not carry out the implementation stage directly to the company because the design of the mobile application is only in the form of a prototype.

IV. RESULT AND DISCUSSION

The following are the business processes and systems that run on the RevivalTV website before creating a mobile application.

A. Analisis Sistem Saat Ini

1) Website RevivalTV

For now RevivalTV has a website that is useful as a medium of information about games, a lot of information provided by this website is the correct playing tricks in the game, the currently popular team, team player info and also player development. RevivalTV also has a website shop, where RevivalTV sells merchandise, such as clothes, jackets, lanyards, and collaborative shoes with today's famous brands.

2) RVL(Revival) by RevivalTV

Currently, the sales process on the RVL (Revival) by Revival website is only for display and for orders via the WhatsApp application. The sales business process can be described as follows:
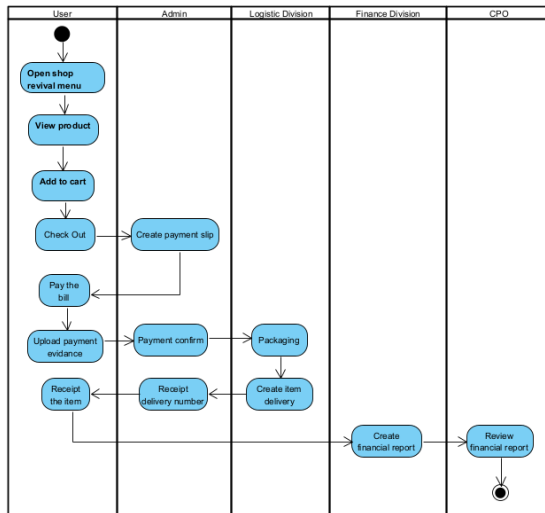

Fig. 4.   Activity Diagram For Current Business Process

B. Problem Identification

3) Interview

Interviews were conducted with resource persons to find out more fully the problems faced and also the desired solutions to solving these problems.

4) Observation

Based on the results of observations, the problems that occur. The following is an analysis of the problems that occur on the RevivalTV website:

- The display of the RevivalTV website is less catchy and the shop page is less presentable.

- The features on the RevivalTV website are still lacking and many don't work. Especially features (login, payment, wishlist). There are still many features on the RVL(Revival) by RevivalTV website, such as the login page that doesn't work with minimal validation and the lack of payment processing. As well as wishlist pages that cannot be accessed or redirected to other features.

- The shop's business process is still not yet helpful enough for the user to operate. There should be information about the availability of items on the website.

C. Troubleshooting Solution

There are several problem solving proposals from the analysis of the problems faced by the company:

1) The design of the appearance of the mobile application is designed to make it easier for the user to use the application. And modify the appearance to make it look more attractive than before

2) Added a new feature, namely livescore. This feature provides a schedule of previous, present and future multiplayer matches.

3) Creating a shop feature in the RevivalTV car application, making it easier for users to buy RVL (Revival) by RevivalTV merchandise and products from the user's favorite team or gamers.

4) Design shop business processes to be more efficient and increase sales of RevivalTV products, being able to collaborate with well-known brands today.

