

Interactive Infants & Toddlers Care (IITC) Module for Young Parents

By

Nurul Hidayah binti Ishak

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Universiti Teknologi PETRONAS

Bandar Seri Iskandar

31750 Tronoh

Perak Darul Ridzuan

CERTIFICATION OF APPROVAL

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Nurul Hidayah Ishak

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Approved by,

(Dr. Suziah Sulaiman)

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TRONOH, PERAK

September 2012

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

(Nurul Hidayah binti Ishak)

ABSTRACT

Rapid advancement of the technology assists in mobile phone development. Smart phones are design to meet the requirement of all users to access everything at the palm of their hands. The fast emerging world of mobile applications is developed to ease the people life. About 25% of the world uses smart phones and there are over 80 billion mobile applications available in the market. This project features research done on the current harmful issues regarding newborn and infants and ways to prevent it as well as performing integration with the current technology of mobile application on an android platform.

The main objective of this report is to provide awareness and guide young parents on how to handle their infants or newborn with the aid of android application. This mobile application is develop to ease the difficulty faced by young parents when dealing with their babies. In this project report, the mobile application is design to contain the health aspect or issue such as; baby development, baby daily care, baby nutrition and common diseases among baby, and will cater on the care of infants, toddlers and babies. This project is divided into 2 phase which are FYP1 and FYP2. The research and early development are completed in FYP1 followed by designing and testing in FYP2. This project will be tested before deployment in comparison with another mobile application of similar prospects that is currently available in the market

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ABBREVIATION AND NOMENCLATURE

IDC : Integrative Development Care Model

IITC : Infants & Toddlers Care

SDLC : System Development Life Cycle

RAD : Rapid Application Development

CHAPTER 1

INTRODUCTION

1 INTRODUCTION

1.1 Background of Study

Trend nowadays has shown an increasing number of young generations, which is Generation Y getting married early. There are several factors lead to this, such as religion factor and also the culture itself. This is differ from the olden days whereby young couple get married due to family arrangement and in Generation X, the trend of late marriage occur because of that generation are more focus in career. The trend of getting married early causes the young couples having lack of knowledge, information and awareness on how to take care of their baby and infants. In addition to this, fast growing world also has led to the lack of awareness among young parents on how to deal with infants and newborn. Busy young parents are more often rely on baby nursery or baby sitter to keep track with the development of their infants and newborn. Researchers have shown that involvement of parents in early day of baby's life is very crucial.

The development of technology has increased rapidly and has led to the hope of taking mankind to the next level. Technology in the broad concept is basically how people modify the natural world to suit their own purposes. A smart phone is a mobile phone built on a mobile computing platform with more advanced computing ability and connectivity than a feature phone [1]. These smart phones is embedded with operating system that support the functions of the phones such as Android, Windows, iOs (iPhone), Symbian and a few more. Software program or known as application (apps) are intergrated within the smart phones. These applications are pre-installed on phones during manufacture, can be downloaded by customers from various mobile

software distribution platforms, or web applications delivered over HTTP which use server-side or client-side processing provide an "application-like" experience within a Web browser [2].

Therefore, in this project report, the aspect of infant and toddlers daily care will be integrated with advancement of technology which is android application to cater the needs of young parents. This application will assist parents to handle their babies themselves and give basic guidance on baby daily care, nutrition aspect and also common disease for infants and newborn. Interactive android application is develop to make navigation easier for the young parents.

1.2 Problem Statement

The main attention in this project is to develop an android application for young parents to guide them in handling infants, toddlers and babies. According to research, young parents find difficulty in dealing with new born or infants. Lack of awareness and early parenting education led to this issue. There are several existing applications in the market however it is less interactive in term of navigation and interface provided.

1.2.1 Problem Identification

The lack of knowledge and awareness among young parents on dealing with baby and infant can be cause by several factors. One of it is on the improper baby care. There are several issues involving babies choking that led to death. The Malaysia newspapers has reported a number of cases happened on babies choke on milk, own vomit, and also fruits and dies. Besides, the issues regarding cot death among infants is increasing day by day in Malaysia itself. Cot death also refers to Sudden Infant Death Syndrome (SIDS) where baby die in sudden during their sleep. This is due to the ignorance of parents in ensuring the safety of the infants or newborn when they put them into their cot.

Apart from that, harmful situations on health and nutrition involving newborn and infants has become the ongoing issues which parents need to aware of. For example the ignorance between young parents on type of milk they purchase for babies will harm their infant and improper nutrition diet and meals can potentially cause complications to the particular toddlers and infants' example obesity. In Malaysia STAR newspaper dated 2011, it mention that the Deputy of Prime Minister, Tan Sri Muhyiddin Yassin mentioned his concern on obesity issues among young children including babies. Following that, issue that led to infants' death is late diagnose of disease they possessed. The lack of basic knowledge symptoms causes ignorance among young parents to bring their infants for treatment.

Following that, there are several existing mobile applications that offer a platform to guide parents on how to take care of their baby, infants and newborn. However, the existing application is quite hard to navigate due to the complex interface and the texts present in the applications are too wordy. Thus, the focus of this project to guide young parents in handling their infants and newborn with the help of interactive android application.

1.2.2 Problem Significance

This particular project brings real significance to the users which are young parents on how to take care of their infants and also have better learning experience with infants and newborn. The main concept in this project is to develop android application that can ease young parents and give infants a better care. Apart from that, this project can integrate the human computer interaction concept with daily life since mobile application is easy to navigate. Besides, young parents can easily get information in their hand without having to carry books everywhere and go online to get the information.

1.3 Objectives and Scope of Study

1.3.1 Objectives

- 1) To identify basic guidance using Mother Child Integrative Development Care Model (IDC) to help young parents dealing with newborn or infants.
- 2) To translate the basic guidance to obtain a set of design requirement for android application development.
- 3) To develop an interactive android application, “Baby 1st Year” based on design requirements.

1.3.2 Scope of Study

This project will focus more on young parents in Malaysia as the users of the application. In addition to this, the content of the application will be specifically on the health part which is daily baby care, nutrition and also diseases among infants in the first year.

1.4 Relevancy of the Project

The aim of the project is to provide awareness and basic knowledge to young parents on how to handle baby, infants and newborn by using android mobile application as the platform. Besides, this mobile application can ease young parent’s difficulty in dealing with their babies and provide better and interactive mobile application. In addition to this, there are several issues involving babies such as improper baby care and harmful situations on baby health and nutrition. Thus, this project is relevant to cater all the issues mention above.

1.5 Feasibility of the Project

1.5.1 Technical Feasibility

- Familiarity with Technology

For this project, the technology used would be android mobile application technology as the main purpose is to integrated baby care with the mobile application. Besides, the end product will be the mobile application itself thus I need to familiar myself with the technology regards to android application.

- Familiarity with Application

Application or software used in order to develop this mobile application is AppsInventor. This is because it is easy to navigate and understand. This is due to the time constraint in order to develop the mobile apps.

1.5.2 Scope Feasibility

The scope of this mobile application is developed for a small scale which is only for young parents as it easier for the author to collect and analyst data. Apart from that, this project only focuses on baby first year of development.

1.5.3 Economical Feasibility

Looking on the economical factor of this project, the risk is low since the application used in order to develop the system can be downloaded for free. Moreover, there are several existing mobile application that can be related to this project shows the demand in his mobile application. However, the drawback from the existing application has lead to this project. With this, the demand of this mobile application is huge.

1.5.4 Time Feasibility

The project is divided into 2 phases which are FYP1 and FYP2. According to SDLC methodology, planning, analysis and design phase will be done throughout FYP1, along with development, testing and implementation phase in FYP2. There is sufficient time for the author to complete this project because the time given to complete it is in 14 weeks for each phase (FYP1 and FYP2). With this, the main research of this project is conducted in the first phase of the project followed by the development of mobile application in the second phase of the project. Hence, this project is feasible to be conducted during these two semesters.

CHAPTER 2

LITERATURE REVIEW

2 LITERATURE REVIEW

2.1 Development & Baby Daily Care

Infant or baby care is very crucial in order to help the well development of newborn. According to education.com (2006) infant care is define as nurturant care to meet the physical, mental, emotional, and social needs of young children from birth to about 24 months of age [4]. According to WHO, care of the newborn during the early postpartum period can be seen as collaboration between professionals and parents in shared responsibility for the child [5]. However, this report will only focus on the responsibility of parents in taking care of their infants and toddlers.

