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Revolutionizing Sustainable Public Transportation: the Go-Bus Mobile App Journey with Design Thinking

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Abstract: Bus Rapid Transit (BRT) has become a popular solution to address traffic congestion in Indonesia, including in Banyumas Regency. However, the supporting services provided by the BRT system still require improvement. This study focuses on designing the Go-Bus application, by integrating gamification elements to encourage the usage of Trans Banyumas. The Design Thinking method is used, encompassing the empathy, definition, ideation, prototype, and testing stages. This prototype undergoes User Satisfaction Testing and Single Ease Question (SEQ). the average score of 84.84% has been reached from the evaluation of 11 tasks by six respondents. Then, satisfaction score of 6.73 indicates Go-Bus as a user-friendly and satisfying application. This research aims to address challenges in motivating and altering user behavior to utilize public transportation. By incorporating gamification into the UI/UX design of the application, Go-Bus offers a solution that enhances user motivation, satisfaction, and encourages a shift towards public transportation usage.

Keywords: Go-Bus; Gamification; UI/UX; Design Thinking; Sustainable Transportation

INTRODUCTION

Public road transportation was once idolized. Angkot, City Buses, Minibuses, and Oplet (shared minibuses) were commonly found dominating the streets, particularly in big cities in Indonesia. However, due to the advancement of technology and increasing affordability of private vehicles, people have started abandoning public transportation. Issues with public transportation are prevalent in Indonesia, especially in large cities. As the population grows, the number of vehicles also increases, causing challenges for private and public transport to move without disruptions. These factors affect people's mobility resulting in the occurrence of traffic congestion. Traffic congestion refers to a situation where there is an obstruction of vehicle movement in a particular area (Sitanggang & Saribanon, 2018). Moreover, the decreased use of public transport is also due to the enhanced purchasing ability of private vehicles, causing numerous individuals to give up on public transport. As per the analysis carried out by the Ministry of Transportation, the total number of motorized vehicles in Indonesia enlarged to 141 million units in 2021, depicting a rise of 4.30% when collated against the previous year's 136 million units (Sarnita Sadya, 2022), as illustrated in Figure 1.

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Fig. 1 Number of motorised vehicles in Indonesia

The large number of private vehicles on the roads has caused congestion in various places, and the paucity of parking spaces has become problematic. Besides, air pollution resulting from emissions is an escalating concern (Nanditho & Yola, 2022). Moreover, there has been a significant increase in the fatality rates resulting from traffic accidents (Publik, 2022). The national and local authorities continue to urge the public to reduce their dependence on private vehicles and instead use public means of transport. According to Rifai & Arifin, (2020), to achieve this goal, steps such as providing transport facilities that are secure, comfortable, efficient, and integrated are essential. Furthermore, Sardjono et al., (2020) suggest that the government must encourage locals to curtail private vehicle usage by increasing fuel prices, providing more public transportation options to bridge the deficiencies in the current system, and developing new roads to accommodate future transportation needs.

Public transportation expansion is done by the Directorate General of Land Transportation under the Indonesian Ministry of Transportation. In 2021, the Banyumas Regency added 52 Bus Rapid Transit (BRT) vehicles, called "Trans Banyumas," serving three primary routes (Pramuninggar, 2022). Travelers can access route maps and real-time departure and arrival updates through the "Teman Bus" app downloaded from Play Store.

At the beginning of its operation, Trans Banyumas gets a big attraction of Banyumas community, considering the service was free of charge. However, the number of passengers reduced by about 30-40% after the introduction of ticketing (Sulistyadi, 2022). Putro et al., (2022) state that the public perception of the Trans Banyumas service's accessibility and connectivity level is satisfactory. However, the quality of the service provided remains unsatisfactory.

Taking into account the aforementioned issues, it can be concluded that the user prefers the BRT Trans Banyumas service, but not its supporting application, it is still deemed inadequate by users. Likewise, the number of BRT users has dropped since it is not free. Passengers can continue reducing traffic congestion and emissions, minimizing parking area and willing to pay for BRT tickets as well. The payment is worthwhile as it guarantees top-notch service. The issue shows that the passengers are actually favorable to BRT Trans Banyumas services, even if they still unsatisfied to the accompanying application. Likewise, the number of BRT users has declined compared to the time when the service was free. Thus, there is a requirement for the development of the application to ensure that the community persists in using the Trans Banyumas BRT service to lower the impact of limited parking spaces, emissions, and traffic congestion - even if they have to pay for BRT tickets. Nonetheless, the payment is justifiable since they can expect high-quality services.

