EZBUDDY

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Program : BACHELOR OF INFORMATION SYSTEM ENGINEERING

Program Code : CS266

Course : TECHNOLOGY ENTREPRENEURSHIP

Course Code : ENT600

Semester : 6

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1.0   EXECUTIVE SUMMARY

Introducing a pioneering product development venture focused on addressing the distinctive needs of the elderly and their caregivers within the healthcare technology domain. Positioned as a solution to streamline daily tasks and elevate the well-being of the elderly, this initiative represents a significant classification within the industry. The project's commitment to usability and innovation is highlighted as it endeavors to create impactful solutions for the unique challenges faced by the elderly.

The research and development phase, prompted by the recognition of challenges in managing daily tasks for the elderly, led to the generation of various ideas. These ideas span from mobile applications providing personalized assistance to digitalizing routine activities, presenting a diverse range of solutions. The classification underscores the project's dedication to usability, making it a standout player in the caregiving solutions landscape. More than just a product, this initiative seeks to contribute meaningfully to the lives of the elderly and their caregivers.

2.0 INTRODUCTION

This study addresses critical issues pertaining to caregiving responsibilities among university students, particularly the challenges faced by Knowledge Processing and Information Management (KPPIM) students at University Technology MARA (UiTM) Shah Alam. Through face-to-face interviews, valuable insights have been gleaned, shedding light on the intricate balance students attempt to strike between academic commitments and the care of their elderly family members.

Identified Issues:

Two primary challenges have emerged from the interviews:

1. Time Constraints: Students find it challenging to carve out time for their elderly family members amidst busy class schedules and work commitments. Balancing academic rigor with caregiving responsibilities poses a considerable hurdle, limiting the time available for meaningful engagement with older family members.

2. Geographical Separation: Many students revealed the significant distance between their university in Shah Alam and their parents' residence in Terengganu. This geographical separation compounds the difficulties, hindering students from providing immediate physical support or companionship to their elderly parents.

Significance of the Issues:

These challenges underscore the intricate dynamics between academic pursuits and caregiving responsibilities. The geographical distance accentuates the need for innovative solutions, emphasizing the potential relevance of projects like EzBuddy in addressing the identified challenges and fostering enhanced support for both students and their elderly family members.

Limitations of the Project:

Acknowledging the scope and constraints of the project, certain limitations are recognized:

- **Scope of Insights:** The study focuses specifically on KPPIM students at UiTM Shah Alam, limiting the generalizability of findings to a broader student population.

- **Qualitative Nature:** The project relies on qualitative insights from face-to-face interviews, providing depth but potentially limiting the breadth of perspectives.

- **Time Frame**: Constraints on time and resources may limit the depth of data collection and subsequent analysis.

Despite these limitations, the study aims to contribute nuanced insights and propose strategic solutions, potentially aligning with the developmental goals of EzBuddy, to address challenges faced by students in caregiving roles.

3.0   NEW PRODUCT DEVELOPMENT

3.1   DEFINITION
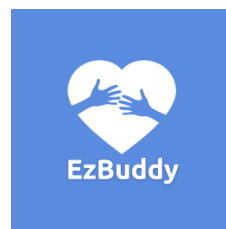
Figure 1 Logo of EzBuddy Application

EzBuddy is a compassionate and innovative app designed to simplify and enhance the daily lives of the elderly and their caregivers. With EzBuddy, users can seamlessly delegate and manage various tasks, ranging from scheduling medical appointments to

grocery shopping and more. The app serves as a supportive platform that connects users with trusted helpers, allowing them to efficiently coordinate and delegate responsibilities.

EzBuddy focuses on promoting independence and well-being for the elderly by providing a user-friendly interface for task assignment, real-time tracking of activities, and effective communication between users and helpers. The goal is to create a nurturing environment that fosters a sense of ease and security, ensuring that the elderly can comfortably and confidently navigate their daily routines with the assistance of their chosen support network.

In essence, EzBuddy is not just an app. It's a caring companion that empowers users to streamline caregiving responsibilities, fostering a sense of community and support for both the elderly and those who care for them.

3.2 Classification of NPD

In general, an NPD process is defined as the process of formalized planning or thoughts from the beginning stage of ideas down to market launching. Most of the previous studies on impacts and ramifications of the NPD process have their starting point where the definition of NPD phases is made (Kim et. al, 2016)

The EzBuddy New Product Development (NPD) project is positioned within the healthcare technology industry, specifically categorized as a task management application with a specialized focus on assisting the elderly and their caregivers. This classification underscores its commitment to addressing the unique challenges faced by the elderly in their daily lives.

Targeting the elderly care demographic, EzBuddy is strategically developed as a mobile application, ensuring accessibility for a broad user base across both iOS and Android platforms. This technological approach is aimed at providing a user-friendly interface, acknowledging the diverse needs and comfort levels of elderly users and their caregivers. The project's dedication to usability aligns with its mission to streamline and enhance the daily routines of the elderly.

Within the broader landscape of caregiving solutions, EzBuddy stands out as a service that facilitates the delegation and efficient management of various tasks. This distinctive service-oriented classification emphasizes the practical impact of EzBuddy in empowering caregivers and fostering independence among the elderly.

Beyond its technological and service attributes, EzBuddy is an innovative solution within the assistive technology space. Recognizing the importance of accessibility, the project is committed to creating an inclusive environment for users with varying levels of technological familiarity and physical abilities.

Moreover, EzBuddy holds a prominent position as a socially impactful initiative, contributing to the well-being and quality of life of the elderly population. This dual focus on both technological innovation and social impact solidifies EzBuddy as a pioneering project at the intersection of healthcare technology, caregiving solutions, and assistive technology. In essence, EzBuddy emerges as a holistic and user-centric solution designed to improve the lives of the elderly and their caregivers.