Baby and infants basic daily care for parents means the process of taking care of the infants or newborn in the hand of parents in daily basis. During this period, parents can help the positive development of infants and newborn with the right knowledge and techniques. Zero to Three (2007) points out that at-risk infants and toddlers often receive child care of such poor quality that it may actually diminish inborn potential and lead to poorer cognitive, social, and emotional developmental outcomes [6]. Thus early exposure to parents on taking care of their babies is essential. With the correct daily care, it will promote in infant mental care. As said by Chazan.C (2001) in his article, development of infants are depending on how parents interact with infants during feeding and diapering to how parents engage themselves to their child during bathing. The benefits of breast feeding are known to all mothers. However, with the busy life and lack of knowledge and info about breast feeding, young mothers opt for formulated milk. Health Canada, The World Health Organization, UNICEF, and many other national and international

organizations recommend that no other foods besides breast milk be given to your baby until she is six months old [7]. In this project, the application will give basic information on breast feeding and guide mother to breast feeding correctly, and also tips in handling baby during breastfeed. There are few cases that led to infant death where they were choke with their milk and also vomit. This is due to the lack of awareness among guardians in this matter. Apart from this, infants and newborn sleep is also important and a part of their development. In Pa & Ma (2012) article stated that in Western country, 90% of infants below 7 months of age dies in sudden during their sleep, which also know as Sudden Infant Death Syndrome (SIDS). Therefore, parents should take note and know about their infants sleeping habits, and how to deal with baby when there are sleeping to avoid the same problem. Baby massage is defined as gentle, rhythmic stroking of your baby's body with your hands [9]. There are many ways and technique for parents to massage their infants. This project will educate young parents on the techniques of infants massaging. As said by Dr. Frederick in InfantMassageMalaysia, "Being touches and caressed, being massaged, is food for the infant, food as necessary as minerals, vitamins and protein. Important point for young parents to note is the hygienic aspect of their infants. Bathing baby can be a joyful moment for both parents and infants. Thus, precise techniques and step need to be follow to ensure safeties of the baby and keep the enjoyable moments. Health Canada recommends that parents not use bath seats or rings because of concerns with their safety [7].

Nutrition given to infants also is one of the aspects that will be cater in this project report. Nutrition is a fundamental aspect in growth of an infant. The right nutrition helps infant to grow healthy and active. Due to the rapid growth of an infant, an infant needs more calories and nutrient compared to any other time of his/her life. Since born, infant is given milk or liquid food as their source of nutrient. From the age of 6 months, infant or baby is being introduced to semi-solid or solid food; this is because infant needs extra iron in their 6 months age. More nutrient means more positive growth for the infant to ensure they are healthy. According to Dr, Halina (2012) homemade food is the best for infants as we can ensure the ingredients for them are fresh and safe. The STAR newspaper reported that few cases of obesity occur in babies and young children. Following this, this project will include simple recipes for young parents to make for their toddlers.

In addition to baby daily care aspect, baby and infants common diseases will be included in this project. In early years of infants and newborns, they are very vulnerable to diseases. In Common Infant Illnesses article mentioned that parents should observe any unusual symptoms that infant possessed. This will help pediatrician to detect the cause of pain in the toddler easily. With basic knowledge of the parents, it will help doctor to diagnose infants accurately. Other common newborn problems are jaundice, eye infections and diarrhoea, which may be managed at health facilities or hospitals depending on their severity as mention by WHO (2012) [13]. As mention by Dr Halina (2011) in her blog, basic knowledge that parents could protect their babies and prevent infant mortality.

2.2 Mother Child Integrative Development Child Model (IDC)

According to Leslie.A (2011), IDC is the simple version of Universe Development Care Model (UDC) that is written earlier. It has not been reported the used of IDC in any other project, thus, the author is using IDC model as one of the research element in this project. IDC model tap only on the health aspect of the mother and child care. However, in this project, the research will only cover on the health side of the baby and toddlers. With IDC model, it provides a user friendly interface that is easier to understand by readers. The principle used by IDC model is in lotus petal whereby all the health aspect of an infant would be touch. Some of the aspect is the sensitivity of the skin, temperature, baby nutrition and more. The lotus petal can be seen as below:

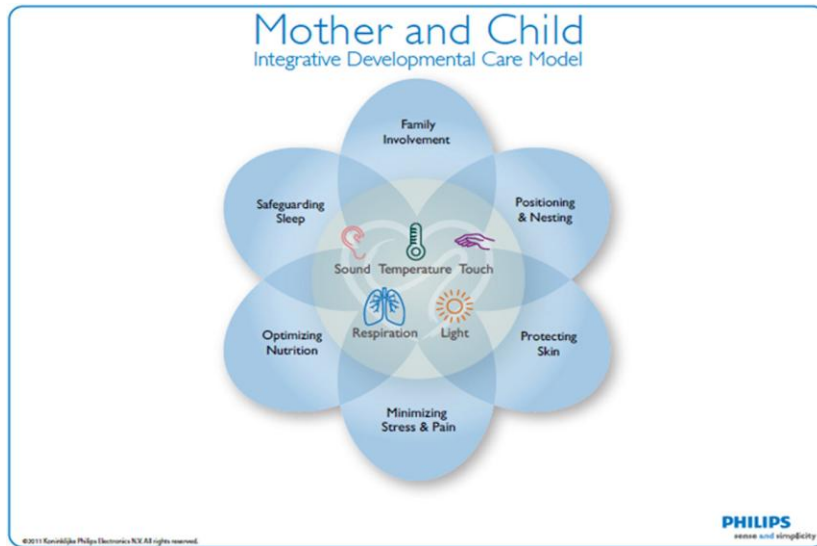


Figure 1: IDC Model

2.3 Mobile Application Technology

As discussed above, technology has evolved rapidly and benefits human being directly. A smart phone is a mobile phone built on a mobile computing platform with more advanced computing ability and connectivity than a feature phone [1]. Once we consider the issue face in baby care world, we can relate it back to our technology advancement which is mobile apps. In his article, Matt Goddard (2009) he mention that the presence of mobile technology is ubiquitous. With more than 33 million iPhones sold as of Q4 2009 and more than 80,000 applications available online, this device has transformed consumer awareness of advanced mobile features. This platform, and the applications it runs, constitutes a channel for consumer interaction that cannot be ignored [15]. Thus, in the new era, it is essential to have baby care apps to guide young parents with their infants and newborns.

2.4 Current Relevant Product

There are several existing products that are similar with Infants & Toddlers Care (IITC) Module for Young Parents in the market. These products are using both iOS and Android platform. This

part of the report will list the relevant product and how my mobile application is differentiated from them.

2.4.1 Baby Tracker

This mobile application has similar function to the one proposed. Baby Tracker application exists in iOS and Android platform. However, this application is hard to navigate and not user-friendly. There are too many texts and picture included. My proposed system would be more user-friendly and easy to navigate. Less text and picture will be built in the application. Plus, the application will have text to voice command which it can read to the users if the user wants to hear the content.



Figure 2: What to Expect Mobile App

2.4.2 Baby Guide First Year Lite

This particular application basically is having the same concept as the one proposed. However, Baby Guide First Year Lite only focuses on the 12 months development of infants. My proposed topic will tap on the 12 months development aspect and daily baby care guide, nutrition, and common diseases possessed by infants. This application is only available in Android platform.



Figure 3: Baby Guide Mobile App

2.4.3 100+ Baby Food Recipe Lite

This application has the same concept as proposed project which is to guide in baby care. However, this application only caters in the nutrition aspect whereby it provides recipes for infants. As mention above, my proposed application will caters on 3 different aspects which are 12 months development aspect and daily baby care guide, nutrition, and common diseases possessed by infants.



Figure 4: Baby Recipe Mobile App

As mention earlier in the report, as there are several existing mobile application in the market, this project is develop to be different compares to the others. Table below shows the comparisons of my project with the current application in the market.

Characteristics	My Proposed Project	Current products
User Interface	Simple, User friendly -Uses of image	Complex - Too Wordy
Interactivity	Easy to navigate – Simple Interface	Hard to navigate,
Functionalities	Text-to-speech output	Read only
Visibility	Free	Chargeable

Table 1: Comparison between Project and Current Mobile App

2.5 Human Computer Interaction in Application

Human computer interaction is defined by Xian.X.Y & Guo. C (2009) as an interaction between people and a machine with a computer, and Man-machine interface is the form and method to realize of the Human-Computer Interaction [15]. The process of input output in computer based device is also another way to understand the concept of human computer interaction. Human computer interaction can be translated into several forms such as data interaction, voice interaction, image interaction and behavior interaction. In this project, I will apply interaction information in the application and attractive images so that users can have better understanding on the topics. On top of this, IITC application will have text to voice command built in the apps to cater the voice interaction aspect of HCI. Gong Chao (2009) also used the same concept as Xian X.Y & Guo.C (2009) whereby he mentioned the same 4 aspects of interaction in his paperwork. Human computer interaction in mobile application caters the medical and health side of human being. Several platforms such as iOs, Android and Blackberry did offer few applications that can be related to health and lifestyles. According to Ben.F (2009) these themes include: the use of novel interaction techniques, the use of human-computer interface to encourage and mitigate movement and activity, and the use of graphics to improve the representation and understanding of medical, wellness, and life information [18]. However, based on Kuo Y.H. (2009) human computer interaction design in mobile application has multiple challenges that will present. Thus, in order to complete this project, I will apply 3 concept of HCI which are data interaction, image interaction and voice interaction to ensure users find my application is user-friendly and easy to navigate.