D. System planning

The purchase and registration process will be carried out through a system. Users must download the RevivalTV mobile application. Furthermore, in the application the user can use the features that have been provided such as livescore, news, tournament, team profile, and if the user wants to buy RVL (Revival) by RevivalTV merchandise or his favorite team, the user can directly buy it in the shop feature. In the shop feature, users can immediately see the choice of clothes, sweaters, lanyards, and other catalogs. After the user has determined the items he wants to order, the system will display a basket page where the user can view and update the ordered items, then the user will enter the payment details page where the system will display the total price of all the products to be ordered, and the system will display the total price of all the products to be ordered. automatically displays the payment method along with the invoice for the user. If the user does not pay within 1x24 hours, the transaction will be automatically canceled by the system. After the user makes the payment, the admin will confirm the payment and delivery of the goods and input the receipt number which will be sent to the user in the registered email. At the end of each month the admin will report on the results of sales and orders. This report will be a monthly sales evaluation and order data to be provided to the CEO.
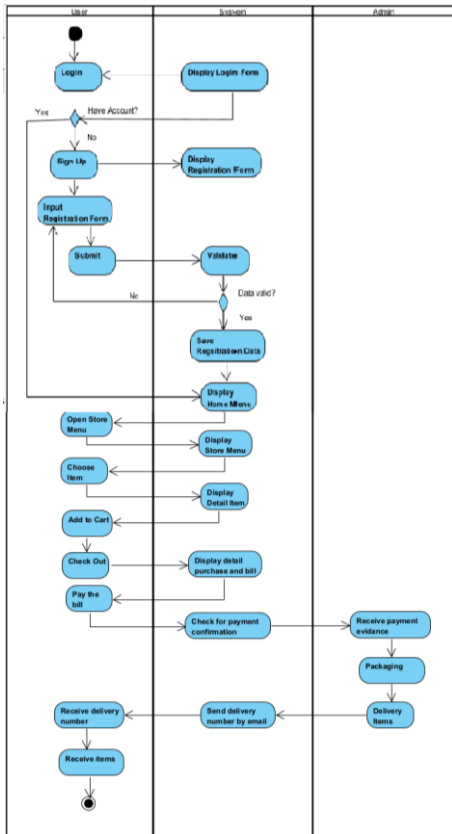
1) Activity Diagram

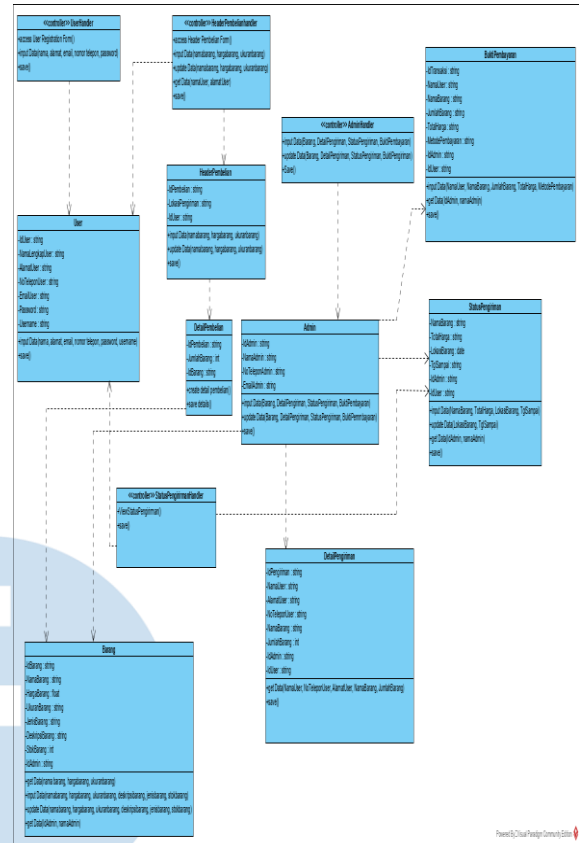Fig. 5.   Activity Diagram New System

2) Use Case Diagram

Fig. 6.   Use Case Diagram

3) Class Diagram [7]