Gamification is a technique that incorporates features of games and utilizes them outside of the gaming environment (Deterding et al., 2011; Deterding & Dixon, 2011; Huotari & Hamari, 2012). The aim of gamification is to enhance an individual's motivation and modify their behaviour without using coercion (Werbach & Hunter, 2012; Werbach, 2014; Werbach, 2014; Abu-Dawood, 2016; Jent & Janneck, 2018).. Various studies have been conducted in the past to change the behavior of individuals who use private transport and encourage them to use public transport without any sense of compulsion. Lieberoth et al., (2018) carried out an experiment to modify the behavior of motorists and encourage them to use buses by implementing three approaches, i.e., health framing, gamification, and nudging,

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which subtly recommends particular actions without coercion. These three approaches were implemented in a particular application referred to as "MyPage." The findings revealed that the gamification intervention had a more robust impact on behavioral engagement than the other approaches. Drakoulis et al., (2018) utilized gamification in a bus service application to modify user behavior while encouraging their involvement with the established transport system. Cardoso et al., (2019) utilized gamification strategies to encourage users to change their behavior patterns and opt for public transport as a sustainable form of transportation. The study findings were affirmative, proving the efficiency of gamification.

Prior research indicates that gamification can significantly influence user behavior, encouraging consistent use of public transportation systems like Bus Rapid Transit (BRT). However, the success of such an approach largely depends on effective UI/UX design that boosts user engagement. To accomplish this, one strategy is to employ design thinking techniques. Design thinking is a problem-solving method that emphasizes understanding users' needs and crafting innovative solutions to meet them. This human-centered process involves empathy, ideation, prototyping, and testing and can be applied in various fields including product design, service design, and app development (Lee, 2018). The goal of design thinking is to create meaningful experiences by incorporating users' needs throughout the design process (Kwon et al., 2020).

LITERATURE REVIEW

Sustainable transportation

Sustainable transportation is a transportation system designed to meet the needs of the present without compromising the ability of future generations to meet their needs (Shokoohyar et al., 2022). Here are some examples of sustainable transportation:

Alternative fuels: Using alternative fuels, such as ethanol and methanol, can reduce overall carbon dioxide (CO2) emissions. Alcohols have a higher octane number, making them suitable for flower ignition (SI) engines, while lower mixture ratios can be used for compression ignition (CI) machines. The use of alcohol as a fuel in CI engines can improve the smoke-NOx trade-off characteristics compared to conventional diesel combustion so that this fuel can meet future emission regulations (Sahu et al., 2022).

Shared mobility: Shared mobility, such as vehicle sharing, can improve transportation efficiency and reduce the number of private vehicles on the road. The main subgroups of shared mobility include shared rides, car sharing, micro-mobility sharing, on-demand ride services, and shared autonomous vehicles. Shared mobility has many advantages and can improve urban transportation systems in many aspects, but these benefits vary with travel behavior and company supply (Zhu et al., 2023).

Intelligent traffic management: Intelligent Transportation Systems (ITS) are the key to the sustainable development of urban transportation. Smart sensors can be integrated with transportation infrastructure to achieve sustainable ITS. Recent advances in ITS show that roads will gradually be filled with autonomous vehicles capable of driving themselves while cooperating to form a sustainable transportation system. Clustering technology has great potential to reduce fuel consumption and increase traffic efficiency (Chen et al., 2021).

Optimization and machine learning: Scientific methods such as simulation, optimization, and machine learning can be used to design and operate sustainable transportation systems. In recent decades, the need for adequate transportation systems for the transport of goods and people has increased, mainly due to factors such as globalization, e-commerce activities, and mobility needs. Sustainability concepts must also be considered in the design and operation of modern transportation systems, both for long-distance transportation and for urban areas (de la Torre et al., 2021).

Design Thinking

Design thinking is a problem-solving approach that has gained considerable attention in various fields, including education, business, healthcare, and technology (McLaughlin et al., 2019; Jaskyte & Liedtka, 2022). It is a process that applies creativity and innovation to develop and implement new solutions (Sandars & Goh, 2020). Design thinking is characterized by its focus on empathy, collaboration, and iterative prototyping (McLaughlin et al., 2019; Dell'Era et al., 2020). It involves understanding the needs

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and perspectives of users, generating multiple ideas, and testing and refining solutions through feedback (McLaughlin et al., 2019; Dell'Era et al., 2020; (ylander Eklund et al., 2022).