In summary, EzBuddy encapsulates the spirit of innovation, user empowerment, and social responsibility. As it progresses in development, EzBuddy holds the promise of not just being an application but a transformative companion that fosters independence, connectivity, and a higher quality of life for the elderly.

3.3 NEW PRODUCT DEVELOPMENT PROCESS

3.3.1 RESEARCH AND DEVELOPMENT

i. Idea Generation

The busy schedules of family members can make it difficult for elderly people to manage daily tasks and attend medical appointments. Many people struggle until it becomes difficult to put the needs of the elderly first. It makes us realize that it is crucial to have a solution for this problem. Therefore, we came up with several ideas to overcome the problems that they were facing.

Taking care of senior citizens' needs is crucial in this age of rapid technological advancements. We propose to develop the mobile apps (EZBuddy) emerges as a beacon of support, aiming to enhance the well-being of seniors by providing personalized assistance, companionship, and support during medical appointments.

Next, we also provide ideas which is to develop the applications to digitalize all the activities that they usually wants to do. They can go buying groceries without perform it by physically, just tap and buy through smart phone. This idea's central idea is to change the way that people typically go grocery shopping. The app's user-friendly interface lets users easily add products to their virtual carts, categorizes items, and provides personalized recommendations.

Last but not least, we also recommend developing the application that screens the health by itself digitally. The application's user-friendly interface is one of its main features. Senior citizens should be able to navigate with ease thanks to the design's intuitiveness. Health data could be clearly summarized and made accessible and understandable for a wide audience through the use of graphic representations

ii.   Idea Screening

The ideas that we choose is EZBuddy apps. The main target market for EZBuddy apps consists of elderly people and their families who are looking for a trustworthy and caring companion to help with doctor appointments and provide assistance with everyday tasks. Some key benefits will be analyzed: -

a. Personalized Assistance: Skilled companions provide customized assistance according to the unique requirements of every elderly person, guaranteeing a sensitive and individualized experience.

b. Companionship: Understanding the value of social interaction, the app encourages friendship, which lowers feelings of loneliness and improves emotional health.

c. Medical appointments support : Seniors who require assistance navigating the complex healthcare system are provided with dependable support during their medical appointments.

iii.   Market Survey

We approached five people to inquire about the product after conducting a market survey at our faculty. The majority of them are attracted to the apps' idea. They claimed that the app's concepts for resolving the main concerns brought up by elderly people or their parents are appropriate and practical. When we ask them if they would use these apps to help them solve problems, the majority of them respond that they most likely will use them 90 percent of the time.

3.3.2 PRODUCT DESIGN/FEATURE

This product prioritizes an intuitive interface, ensuring accessibility for users of all ages, especially focusing on the elderly demographic. The application features standard icons universally recognized for easy comprehension. The navigation is straightforward, eliminating any potential hassle for users. Our app adheres to widely accepted user interface conventions, fostering a seamless experience and facilitating quick adaptation for users familiar with other applications.

Figure 2 Login, Register and Forgot password page interface.

Illustrated in Figure above are the user account segment, a crucial step to unlock the full potential of the application. This segment comprises three distinct pages: on the left, the "Log-in" page allows users to access their accounts if already registered; in the middle, the "Register Account" page enables new users to create an account; and on the right, the "Forgot Password" page permits users to reset their password if forgotten. Within this user account segment, individuals are prompted to input their information into the designated blank fields, guided by helpful hints provided for each.

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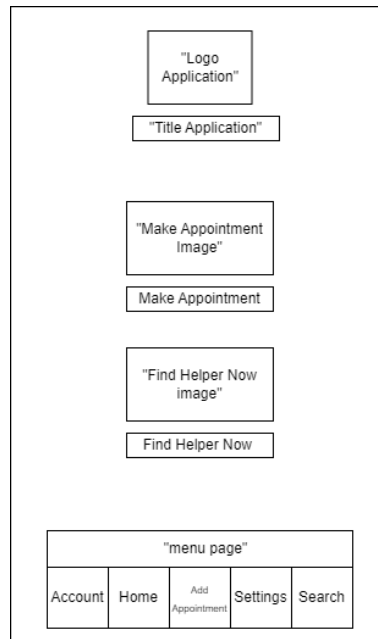
Figure 3 *Homepage page interface*