Fig. 7.   Class Diagram

4) Sequence Diagram
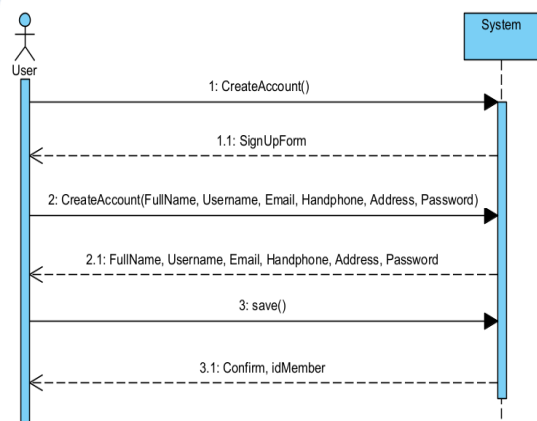

Fig. 8.   System Sequence Diagram Create Account
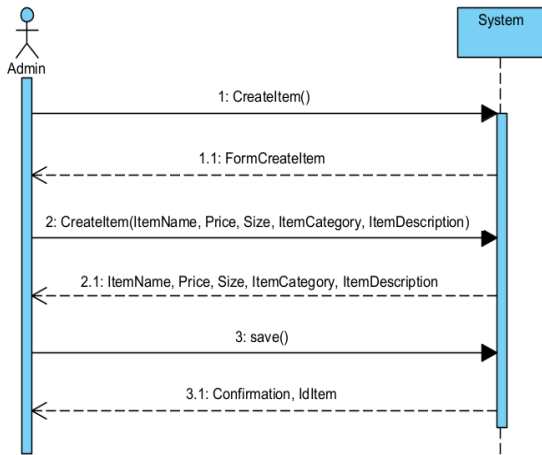
Fig. 9.   System Sequence Diagram Input New Item

Fig. 10. System Sequence Diagram Update Item
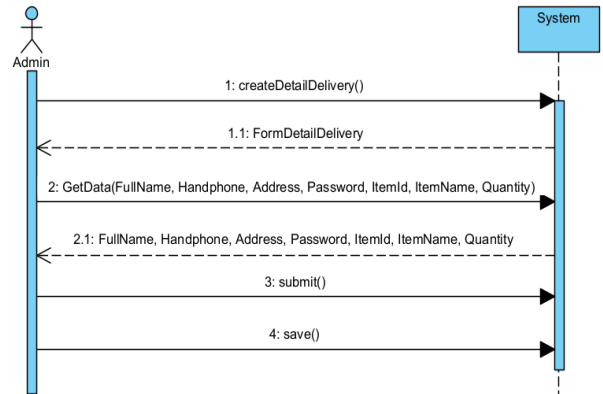

Fig. 11. System Sequence Diagram Create Payment Receipt
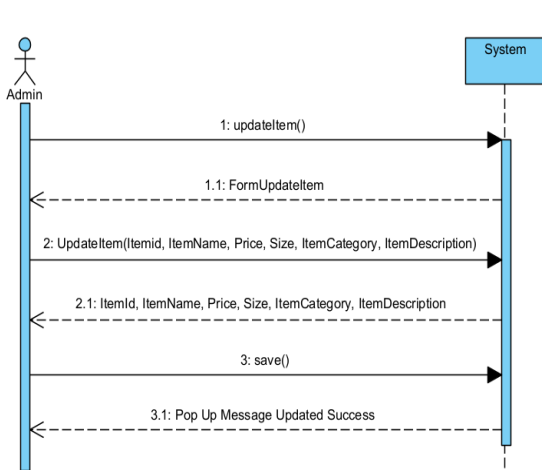

Fig. 12. System Sequence Diagram Create Delivery Detail
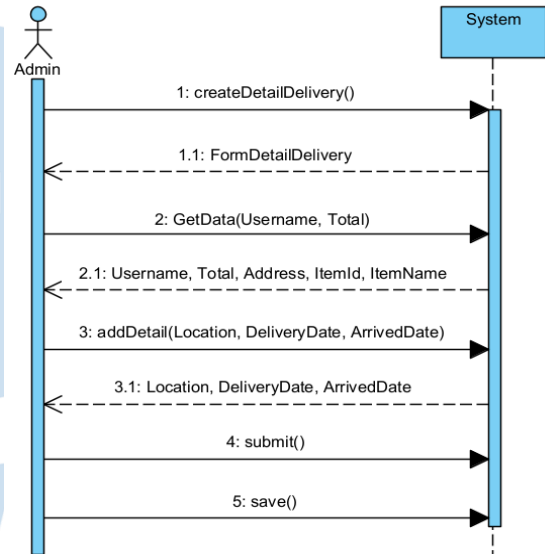