One of the key aspects of design thinking is its multidisciplinary nature, as it encourages the involvement of individuals from different backgrounds and expertise (Klenner et al., 2022). This diversity of perspectives allows for a more holistic and comprehensive approach to problem-solving (Seidel & Fixson, 2013). Design thinking also emphasizes the importance of a human-centered approach, where the needs and experiences of users are at the forefront of the design process (McLaughlin et al., 2019; Sandars & Goh, 2020). By understanding the context and motivations of users, designers can create solutions that truly meet their needs.

Design thinking is often described as a mindset or a way of thinking that can be applied to various contexts and challenges (Micheli et al., 2019). It is not limited to designers but can be adopted by individuals and teams from different disciplines (Dell'Era et al., 2020). Design thinking can be seen as a combination of analytical and creative thinking, as it involves both problem analysis and idea generation (Leavy, 2010). It encourages individuals to think outside the box, challenge assumptions, and explore multiple possibilities (Dell'Era et al., 2020; Novak & Mulvey, 2021). The design thinking process typically consists of several stages, including problem definition, research and empathy, ideation, prototyping, and testing (McLaughlin et al., 2019; Dell'Era et al., 2020; Sandars & Goh, 2020). These stages are often iterative, meaning that designers continuously refine and improve their solutions based on feedback and insights gained throughout the process (McLaughlin et al., 2019; Dell'Era et al., 2020). This iterative nature allows for flexibility and adaptability, as designers can pivot and make adjustments as they learn more about the problem and the users ((McLaughlin et al., 2019; Shen & Gao, 2020). In conclusion, design thinking is a problem-solving approach that emphasizes empathy, collaboration, and iterative prototyping. It is a multidisciplinary process that involves understanding user needs, generating ideas, and testing and refining solutions. Design thinking has been applied in various fields and has shown promise in fostering innovation and addressing complex challenges.

METHOD

The study took place at Amikom Purwokerto University, focusing on the website and the Teman Bus application, particularly Trans Banyumas app, which served as a case study. The study was carried out between February 2023 to July 2023. The application was designed by employing the Design Thinking method, consisting of five stages of the design process. These stages are Empathize, Define, Ideate, Prototype, and Testing, as Figure 2 illustrates.

Fig. 2 The Design Thinking Method

Design thinking is a comprehensive approach that concentrates on creating solutions based on empathetic processes for specific user needs and culminates in sustainable innovation aligned with user requirements (Razi et al., 2018). This method prioritizes designs that are more user-centered, and it

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concentrates on generating more creative solutions, thereby delivering enhanced functionality. Hasso Plattner of the Stanford Institute of Design defines Design Thinking as a design method consisting of five stages.

Although these stages do not necessarily have to be followed sequentially, design teams often execute these phases in parallel, without a fixed sequence, and with the possibility of iteration. Within this design thinking framework, there are five stages, as follows:

Empathize Phase

The empathize phase is the first stage of data collection. In this phase, researchers collect data related to UI/UX, gamification, design thinking and usability testing from a variety of sources, such as journals, e-books, websites and statistical data available on the internet. Furthermore, researchers also use interview methods to gather information from several community who have, or have not, used the Trans Banyumas Bus and Trans Jateng Bus transportation services. Interviews were conducted using usability testing methods in two phases: the empathize phase and the testing phase, involving a minimum of five participants (Jakob Nielsen, 2012). In the empathize phase, interviews were conducted to five respondents who had not used the Trans Banyumas or Trans Jateng Bus services before. The interviews provided data that enabled the researchers to gain deeper insights into the challenges and user preferences experienced when utilizing bus transportation services.

Upon identifying the primary concerns, the subsequent initiative taken was to establish User Personas, which serve as more tangible representations used to recognize the target audience of the Go-Bus application. The researchers utilized the Affinity Diagram method to collect the data. The Affinity Diagram is a method of grouping data, where a considerable amount of information is structured into the groups or themes based on the relationships and interconnections amongst the data (Dam & Siang, 2022). The subsequent step involves creating a question or a "How Might We" prompt. The "How Might We" stage comprises questions formulated to identify pre-existing issues and provide the basis for seeking creative ideas and solutions to address them.

Define Phase

The define phase involves grouping information to identify the crux of the problem at hand. During the empathize phase, collected information is processed and organized to identify the essence of the issue. It aims to identify and target the user group of the application that can be taken as the solutions of the problem.

Ideate Phase

The previous step also developed the application framework using the ideation process. The goal of the process is to come up with multiple ideas for creating a product that can solve user problems. An essential part of this phase is generating creative ideas and being willing to think outside the box.

Prototype Phase

The next step after determining the prioritized ideas and designing the application flow framework is the prototyping stage. In the prototyping stage, the interface of the application is designed as wireframes, which will later be converted into Hi-Fi (High Fidelity) designs before the simulation of implementation within the prototype stage.