2.5.1 Android Application Navigation

Navigation is a part of interactivity that is covered in this project. Theresa N. (2012) mentioned that having good navigation is like having good design; it is invisible [22]. As the mobile application has a good navigation, the users will feel cozy and comfortable to accomplish any

relevant tasks or goal using the application. There are several types of navigation mention by Theresa N. (2012) and the examples are [22]:

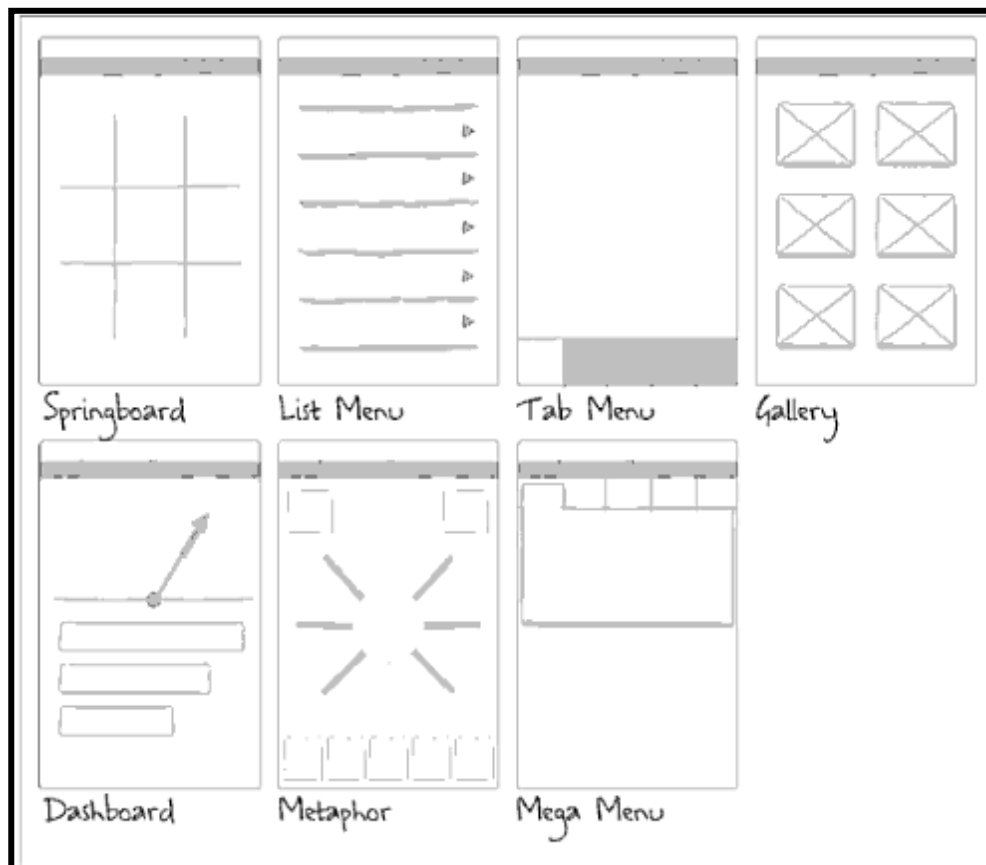


Figure 5: Types of navigation

Peter S. (2012) stated in his article that when users use an application, they already have a mission or goal they want [23]. Basically, what they want is to get to the information easier and faster without any hurdle. In addition to this, there are certain characteristics or details that developer need to focus when developing and mobile application. The first one is using words. Peter S. (2012) said that the word used in mobile application should not be lengthy and should be as simple as possible. However, even using the short and simple words, the information must correctly interpret by the users. Next is to remove the redundancy and lowering the reaction time. By removing redundancy of words, basically the users tend to understand more and the reaction time can be reduced. Apart from that, mobile application is recommended to use more picture,

icon and symbols. This is to enable users to understand better without having to use lengthy words.

CHAPTER 3

METHODOLOGY

3 METHODOLOGY

3.1 Research Methodology

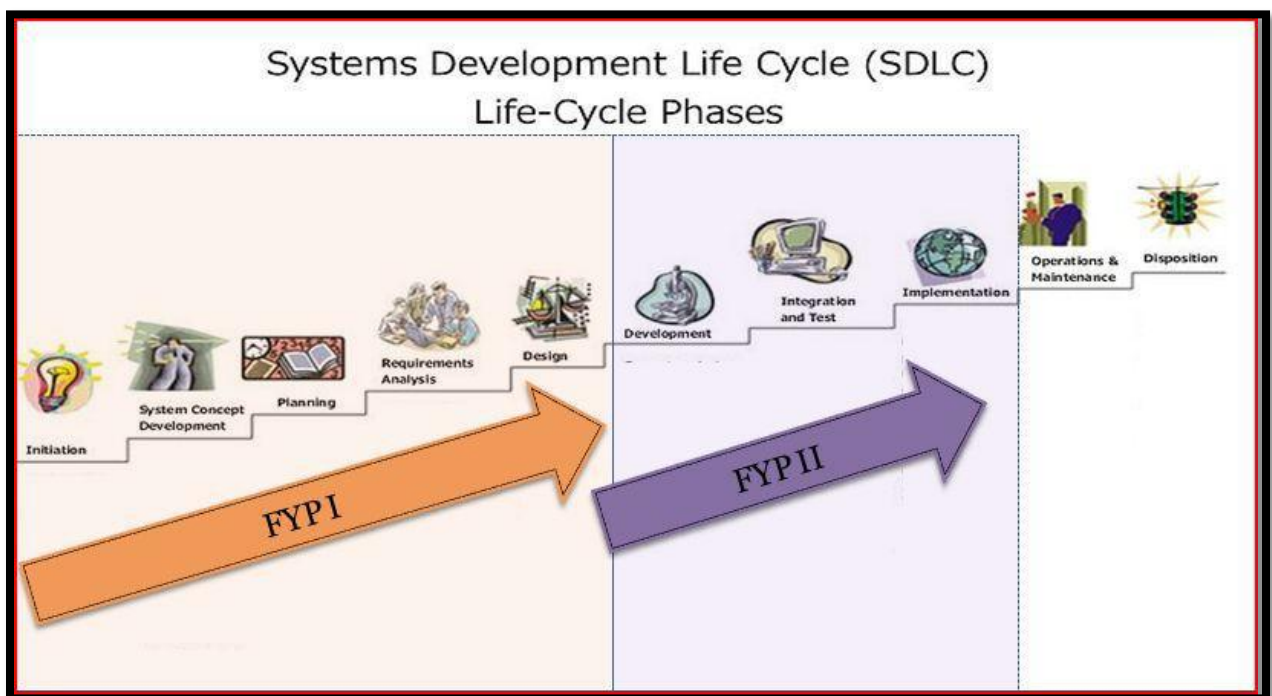


Figure 6: SDLC Life-Cycle Phases

The figure above shows the System Development Life Cycle (SDLC) Life-Cycle Phases that is used in this project. It can be seen that there are several phases need to be completed in FYP1 before I can proceed with development, testing and implementation in FYP2. In SDLC Life-Cycle itself, it has been extended to three different methodologies and I am using RAD, Prototyping Methodology, as can be seen in figure below.