Fig. 13. System Sequence Diagram Create Delivery Status
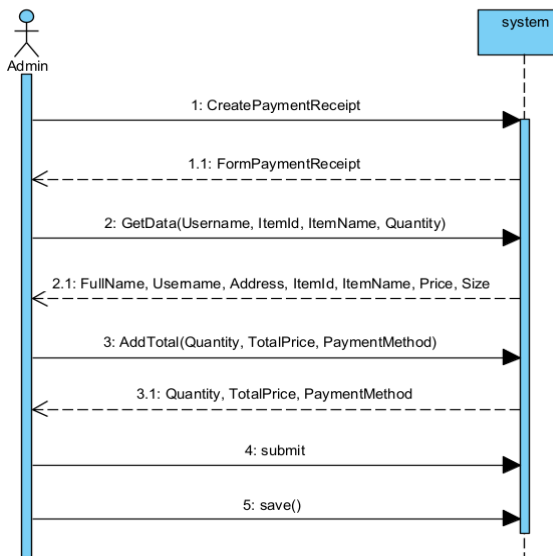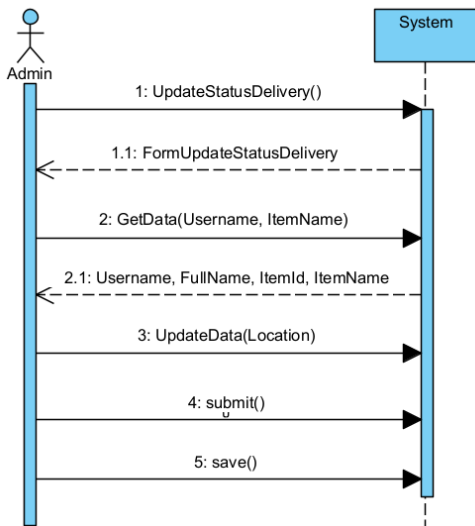
Fig. 14. System Sequence Diagram Update Delivery Status
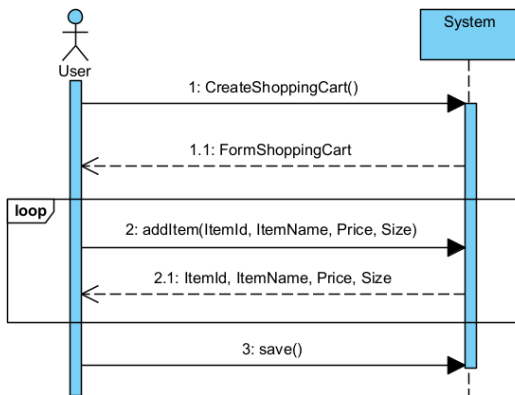
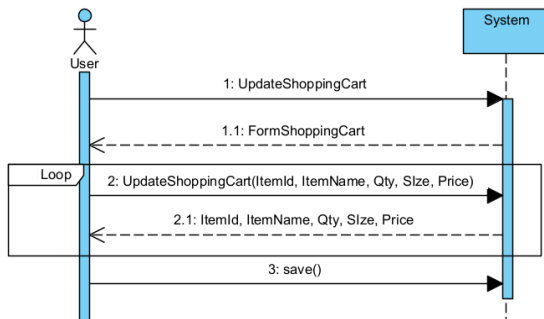Fig. 15. System Sequence Diagram Create Shopping Cart

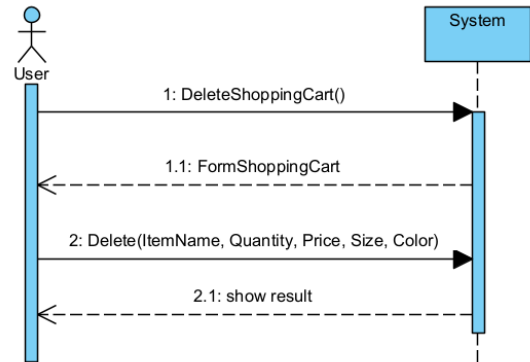Fig. 16. System Sequence Diagram Update Shopping Cart

Fig. 17. System Sequence Diagram Delete Shopping Cart

5) Site Map

Fig. 18. Site Map User

6) User Interface

- Login

This page contains the RevivalTV mobile application login form. Users are required to log in before being able to access the RevivalTV mobile application via the email and password that was registered during Sign Up.
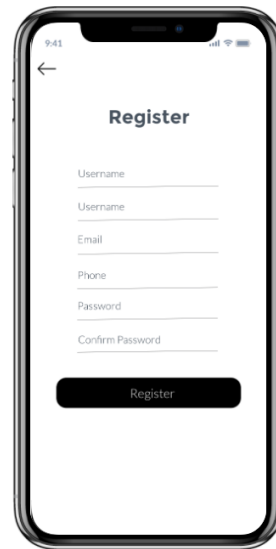
Fig. 19. User Interface Intial Display