Testing Phase

This phase represents the ultimate stage of the design thinking method. During the testing phase, the previously designed concepts are evaluated. The user-friendliness level of the Go-Bus application design is measured using Usability Testing, in which Single Ease Questions serve as a metric.

Usability testing

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Usability is part of the User Experience (UX) framework, although these two terms are often used interchangeably. Researchers need to understand that usability can have a significant impact on the user experience, but it does not encompass the entirety of user experience aspects (Soegaard, 2016).

In this study, the usability testing phase involves the introduction of assessors, formulation of usability testing tasks, provision of usability testing documentation, execution of usability testing using the application prototype, evaluation of usability testing results, and formulation of application improvement recommendations. The researcher will carry out testing through interview-based approach involving 6 individuals as participants. The selection of these six participants is not only based on limited numbers but also grounded in the data found in the research conducted by the Nielsen Norman Group. This approach indicates that for optimal results, testing should involve no more than 5 users and a series of small tests as much as possible (Jakob Nielsen, 2012). According to the Nielsen, there is an increase in the likelihood of identifying limitations in the tested design as the number of respondents increases. by involving five respondents, the testing can reach effectivity up to 75% in its identification. meanwhile, by involving six respondents, it discovers the limitation of tested prototype up to 85%.

Single Ease Questions

The Single Ease Question is an evaluation method that employs a ranking scale ranging from 1 to 7 to assess the ease or difficulty experienced by users while completing specific tasks. Researchers use this scale to measure the perceived level of difficulty users experience when completing assigned tasks. The Single Ease Question has become a standard User Experience measurement employed by researchers to comprehend the perceived level of difficulty or ease of users in accomplishing assigned tasks (Azhar et al., 2023). In an overall assessment, the resulting average score is calculated by summing up all the total scores from the tested tasks, which is subsequently divided by the number of tasks tested.

RESULT

Problem Identifications

The researcher has identified several problems related to the decrease of interest in using public transportation system, especially the Bus Rapid Transit (BRT) mode of transportation, in Banyumas Regency and its surrounding areas. To give it solution, the problem identification process has been divided into various points that the user needs research focuses on. These points include:

Investigating user feedback from similar applications, such as Go-Bus, which are available on platforms like Play Store and App Store. The goal of this analysis is to gather information from users regarding their experiences and highlight any potential issues they may have faced.

Evaluating the strengths and weaknesses of similar applications' competitors, taking into account users' experiences on platforms such as Play Store and App Store.

Conducting in-depth interviews to gain deeper insights from different perspectives. This aims to identify challenges faced by users when using public transportation, particularly the BRT transportation mode such as Trans Banyumas or Trans Central Java.

Interviews

Before conducting the interviews, stimulus user research is developed to clarify the needs of the passengers based on the identified problem. Users' criterion is also determined to help the researchers identifying users need and setting research objectives. The interview was carried out from April 20 to May 28, 2023 by involving five respondents. From the interview, the challenges faced by the passengers were revealed as stated on the four points below:

The respondents seldom use Bus Trans Banyumas due to the significant distance of the nearest bus stop from their houses.

The respondents need to take more time waiting for the bus.

The respondents sometimes experience problems in terms of transactions when paying for the tickets

The respondents sometimes experience problems in terms of transactions when paying for the tickets It could be stated simpler by: The respondents sometimes experience difficulties to top up their balances. They give suggestion that the application could be integrated to the third party, such as digital wallets.

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Respondents saw that the application was less attractive. Gamification can be used to make it more attractive so that it attracts the attention of users, especially the younger generation.

Analysis of User Feedback for Go-Bus Competitor

Based on the results analysis, four competitive applications were identified. They were Moovit, Omio, Transit, and Teman bus. The analysis of user feedback covered various aspects, as follows:
The GPS positioning seems to be slow, and the map icons are not moving.
There ought to be an option to choose which bus to board.
There is no alert for the arrival time of buses when waiting at the bus stop.
If users encounter any departure problems, they may wish to modify their departure timings. This application may have trouble accommodating such changes.
Including a feature to display the travel route between point A and point B for shorter commute durations would be beneficial.
Frequently, the bus schedules listed are incorrect, and users are unaware of the arrival and departure timings of buses.
One possible addition could be a bus positioning feature.
Payment using electronic money cards from other banks is not accepted on all units because it requires barcode scanning. However, any signal or digital wallet application issues can adversely affect payment.
Users may be facilitated if a dedicated menu for listing bus stops or halts is created. Also, the list of nearby bus positions could be sorted from the farthest to the nearest.