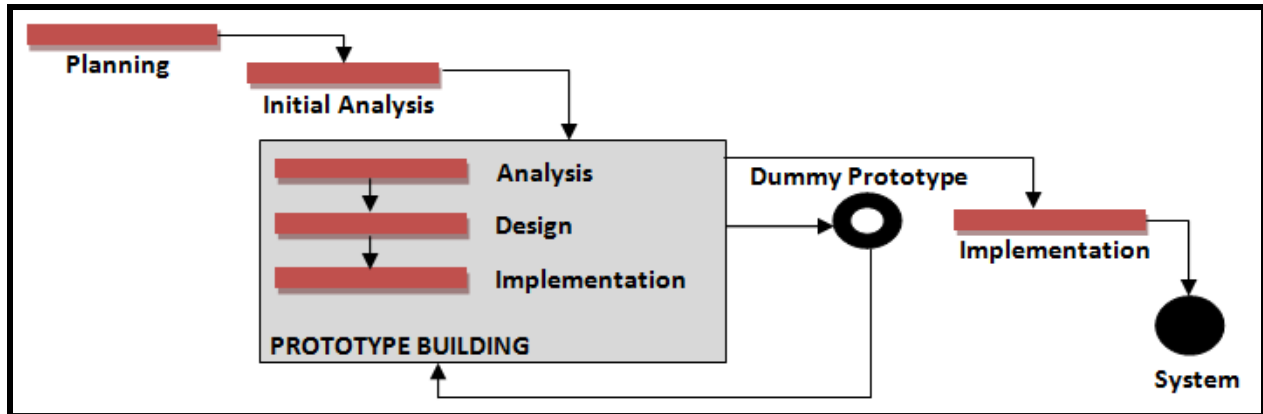


Figure 7: Throw-Away Prototyping Methodology

Throw-Away Prototyping Methodology is specifically used in the developing process of the mobile applications as it is likely to be changed as the project proceeds or when the stakeholder has little idea of how system to be built. Three phases are performed at the same time which is Analysis, Design and Implementation phases and it is an on cycle in creating a system prototype. This cycle will be repeatedly done until the system prototype successfully meet the requirements. As for the advantage of using this model is that it can deliver system quickly to users, though it not exactly meeting the requirements.

3.1.1 Planning and Gathering Information

In early stages of the project it is very crucial to plan on what can be done to achieve the project objectives. Firstly, it is very crucial to know the objectives and the scope of study needed in order to complete the project. As we know that the product of this project would be mobile application. Thus, it is essential to know which platform to use in development later on. Besides, lots of researches need to be done to gather all the information related to the project such as the mobile apps and also on baby care. Several methods that can be used to collect data and information are listed below.

➤ Questionnaire

Questionnaire is a quantitative analysis and it is common used to collect data from potential users. The closed type of questionnaire is design to ensure that analyzing information is easier. Questionnaire can help to find out the level of awareness of young parents in taking care of their infants and new born, market availability or present and also whether there is a need for young parents to use application to guide and help them with their infants.

➤ Qualitative Interviews

Interviews are used at the beginning and end of an evaluation, initially to gather general information to form the basis for a questionnaire and afterwards to clarify its results and fill in gaps as suggested by Rubin (1981) [3]. Interviewing with expert such as doctor on baby care, nutrition and also disease among infants can give extra input and view in information gathering. Apart from this, young parents also are interviewed to assess their level of awareness in dealing with infants.

➤ Books and Journal

Second level of data collection is through books and journal. With concrete references, this project will achieved its objectives accordingly.

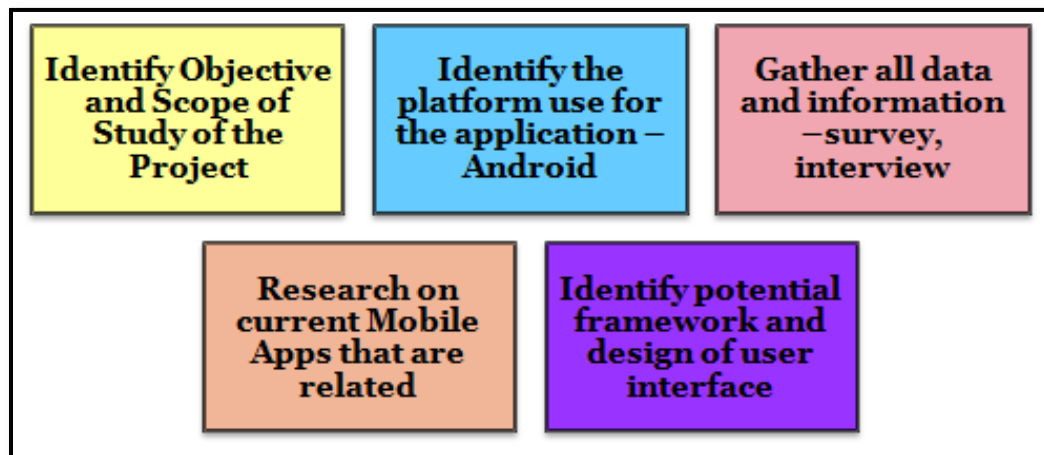


Figure 8: Planning and Gathering Information Process

The planning stage is continued and further evaluated through a use case diagram, whereby the interaction between the user and the system is visible. From the use case diagram below, it is shown that user has interaction with the system by searching preferred basic guidance in baby care. Following this, user also interacting with the system by retrieving the basic baby care provided in the system. Plus, user too will interact and responds with the system by using text-to-speech output feature.

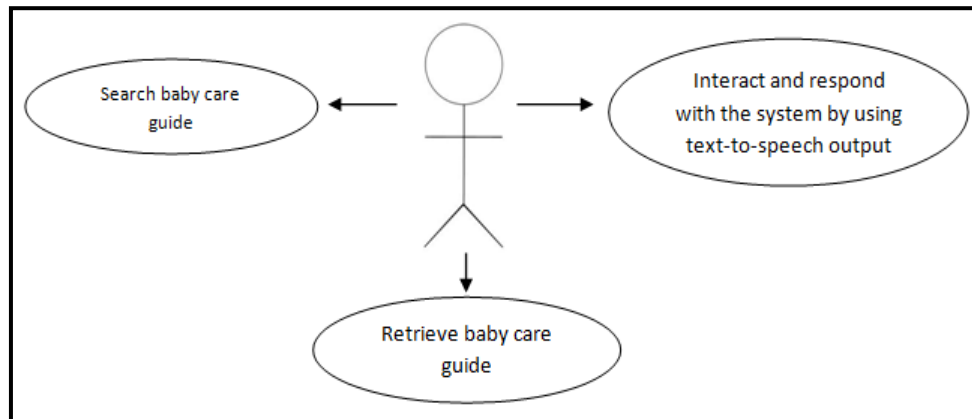


Figure 9: User Use case Diagram

3.1.2 System Analysis and Requirement Definition

After completing the data gathering and collection phase, I need to analyze the result for each data collected. At this stage, the data collection will be analyzed and translate into storyboard or flowchart for the development phase later on. This information is analyzed in term of Malaysian context.

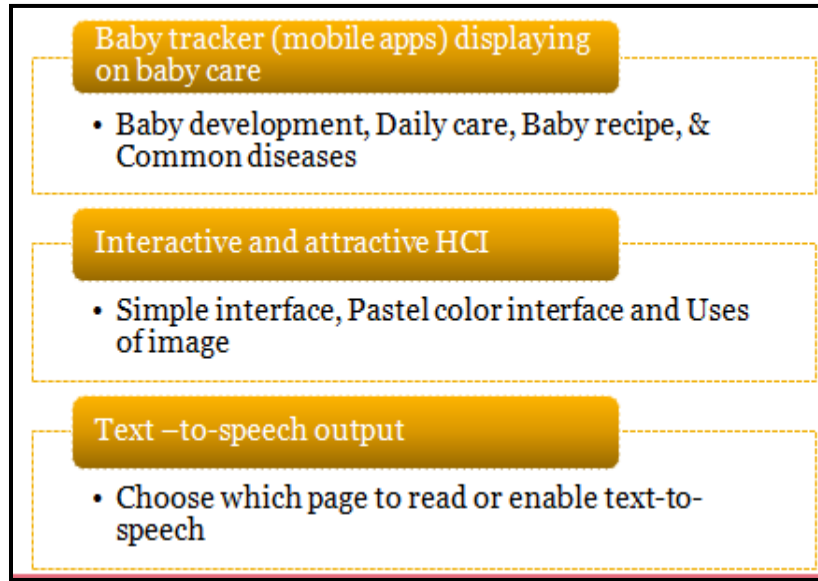


Figure 10: System Analysis and Requirement Definition

3.1.3 System Development

In this stage, application is develop to come out with the final product. However, before development can be done, system design is required to have better views on how the final product will look like. System interface is design and sketch for development purposes.

A system flowchart is defined as a concrete, physical model that documents, in an easily visualized, graphical form, the system's discrete physical components. These include the programs, procedures, files, reports, screens and more. With system flowchart, people would have better insight on how each of the system components work. Figure below shows the system flow of "Baby 1st Year" mobile application.