Figure above displays the "Homepage" that users encounter upon successful login. On this page, users have the capability to both schedule job appointments and post job listings to find assistance promptly. Positioned at the bottom is a menu featuring essential options, including Account, Home, Add Appointment, Settings, and Search. Users can seamlessly navigate to different pages by clicking on the corresponding buttons within this menu, which remains consistently visible across all app pages. This deliberate design choice ensures straightforward navigation, allowing users to effortlessly access various sections of the application at their convenience.
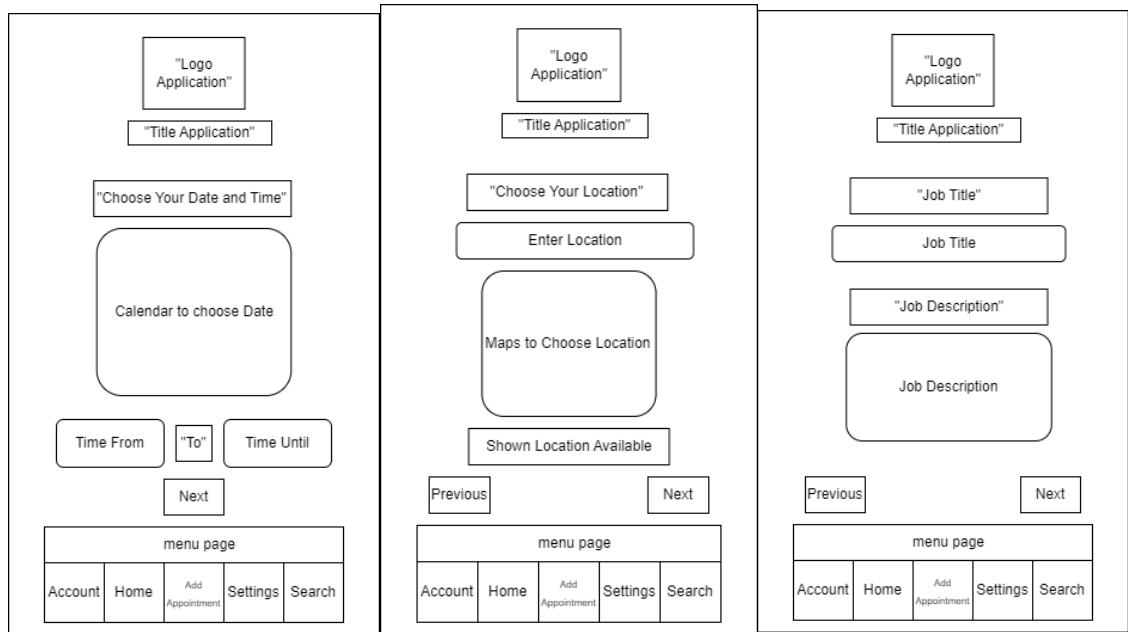
Figure 4 *Callender and Time, Location and Job Details Design Page*

Figure above illustrates the appointment section accessed after choosing the appointment option on the homepage. This section comprises three pages: the "Calendar and Time" page on the left, the "Location" page in the middle, and the "Job Detail" page on the right. This is a critical phase in the application, where users can schedule appointments either to offer help or seek assistance. On the "Calendar and Time" page, users must pick a date and specify the appointment time (start and end), influencing the associated charges. Following this, users input their desired location, and the app validates it for accuracy. Once satisfied with the location, users proceed to enter job title and description details, aiming for clarity. It is recommended to provide comprehensive task information. Users can navigate between pages using the "Previous" and "Next" buttons to review or adjust task details as needed. This segment ensures a user-friendly process for configuring and finalizing appointment detail
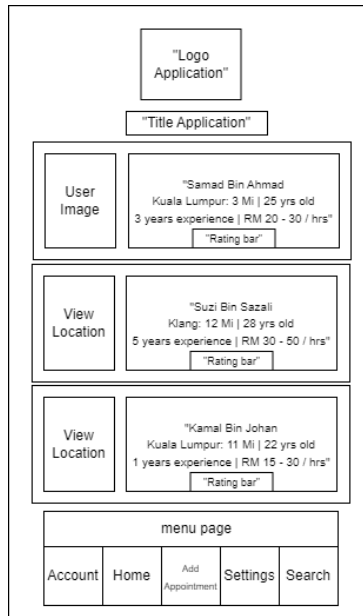
Figure 5 *List of Helpers Design Page*

Figure above shows the available "List of Helpers" as well as their details which include their name and details, their location distance from the user, their rating during being a "Helpers" as well as their rates that they are charged to the user for their services. Users can select them according to the user preference.
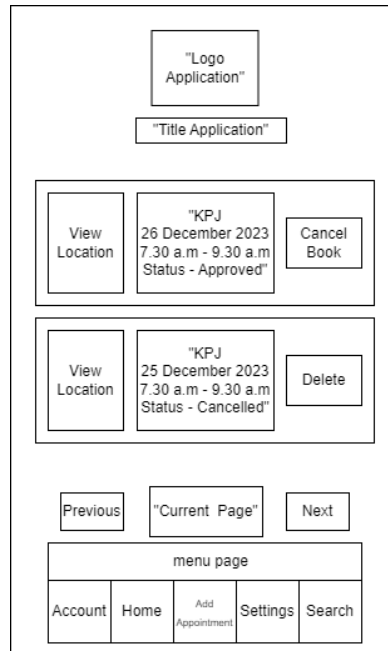
Figure 6 *List of Appointment Details Design Page*

Figure above shows the "List of Appointment Details" page, where user can view back their current appointment as well as previous appointment. They also be able to cancel the appointment by simply clicking the "Cancel Book" button and the status of the appointment will be changed to cancelled as shown in the figure above.
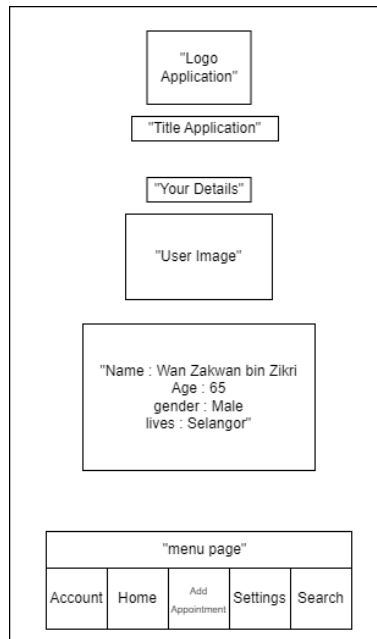
Figure 7 *User Profile Design Page*

Figure above shows the "Profile page interface". Users have the convenience of accessing their personal information within the application. By clicking the "Account" button in the menu, users can effortlessly navigate to this page. This information is also visible to the assigned "helper" when they receive a task, providing them with valuable insights into the individual they'll be assisting.