User Persona

the respondents who are involved in the interview will be taken into consideration while determining the information needed to be written in tab of user personas. User personas incorporate user identities like name, age, occupation, and place of residence. The content of a user persona includes the user's personal profile, daily routines, challenges, desires, and preferred payment methods. From the interview results, two primary user criteria emerged: users are interested in trying the bus service because of curiosity and users use the bus service regularly out of necessity. Here is a picture of user persona displayed in the persona cards:

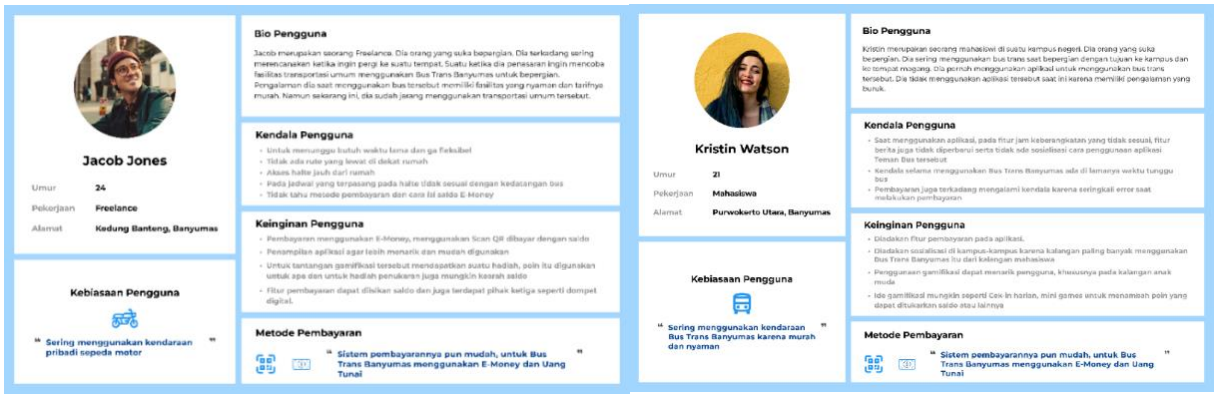

Fig. 3 User Persona 1 and 2

In Figure 3 shows that user persona 1 can give different display to the passenger who is interested in using Trans Banyumas and the passenger who uses Trans Banyumas for another purposes. Figure 3 also displays user persona 2 who uses Trans Banyumas because of the needs. The display seems similar to passenger who have tried another apps, like Teman Bus, so that the passenger can express the challenges while using them.

Affinity Diagram

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The result of interview and data analysis in the empathize phase proves that the affinity diagram method was used to capture user needs. The results obtained from this method will form the basis for further development, such as creating wireframes and user interfaces. The processed data from the Affinity Diagram is classified into four categories: behaviors, preferences, issues, and needs, as demonstrated in Figure 4.

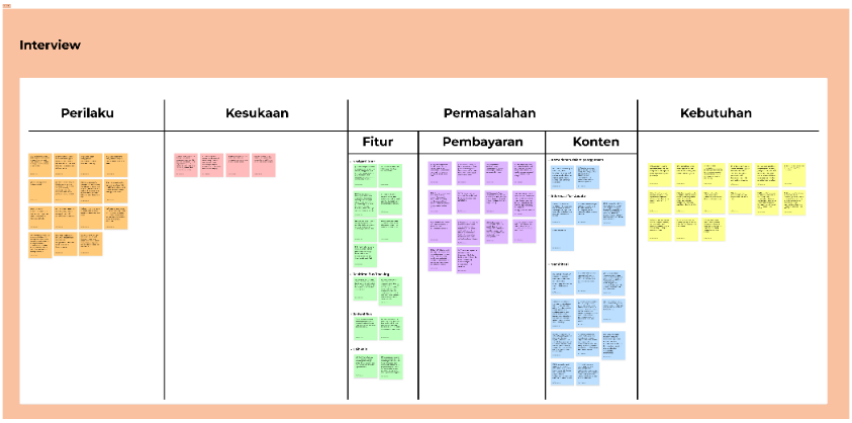

Fig. 4 Affinity Diagram

How Might We

Based on the data derived from the affinity diagram, the "How Might We" step is where questions are formed to identify existing issues, and establish a base for generating concepts and solutions. Applying the question – "How might we enhance user satisfaction in using the app and motivate individuals to switch their preference to use the bus transportation, as researchers?" – helps ensure that the solutions generated remain pertinent to the core problem. This question aims to generate creative solutions and ideas that correspond to the recognized challenges, ensuring the focus remains on practical problem-solving.