- **Modular Flow Structures and Architecture**

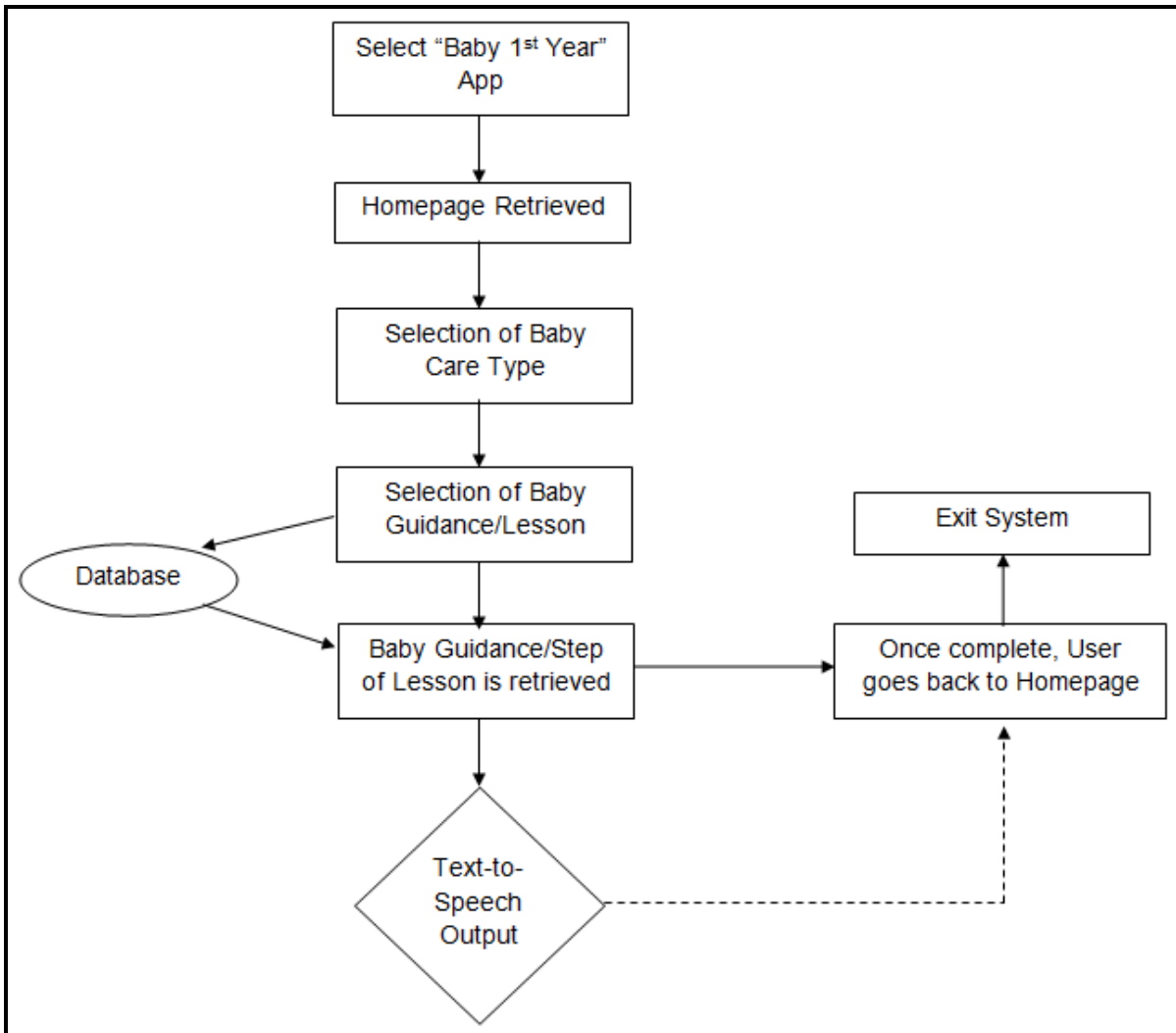


Figure 11: Overall Flow Chart

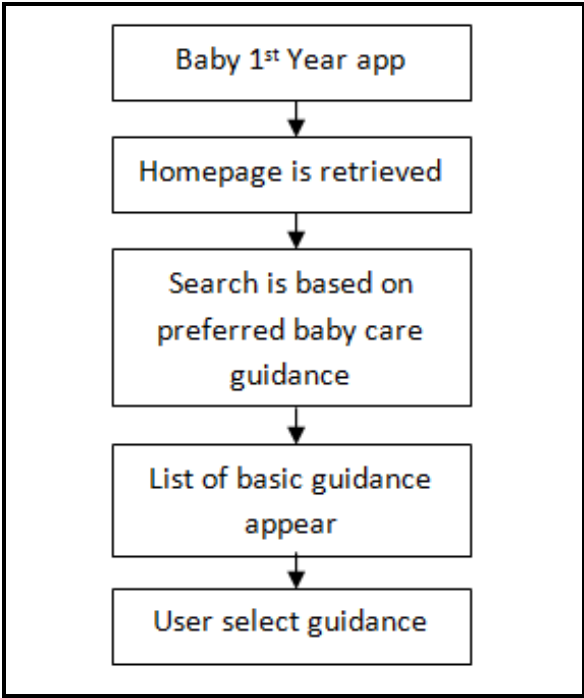


Figure 12: Search Tab Flow Chart

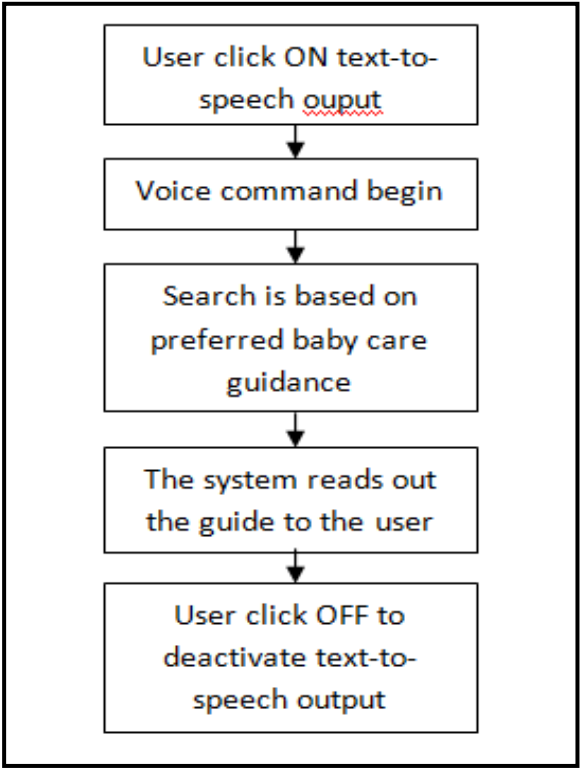


Figure 13: Text-to-speech Output Flow Chart

3.1.4 System Implementation

The implementation of the system will take place after the testing phase of the projects. Testing is done to ensure all bugs are fixed and the application is perfect. When the application is ready, the implementation phase take place and market reaction can be observed.

- Pre-Test

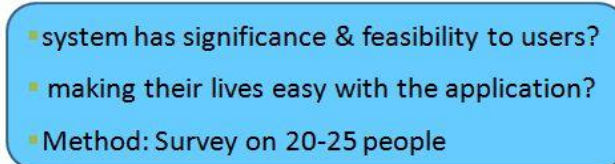


Figure 14: Pre-Test Technique

- Post-Test

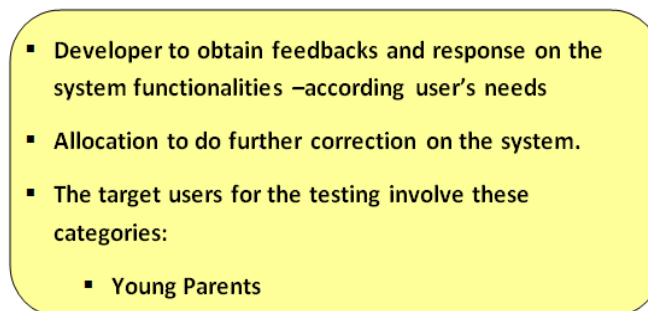


Figure 15: Post-Test Technique

3.2 Project Activities

Project activities included in this project are key milestones of the mobile apps and also Gantt chart. A key milestone is the general view on what need to be done in order to complete FYP1. In addition to this, the Gantt chart refer to the specific task need to be completed each week an act as the platform to see whether the project is going according to plan or not.