3.3.3 CONCEPT TESTING

We aim to understand customer needs and preferences regarding our product which is EzBuddy App. Customer feedback will guide us in determining the value of concept features and benefits, ensuring we communicate the most relevant and valuable aspects to our audience. This survey is open to the public, especially those who have parents and face challenges in managing their healthcare and daily activities. Customer input will contribute to creating an app that addresses real-life concerns. Since our target audience is made up of both young people and adults, this online survey is the most effective way to communicate with them. We are able to evaluate our clients' acceptability and purchase intent as a consequence, which is one of the crucial phases before the launch. To improve customers' comprehension of our product, we will include all the details of the EzBuddy app in our questionnaire along with a question asking for their thoughts or suggestions regarding the features we should recommend. Thirty respondents are the target audience for our survey. The details form is displayed below:

Questionnaire Survey (PART A: Product Qualification)

Figure 8 *Questionnaire Survey (Section A)*

Three important sections make up our questionnaire form, and they help us with our research into whether our product will be accepted by our target market in the future. To facilitate our targeted customers' understanding of our testing product, we included a detailed description of it at the beginning of our form. We ask them questions about their gender, age, level of interest in our future product, and favorite features (from Part A). The results of our questionnaire are displayed below:
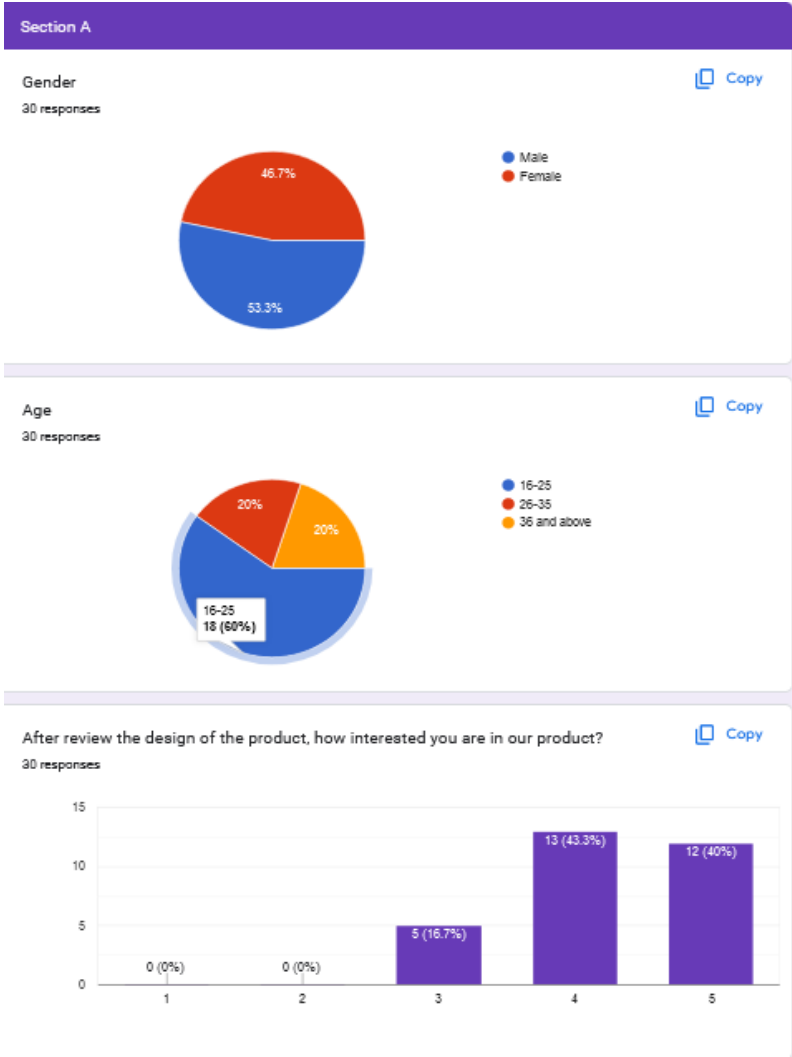

Figure 9 *Result google form (Section A)*

Based on the results obtained, our questionnaire was distributed to the potential customers in the range age between 16 to 25 and above. Around 53% of them were male and another 47% of them were female. The majority of customers express interest in the product, which received 13 votes for level 4 and another 12 votes for level 5. This outcome demonstrates how interested customers are in the product.

Questionnaire Survey (PART B: Product Description and Analysis)

Figure 10 Questionnaire Survey (Section B)

Analyzing the Questionnaire Survey Part B Results

Do you have any experience on using this kind of product?
30 responses
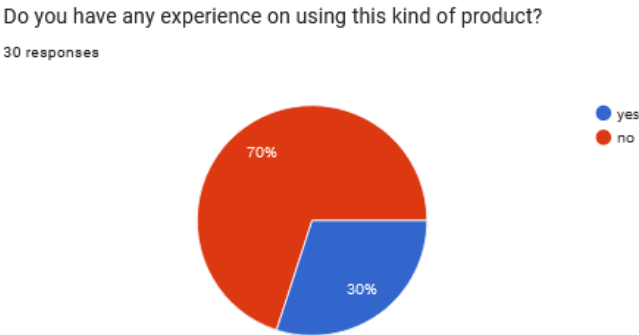
Figure 11 Experience of using the product by respondent

Based on figure 11, 70% of respondents does not have experience of the similar products. Knowing this information is essential to comprehending the benefits or possible drawbacks of launching a new product. If the majority has no prior experience, this may present a chance for awareness-raising and education. Conversely, in the event that a smaller proportion of respondents possess experience, their perspectives may offer insightful commentary due to their familiarity with comparable products.