Fig. 21. User Interface Sign Up

- Main Menu

The Main Menu feature displays the schedule of matches between teams that have taken place, are currently in progress, and will take place. This page also displays the name of the team playing, and the result of the match score. Has a tournament game schedule filter feature, which only displays 1 type of match game.
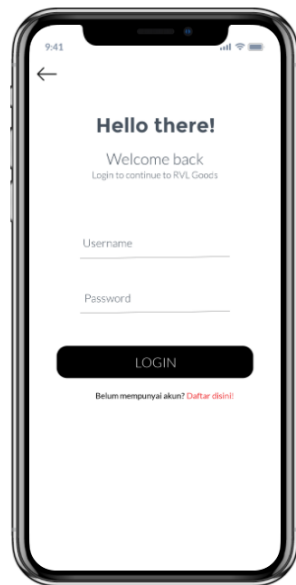

Fig. 20. User Interface Login

- Sign Up Menu

This page contains a registration form for users who do not have a RevivalTV mobile application login account. Users are required to fill in data such as username, email, phone number, address, and password.
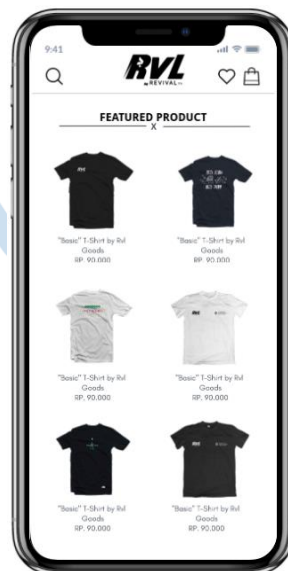

Fig. 22. User Interface Main Menu

- Search

The Search page displays a column where the user can search for the desired item or catalog.

Fig. 23. User Interface Search Menu

- Shopping Cart Menu

The Shopping Cart page displays data for each item that has been added to the shopping cart, such as the product name, total price and delete items or add to favorites.
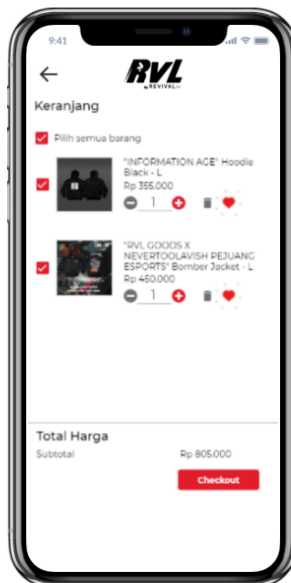

Fig. 24. User Interface Shopping Cart

- Payment Detail

The Payment Details page displays Order No, Order Name, Item Name, Size, Order Quantity, then shipping options, Payment Method, Virtual Account No, and Total Payment.

Fig. 25.   User Interface Payment Detail Menu

- Invoice: this invoice page contains order data information, payment amount and receipt number to track goods.

Fig. 26. User Interface Invoice

- Delivery Status: the delivery status page displays order data and details of orders that have been delivered or are being shipped.
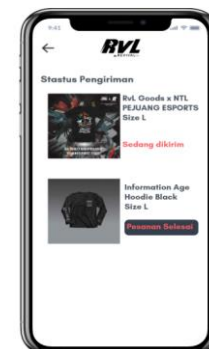

Fig. 27. User Interface Delivery Status Menu

V. Conclusion

Based on the discussion that has been carried out, it can be concluded that there are several advantages provided by the RevivalTV mobile application information system:

1) Users or gamers can search for information about games, tricks, and tips, as well as pro player profile info.

2) Users or gamers can search for RVL (Revival) by RevivalTV merchandise as well as merchandise for users' or gamers' favorite teams.

With the shopping cart menu and payment menu to help users in the buying process

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