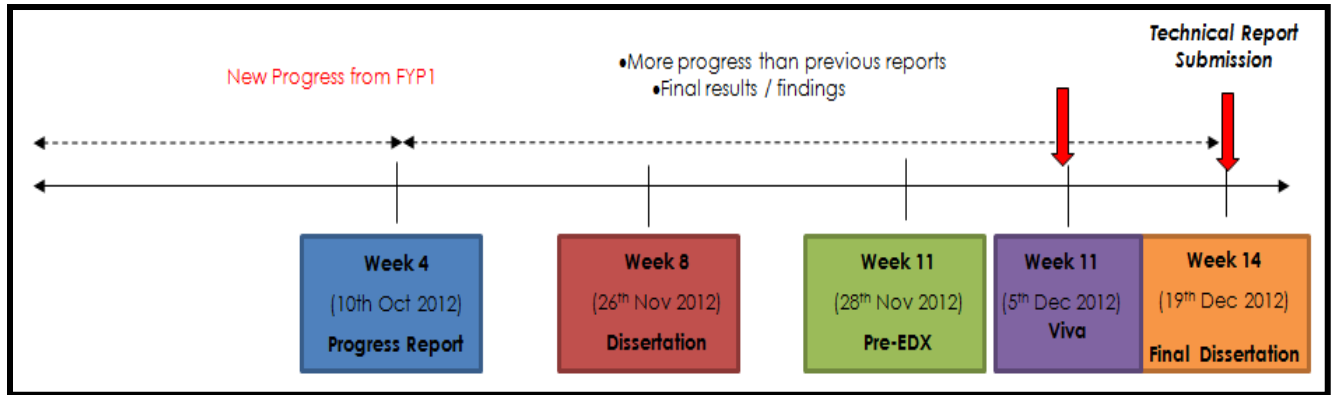


Figure 16: Key Milestones

3.2.2 Gantt Chart

Task/ week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
Planning	█	█																										
Topic Research			█																									
Analysing																												
Research journals				█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
Development																												
System Development																█	█	█	█	█	█	█	█	█	█	█	█	
Testing																												
User testing																									█	█	█	
Maintenance																												
Fixing Errors																										█	█	█
Deployment																												
																											█	

Table 2: Project Gantt Chart

3.3 Tools Required

3.3.1 Hardware

Hardware needed in completion of this project is android compatible devices such as mobile devices. Later on, during development phase of this project, personal computer is needed as the work station to develop the apps.

3.3.2 Software

Software used in this particular project is AppsInventor as it is easy to navigate and understand. This is due to the time constraint in order to develop the mobile apps. Apart from this, Wireframe Sketcher is used in order to design the interface of the mobile applications.

CHAPTER 4

RESULTS AND FINDINGS

4 RESULT AND FINDINGS

Result and findings are a part of data analysis gathered from this project. The analysis phase involves taking into consideration all the objectives outlined earlier in the planning phase and gather all the information in order to further proceed with the project. In obtaining the data to be analyzed, few methods are conducted such as survey and also interview. In addition to this, this section of the report also will explain on the system flow and use case modeling use to better understand the flow of the system.

4.1 Survey

Survey has been conducted in TESCO Seri Iskandar Perak and is focused on the young parents. With 16 numbers of young parents participated for this questionnaire that consists of 8 questions that related to the main issues and objectives of project. One doctor that specialized in mother and child care, together with one young mom participated for an interview to analyst the issue and discussion on the proposed project. The summary of result and finding are as below.

4.1.1 Result on Demographic Aspects of the Respondents

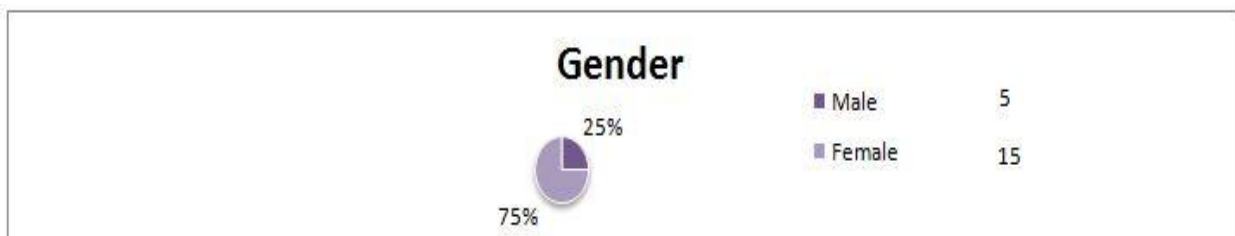


Figure 17: Result on Gender Survey

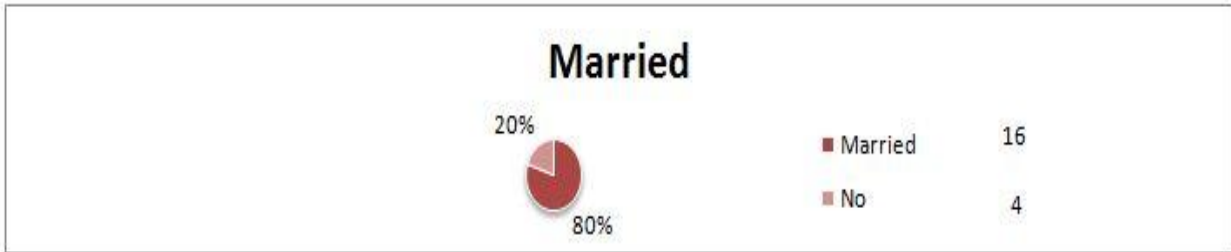


Figure 18: Result on Married Survey

Figure 12 and 13 above basically explain the basic demographic aspect of the respondents which is gender and their marriage status. Gender and married are asked due to the project which not concern on the sexual category of respondents however on the particular focus requirement in this project which is young parents.

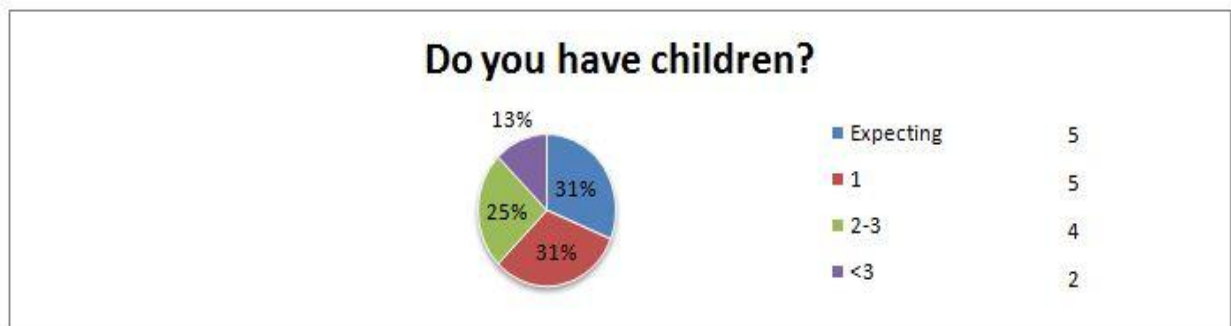


Figure 19: Result on Having Children

Figure 14 above focused on the number of children respondents have. 31% of respondents which is 5 of them are expecting their first baby. Thus, this project is more significant to them as they can test and give feedback either the mobile application, 'Baby 1st Year' is significance. As for respondents that have 1 child, which also take 31% of the survey they also are the main target in order to know whether this project is significance for young parents. With the analysis done, it is known that most parents those are expecting and have 1 child find this project can beneficial to them compared to young parents that have 2,3 or more than 3 children mention that they already have sufficient experience in handling newborn and infants.