Priority ideas

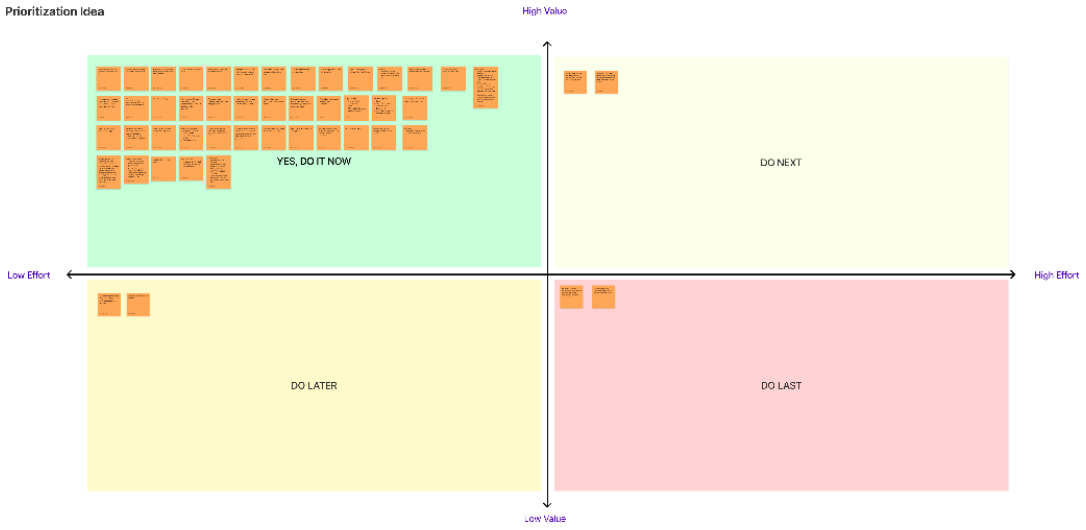

Fig. 5 Priority Idea

Figure 5 shows the process of selecting ideas and solutions to attain the score of MVP (Minimum Viable Product). MVP is described as a set of valuable features that are capable of fostering user interest To determine this value, a spectrum ranging from low effort and high value is analyzed, so that it indicates the ease of design to obtain high value, to measure the high effort by low value, to indicate

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high implementation difficulty by low value. By weighing both the effort required and the value gained, this process assists in the selection of features to be implemented.

Information Architecture

The main navigation framework within the Go-Bus application is formulated as an information architecture design. The design adopts a mixed navigation structure approach that is considered appropriate for the needs of Go-Bus users on mobile devices. The information architecture design of the Go-Bus application is illustrated in Figure 6.