Do you think the product will give benefit to you?
30 responses

Figure 12 Respondent's answers on the expected benefits of the Product

Figure 12 show that all the respondents expect the benefits of the product. This data point from that figure is very positive because it shows that the audience surveyed had a high degree of optimism and positive anticipation. The product will offer them significant advantages, according to the respondents

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If the product available on play store or app store for free, how likely would you to install the applications?

30 responses
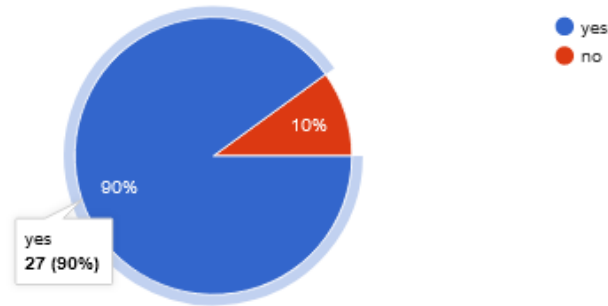
Figure 13 Respodent's answer the probability using the apps

According to the figure 13, 90% of respondents will install the apps. The concept is validated by the high inclination to install the app, which shows that the product meets the needs or preferences of the audience that was surveyed.

Do you subscribe the product if any members are available to registered?

29 responses
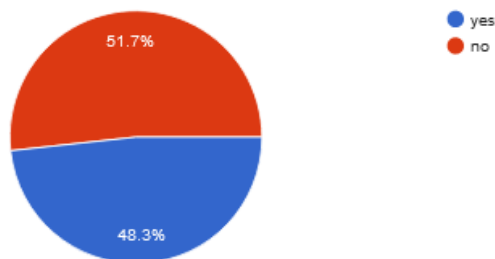
Figure 14 Expectation subscriber of the apps

Based on figure 14, 51.7% of respondents will not spending to subscribe the products. This observation suggests that some members of the surveyed audience are cost sensitive. A number of variables, including financial priorities, economic considerations, or the perceived value of the subscription in relation to its cost, may have an impact on the reluctance to spend.
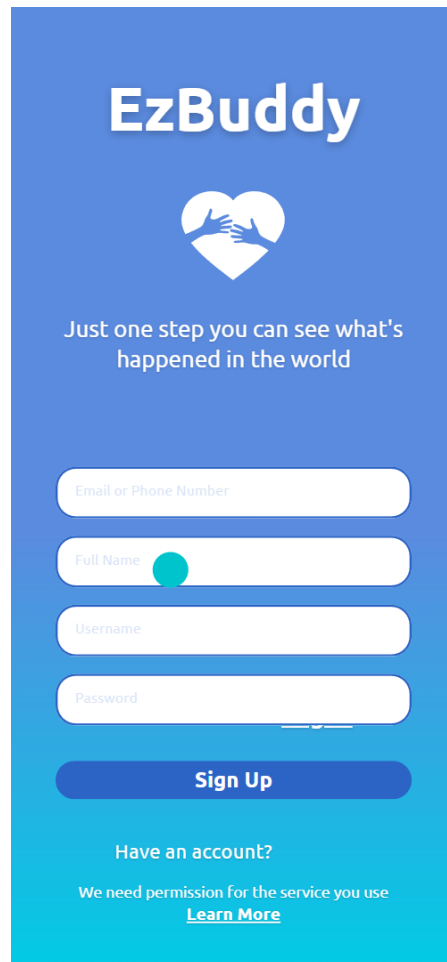
3.3.4 PROTOTYPE

i. Login Page
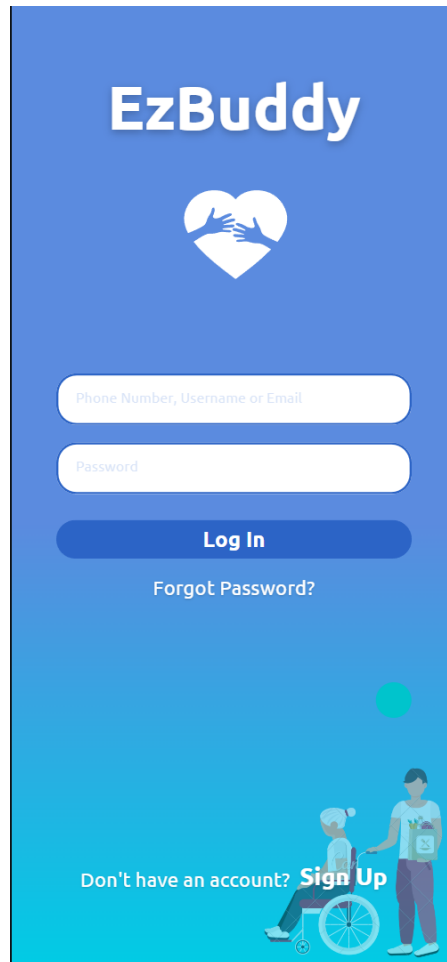
Figure 15 *Login Screen Prototype Page*