4.1.2 Result on the Level of Awareness and Importance of Basic Knowledge in Handling Infants

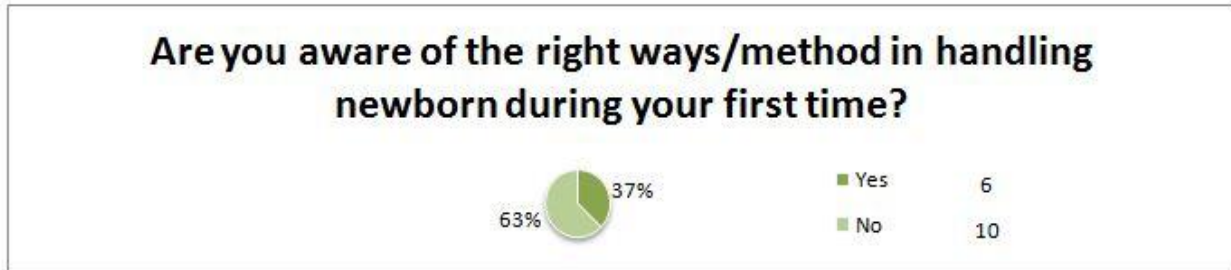


Figure 20: Result on the Awareness on Handling Infants

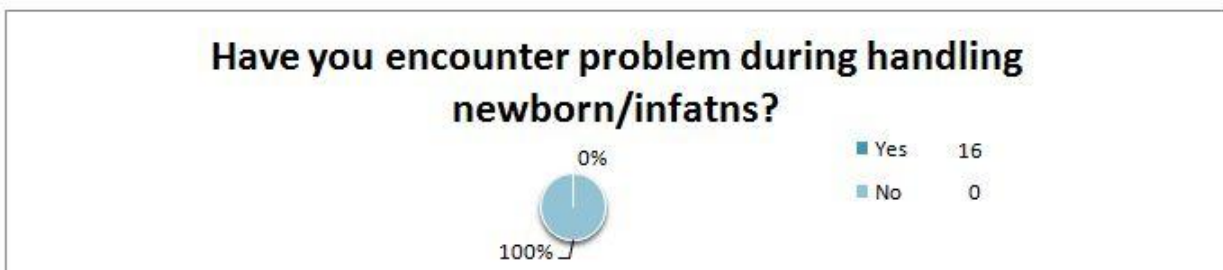


Figure 21: Result on Problem Faced During Handling Infants

Based on the figure 15 above, it can be shown that majority of young parents, 63% did not aware of the right ways or method in handling newborn during their first time. This is also included the young parents that are expecting their first baby. This is due to the lack of experience in handling with newborn or infants directly. Besides, figure 16 shows that all respondents, which are 16 of them, have the same respond that they all faced a few difficulties when handling newborn or infants. They did not know how to react to certain situation when dealing with babies. With this figures, it shows that basic knowledge on taking care of baby is important to be share as it can guide young parents and ease their difficulty.

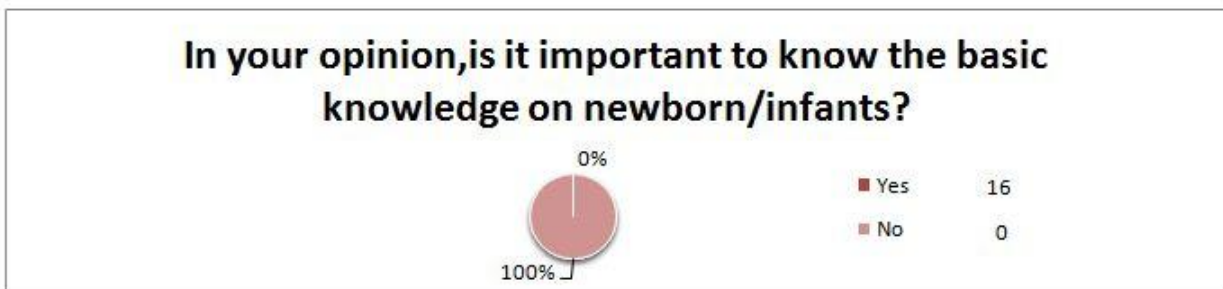


Figure 22: Result on Opinion on Infants Knowledge

Figure 17 shown a majority of respondents, 16 (100%) of them agree that basic knowledge in handling newborn or infants is crucial especially for young parents. Positive development of newborn and infant is lead by several factors and one of it is a good and proper care from parents. With basic knowledge of infant and toddlers care, the harmful situations involving babies can be reduce and the level of awareness on proper baby care can be sustain. Thus, it is important to provide awareness to young parents on the basic knowledge of infants to prevent negative or bad cases related to newborn and infants.

4.1.3 Results Analysis on the Proposed Project/Mobile Application

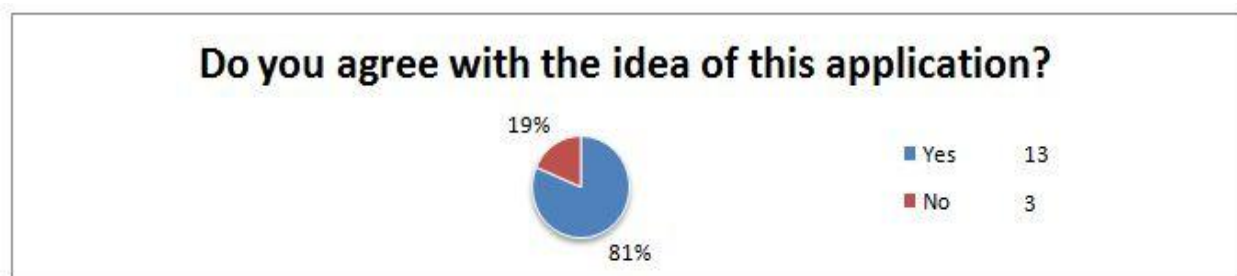


Figure 23: Result on the Mobile Apps Idea

The concept of “Baby 1st Year” android mobile application is explained the questionnaire while the survey is being conducted. Based on the answer, 13 respondents (81%), which is the majority agree with the idea of this project. “Baby 1st Year” is said to be helpful to all the young parents in Malaysia. However, there are 3 respondents did not agree or unimpressed with the idea of this project. The reason behind this is because they feel that the knowledge and proper method in handling newborn and infants can be shared by their elderly. Even though 19% did not agree with this mobile application idea, majority of them, 81% agree because “Baby 1st Year” would serve community in a better way.

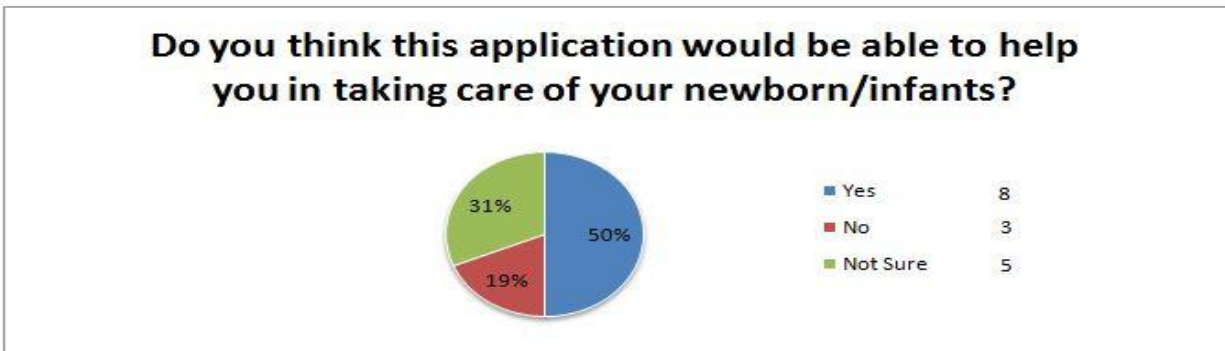


Figure 24: Result on the Mobile App Helper

Based on figure 19, it is shown that half of the respondents, which include 8 of them feel that this mobile application would be able to help them better in handling newborn, babies and infants. While there are 3 of the respondents did not agree with the application, 5 of them (31%) feels like it would help if and only if they specifications, requirements and content of the application meet users need. In regards to this matter, the author has mentioned earlier that, during this project, two tests would be conducted. Pre-test is conducted in form of survey to identify the users feedback of the prototype of mobile application. After that, post-test would be conducted after receive and analyze the correction need to be done. This is to ensure that all requirements and content of “Baby 1st Year” meet users’ expectation.

4.2 Interview

Beside survey, interview also being conducted to identify and analyze the data gathered from both doctor and also young parents. This interview will strengthen the fact and verify that this project is worth to develop. In addition to this, the information from the doctor can be used in the literature review to ensure the reliability of the information, facts and findings.

4.2.1 Interview with Doctor

The interview with respective doctor is done in order to gain more information and knowledge on the health aspect of newborn, baby and infants. The section that will be tap in health aspect is

baby development and daily baby care, baby nutrition and also common diseases among newborn, baby and infants.

“Handling newborn, babies and infants can be quite tricky sometimes. Somehow, with experience it become easier. With this application, it would help both doctors and parents at the same time since parents can have their early diagnose.”

Figure 25: Interview with a Doctor

4.2.2 Interview with Young Mom

In addition to doctor’s interview, the author managed to conducted interview with one of the mom to get more insight on the issues of handling babies. Following this, the author managed to get information on what young parents would feel about this mobile application.

“This is my first baby. So there are many things I didn’t know. This application might help me to track my baby growth, plus I can get guidance on how to take care of my newborn. However my concern is either the content of the application would really help me.”

Figure 26: Interview with Young Mom

4.3 Interface Design

“Baby 1st Year” interface design is done during FYP1 as the requisite phase according to SDLC. Besides, before development of mobile application can be done, the author need to hace brief idea on how the interactive interface would look like. Thus, by having interface design, author would have better understanding on how to develop the mobile application prototype. Figure below show the interface design of “Baby 1st Year” android mobile application.