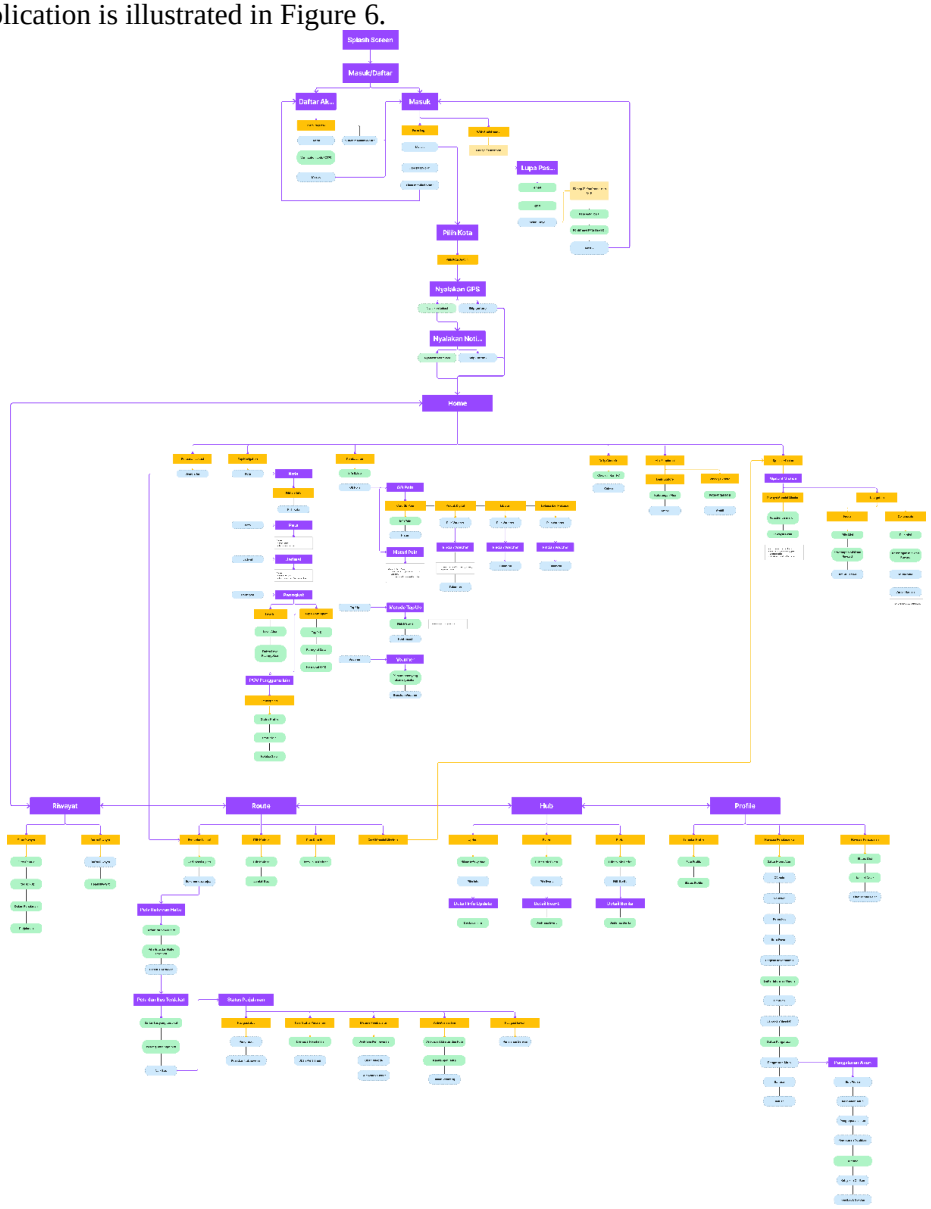

Fig. 6 Information Architecture

Wireframe

At this stage, the initial sketches are created as part of the prototype design process. These preliminary sketches aim to establish the placement of essential components like text, buttons, images, navigation, and gamification elements that will feature in the GoBus application. This step assists in ascertaining the logo dimensions, choosing suitable colors, and trimming the time required for interface design. The following displays the wireframe designed according to the previously discussed user flow.

Design System

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The design proposal for the Go-Bus application is suggested to be established by using the Montserrat font type or style. In addition to its implementation ease in interface design, this font creates a powerful impression and maintains high readability even in smaller sizes. The typographic contain variations in font styles, including regular, medium, semi-bold, and bold text. Two types of text are presented: Body Text and Heading. The Body Text is used to present component descriptions, as well as in message captions. In contrast, headings are used for titles and subtitles in various components. A suitable color palette is used to determine the colors for the Go-Bus application. According to the color selection method aligned with the user's preferences, two primary colors, yellow and blue, have been identified. Yellow embodies an energetic and enthusiastic aura, whereas blue emanates an air of professionalism and trust. There are also other color palette that can be applied in Go Bus Application.

The logo design in the Go-Bus application will represent the underlying meaning behind the application's name. The name 'Go-Bus' was chosen based on the abbreviation of 'Gamified On Bus,' which signifies the incorporation of gamification elements into the bus transportation user experience. This application aims to encourage the public to actively engage in using public transportation by incorporating gaming elements. As a result, the application logo will reflect this concept. Figure 7 shows the designed logo for the Go-Bus application.

Fig. 7 Go-Bus LOgo

The used icons are obtained from Google Material Design Icons and Stratis UI Icons. Moreover, icons were designed with the inclusion of gamification features for use in the Go-Bus application.

High Fidelity Design

The next step after creating the sketch design in wireframing is designing high-fidelity. The high-fidelity design phase involves incorporating details, such as text elements, colors, images and gamification features that will be integrated into the Go-Bus application. The objective is to offer an appearance of the application which is more complete and closer to the final version. The login and register menu section includes several pages, such as account registration, confirmation code, login form, password change, city selection, notifications, and location. The home menu page displays the navigation options at the bottom section. This page acts as the primary interface for the Go-Bus application. This page also contains other menus and gamification elements such as daily check-ins, daily and weekly missions, as well as special missions. Figure 8 views the interface design.