Figure 15 shows login screen interface that serves as the entry point for users to access a restricted or secure area of the app.
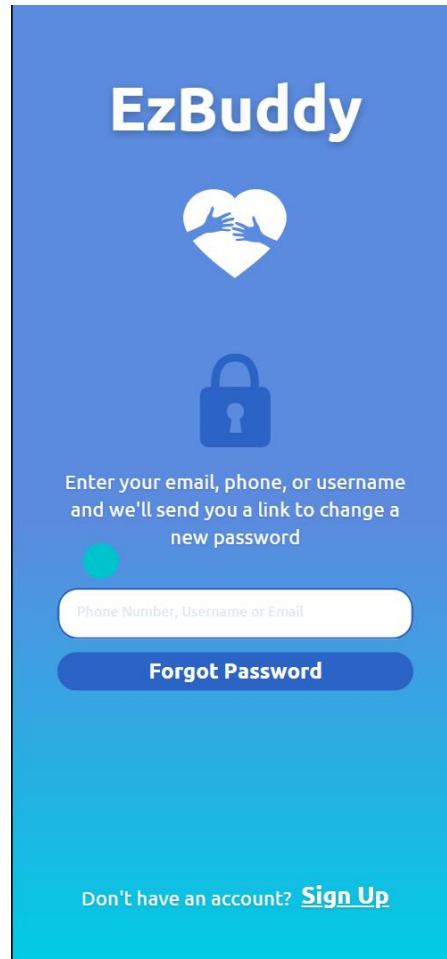
ii. Register Page

Figure 16 *Register Screen Prototype Page*

Figure 16 shows register screen is where user can create account to have access to the app.

iii. Forgot Password Page

Figure 17 *Forgot Password Prototype Page*

Figure 17 shows forgot password screen is where the user can reset their password in case, they forgot their password.

iv. Home Page
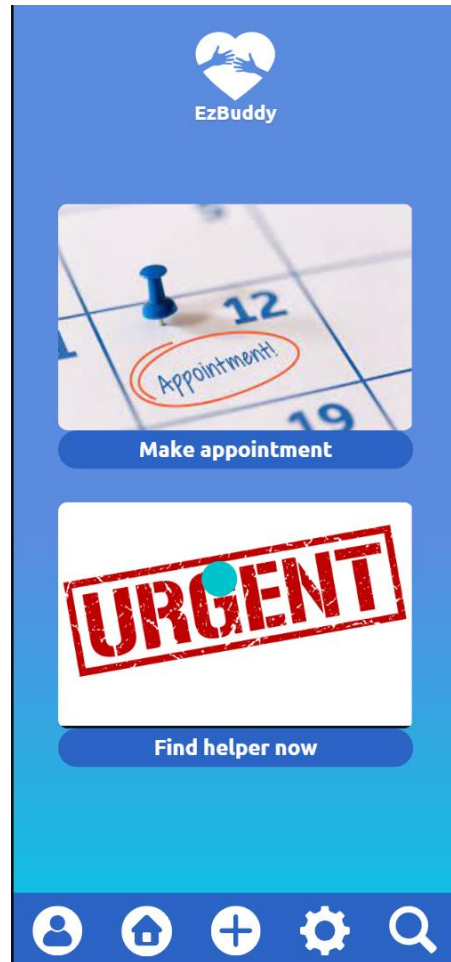
Figure 18 Home Prototype Page

Figure 18 shows the section where user can create a job appointment or create a job to find helper instantly.

v. Calendar and Time Page

Figure 19 *Callender and Time Prototype Page*

Figure 19 shows the user presses to make an appointment, the app will direct the user to the calendar and time screen so the user can set their appointment date and time.
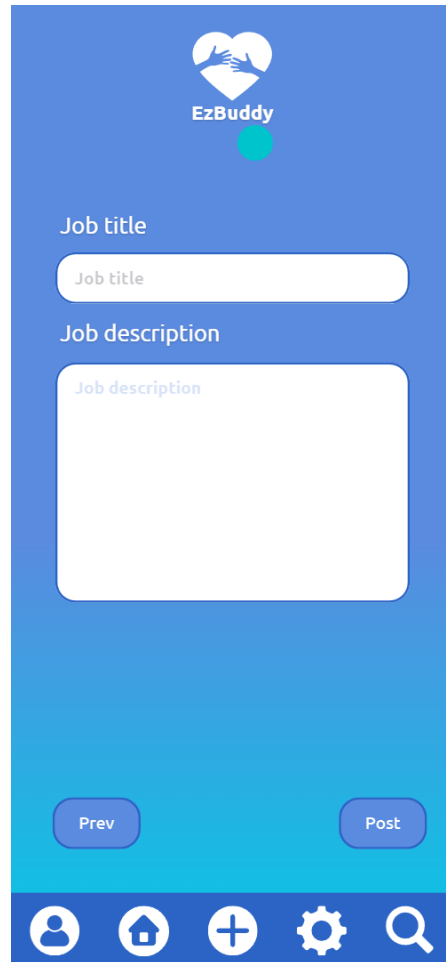
vi. Location Page
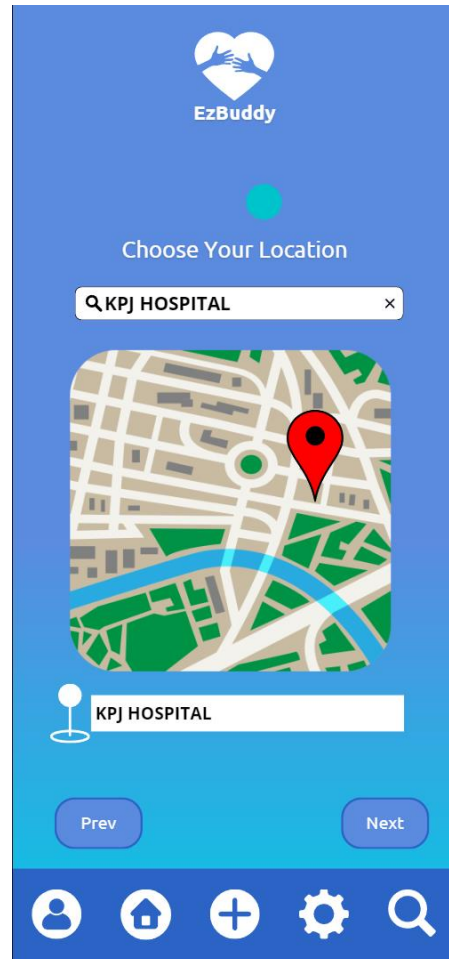
Figure 20 *Location Prototype Page*