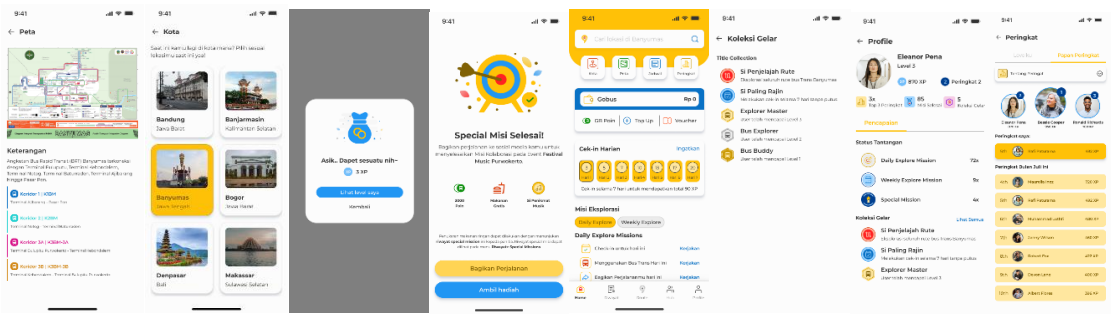

Fig. 8 High Fidelity Design Go-Bus

DISCUSSIONS

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Usability Testing

Usability testing involved six participants who tested the created prototype. Analyzing the participants' completion of assigned tasks helped the researcher to gather data on task scenario completion. This data was later used to compute the success rate of tasks executed by the participants. Table 1 shows the task completion results for each participant of the Go-Bus application design testing. To obtain the average success rate of task completion, the calculation involves computing the average results of participants' task completion, and multiplying the average by 100% after collating data. This overview will present participants' successful completion rates of the assigned tasks in the testing process more accurately.

Table 1 Usability Testing Success Rate

Respondent Code	Task Scenario										
	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11
R1											
R2											
R3											
R4											
R5											
R6											
Information:											
	= Success without any difficulties or issues										
	= Success but with minor difficulties										
	= Unable to complete the task										

$$\textit{Success Rate} = \frac{\textit{Success} + (\textit{Partial Success} \times 0.5)}{\textit{Total Task}} \times 100$$

$$= \frac{46 + (20 \times 0{,}5)}{66} \times 100\%$$

$$= 84{,}84\%$$

The calculation above indicates an average success rate of 84.84% from 11 task scenarios that were completed by 6 respondents. Although scenarios T1, T3, T4, and T6 encountered some difficulties, the respondents were still able to complete their tasks successfully, as illustrated in Table 1. These findings suggest that the application can be deemed successful, despite the challenges encountered in some scenarios, with an 84.84% success rate. These results demonstrate that the application works well and can satisfy most user requirements in completing given tasks. Table 2 provides a summary of the overall satisfaction ratings for each task, as assessed through testing and satisfaction level evaluations by respondents.

Table 2 Average Single Ease Question (SEQ) Calculation

Task Scenario	Responden						
	R1	R2	R3	R4	R5	R6	***Mean***
T1	7	7	7	6	7	6	**6.6**
T2	7	6	7	7	6	7	**6.6**
T3	7	6	6	5	7	7	**6.3**
T4	7	7	7	6	7	7	**6.8**
T5	7	7	7	7	7	7	**7.0**
T6	7	7	6	7	7	7	**6.8**
T7	7	7	7	7	6	7	**6.8**
T8	7	7	6	7	7	7	**6.8**
T9	6	7	7	7	7	7	**6.8**
T10	7	7	7	7	6	6	**6.6**
T11	7	7	7	7	7	7	**7.0**
Rata-rata keseluruhan							**6.73**

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The assessments provided by the respondents based on the execution of scenario testing in usability testing are reflected by the results of the SEQ analysis presented in Table 2. A Likert scale, indicating user satisfaction levels, ranging from 1 (Very Difficult) to 7 (Very Easy) is used for this assessment. The data in the table shows that an overall average score of 6.73 was obtained from all respondents. It suggests that the users consider the design of the interface and the prototype tested in the usability testing easy to use.

CONCLUSION

The study into user interface design and user experience for the Go-Bus application led to the creation of a Go-Bus application prototype using the design thinking method. Usability Testing utilizing the Single Ease Question (SEQ) matrix Was provenly effective with 84.84% overall testing success out of the 11 assigned tasks. Tests on gamification elements demonstrated that they were enjoyable and understandable. It enhanced the effectiveness of using the Go-Bus application and provided extra motivation for frequent use of the app and public bus transportation. Users willingness to exchange points for holiday and shopping vouchers indicated their interest in activities linked to vacations and shopping Measurement of user satisfaction produced an average rating of 6.73, indicating that the prototype is user-friendly and users feel satisfied using the Go-Bus application prototype. By the study, it is suggested that the app can add several features including a night mode, notifications, voucher redemption, news, events storage, comment on news, communication with other users, user guides, mission menus, ranking rewards, new user rewards, and referral code features.

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