Figure 20 shows the map so the user can pin the location of where the destination of the job is going to be, such as hospital or clinic.

vii. Job details Page

Figure 21 *Job Details Prototype Screen*

Figure 21 shows the user needs to fill in the job title and description to describe what the job is about, for example to assist the user on their doctor appointment at the hospital, so the helper will know what they can do to help.

viii. List of Appointment Page
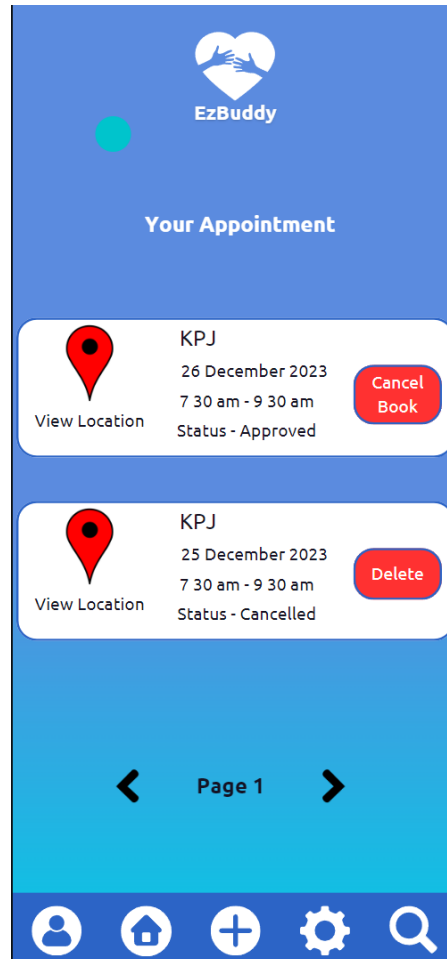
Figure 22 *List of Appointment Prototype Page*

Figure 22 shows the user can view their appointment that has been made in the past or the current active appointment. In this section, user can update or edit their appointment.

ix. List of Helpers Page
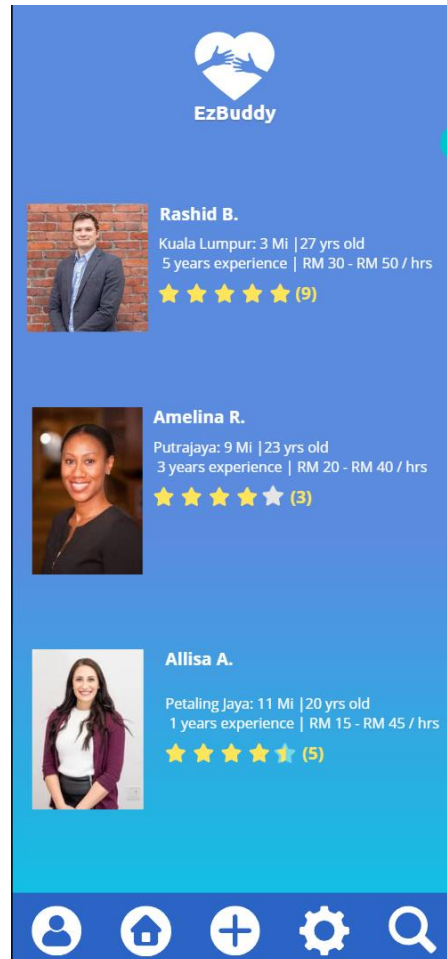
Figure 23 List of Helpers Prototype Page

Figure 23 shows the list of helpers and is where the app will show the helpers details and their rating.

x. User Profile Page
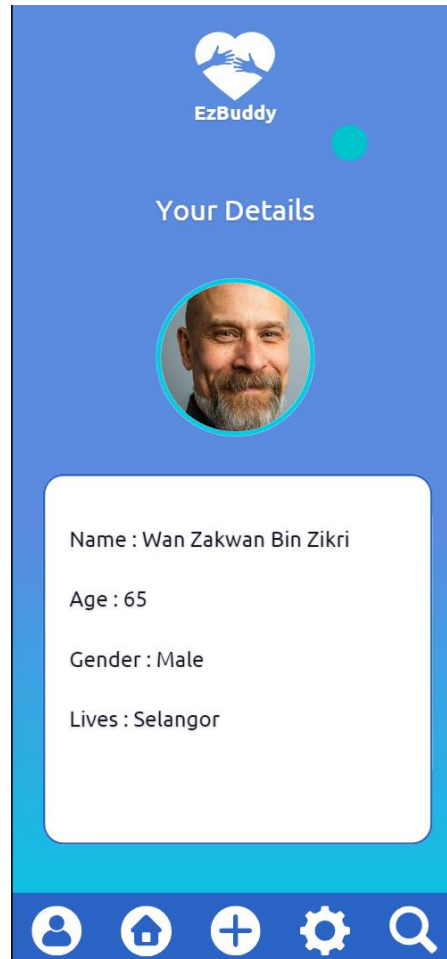
Figure 24 *User Profile Prototype Page*

Figure 24 shows the profile details that has any information regarding to user.

3.3.5 TEST MARKETING

Test marketing is a type of field experiment for testing new products or marketing-related elements of current products. (Hyman et. al,2016)

In the test marketing phase, our primary objective is to evaluate the real-world feasibility and acceptance of the eBudde application before a widespread launch. This crucial phase is designed to collect valuable user feedback, identify potential usability issues, and refine the application based on authentic user experiences. To initiate this phase, specific test markets will be selected, encompassing diverse demographics, with a focus on both elderly users and their caregivers. The test duration will be carefully defined to allow for a comprehensive collection of feedback. The distribution channels for the EzBuddy app will be chosen strategically, including popular app stores and platforms relevant to our target audience.

i. Evaluation Metrics

During the test marketing period, our evaluation metrics will cover various aspects. We will closely monitor user engagement metrics, such as the number of downloads and active users. Usability and user experience will be assessed through feedback on the application's interface, navigation, and overall ease of use, with particular attention to the needs of elderly users. Functionality testing will ensure that all features work as intended, addressing any bugs or glitches reported by users. We will actively collect user feedback through surveys and feedback forms integrated into the app, encouraging users to provide detailed insights into their experiences. Additionally, performance metrics, including app speed, responsiveness, and reliability, will be analyzed.

ii. Feedback Analysis and Iteration

The feedback collected during the test marketing phase will undergo systematic analysis, identifying common themes, issues, and positive aspects. Based on this analysis, necessary iterations and improvements will be implemented, prioritizing enhancements that address critical issues and enhance overall user satisfaction. Continuous

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communication with test users will be maintained to keep them informed about updates and improvements, fostering ongoing engagement and feedback throughout the test period.

iii. Reporting

Upon completion of the test marketing phase, a comprehensive report will be compiled, summarizing key findings, improvements made, and future plans. This report will serve as the basis for recommendations regarding a full-scale launch, highlighting areas of success and detailing the enhancements implemented based on user feedback. The test marketing phase is integral to ensuring that EzBuddy not only meets but exceeds the expectations of its target audience before entering the broader market.

3.3.6 SWOT ANALYSIS

SWOT Analysis is a tool used for strategic planning and strategic management in organizations. It can be used effectively to build organizational strategy and competitive strategy. In accordance with the System Approach, organizations are wholes that are in interaction with their environments and consist of various sub-systems. In this sense, an organization exists in two environments, one being and the other being outside. It is a necessity to analyses these environments for strategic management practices. This process of examining the organization and its environment is termed SWOT Analysis (Gürel et.al, 2017)

Strengths	Weaknesses
Convenience: Provides a convenient platform for elderly individuals to find assistance for various tasks, such as going to the hospital.	**Digital Literacy**: Elderly users may face challenges in using the app due to limited digital literacy.
Flexibility: Users can post specific job requests tailored to their needs, allowing for personalized assistance.	**Limited User Base**: The app's success heavily relies on a sufficient number of helpers being available in a given area.
Ease of Use: The app is designed for elderly users, making it user-friendly with a simple interface.	**Privacy Concerns**: Handling sensitive information about elderly users' health and schedules requires robust security measures.
Opportunities	Threats
Partnerships: Collaborate with healthcare providers or local community organizations to expand the reach and services.	**Negative Publicity**: Incidents or negative reviews related to user experiences could harm the app's reputation.
Additional Features: Introduce features such as in-app video calling, or health monitoring to enhance the app's value.	**Technological Advancements**: Rapid technological changes may make the app's features obsolete or less attractive over time.

Geographical Expansion: Explore opportunities to expand the app to new regions or countries with aging populations.	Regulatory Compliance: Changes in healthcare regulations or data protection laws could impact the app's operations.

5.0 CONCLUSION

In conclusion, the development of EzBuddy, a compassionate and innovative app tailored to simplify the lives of the elderly and their caregivers, marks a significant milestone in addressing the unique challenges within the healthcare technology domain. The project, positioned as a groundbreaking solution, endeavors to streamline daily tasks, enhance the well-being of the elderly, and foster a supportive community for caregivers. The research and development phase, rooted in the recognition of challenges faced by university students in caregiving roles, has led to the creation of a transformative product that extends beyond being a mere application to becoming a caring companion.

The study conducted among Knowledge Processing and Information Management students at University Technology MARA has illuminated critical issues, specifically time constraints and geographical separation, emphasizing the need for innovative solutions. Despite the project's acknowledged limitations in scope, qualitative nature, and time frame, it aspires to contribute nuanced insights and propose strategic solutions aligned with the developmental goals of EzBuddy.

The New Product Development (NPD) process has been systematically outlined, encompassing idea generation, screening, market surveys, product design, concept testing, prototype development, and the crucial test marketing phase. EzBuddy, positioned within the healthcare technology industry, emerges not only as a task management application but as a socially impactful initiative contributing to the well-being and quality of life of the elderly population.

As the project progresses, the commitment to user empowerment, technological innovation, and social responsibility remains steadfast. The prototype showcases an intuitive interface designed for accessibility, with features such as appointment scheduling, location

tracking, and a comprehensive helper system. The upcoming test marketing phase aims to validate EzBuddy's real-world viability, gather user feedback, and refine the application for a successful full-scale launch.

In essence, EzBuddy stands as a testament to the dedication of the Mahligai group in addressing a pressing societal issue with a thoughtful, user-centric solution. It is not merely an application; it is a transformative companion poised to make a positive impact on the lives of the elderly and their caregivers. The journey from ideation to development underscores a commitment to innovation, usability, and, above all, making a meaningful difference in the realm of healthcare technology.

6.0 REFERENCES

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