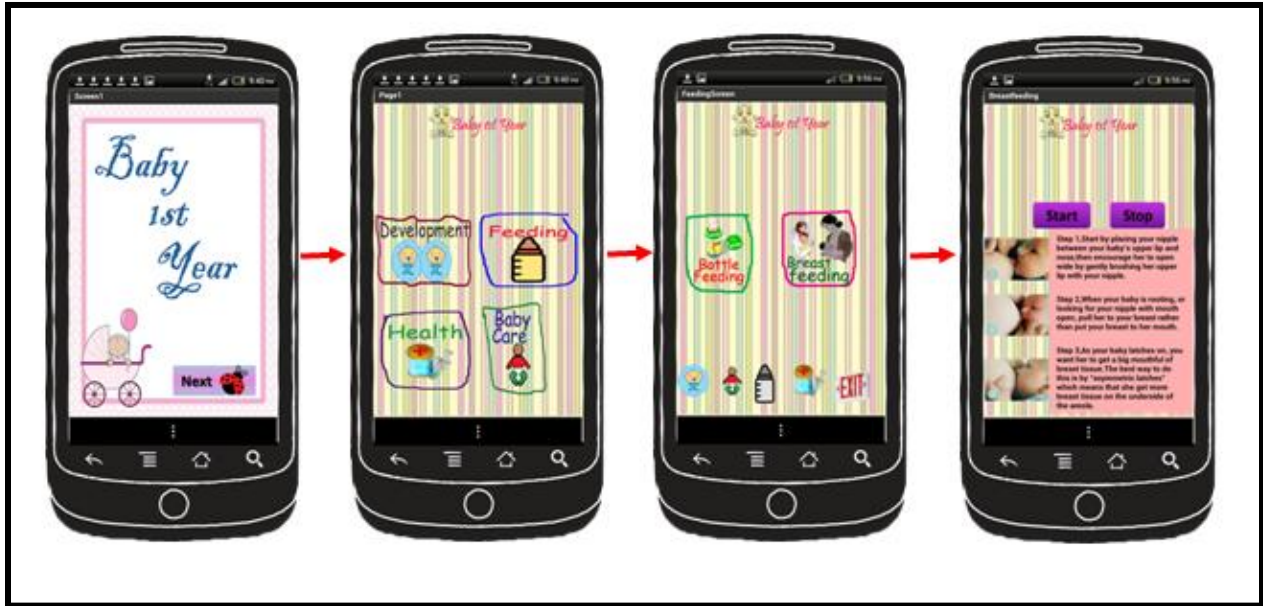


Figure 27: Baby 1st Year Interface

The first interface shows the second page of “Baby 1st Year” mobile application. The first page would be the homepage of “Baby 1st Year”, which is introduction of baby care. As been mention earlier in this report, this project would touch only on the health aspect of the newborn and infant. Thus, it covers the baby development (Development), baby daily care (Baby Care), baby nutrition (Feeding) and also common diseases among babies (Health) side of the baby. For example in this interface, if the user chooses baby care, it would change to the baby care page which includes bathing, massage and burping. The users can get better guidance on the right method to bath a baby, massage a baby or on how to burp a baby. If the user chooses massage, it would go to the next page and show the steps on how to massage a baby. Pictures will be used instead of lengthy word and text, only short and simple explanation will be provided. Thus, “Baby 1st Year” mobile application would be more interactive to users.

4.4 Results of User Testing

As mentioned above, the user testing is divided into two parts which are Pre-Test and Post-Test. The testing for navigation, interface and information are initiated at the beginning of the development phase so that, the main contribution to this project which is the content and design of the application will flows smoothly when it closer towards the final implementation of the project. Pre-Test is conducted solely to get the feedback from users regarding the interface and design of the apps. In addition to this, Post-Test is conducted to get the whole view of comments and responses from the users. The testing was performed in one focus group which is young parents and also potential young parents. The Pre-Test involve 15 respondents and Post-Test includes 20 respondents. The objective of the testing is to find out the usage and need of mobile application and then the performance on integration of technologies and also whether this application do really assists the users.

4.4.1 Pre-Test

Pre-Test was performed after the development of the application and the goal is to get feedback from users mainly on the design and interface. Pre-Test result will be analyzed and modification and improvisation will be done before Post-Testing. The questions flows are as shown below:

- 1) The idea of the application is relevant
- 2) The system is easy to navigate and use
- 3) The interface is user-friendly and colorful
- 4) The text-to-speech is rather accurate

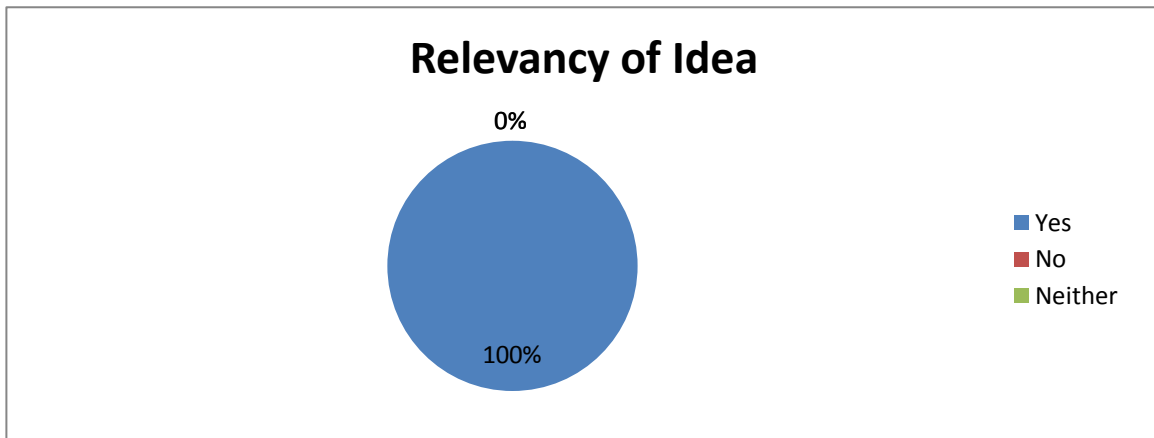


Figure 28: Relevancy of Idea

Figure a shown all, 100% of respondents agree that Baby 1st Year application is relevant to develop and this application might help all young parents. Before pre-test, one survey has been conducted to get the overview whether this application would help young parents. Only 13 numbers of respondents agree on the idea. This number has increase during the pre-test and this strengthen the fact that Baby 1st Year will help to serve young parents, in other words the community better.

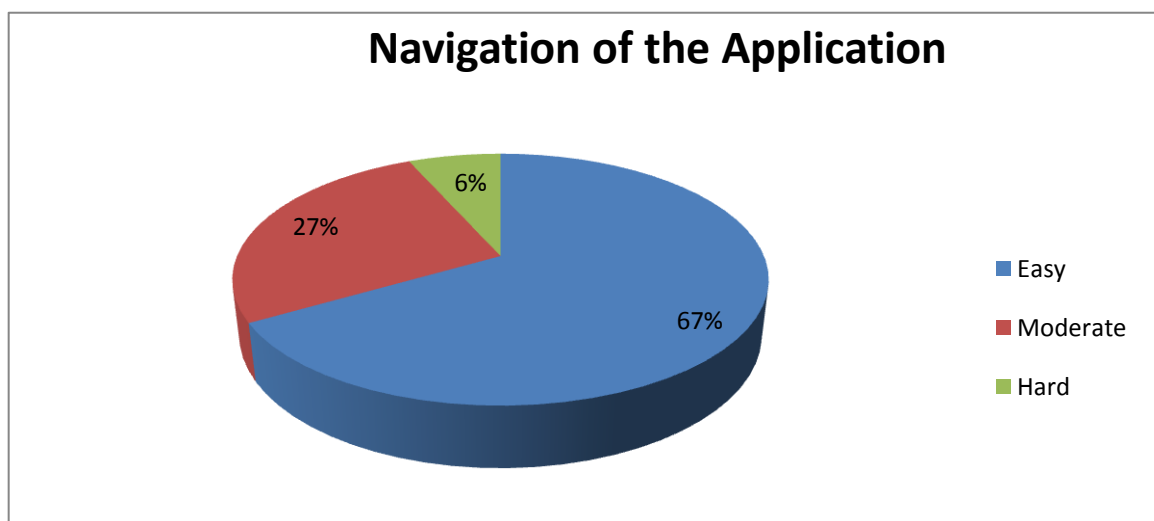


Figure 29: Navigation of the Application

Testing on the navigation of application is done and result shown as Figure 29 above. 67% of respondents which is 10 users found that this application is really easy to navigate and understand. The application is not complex since it basically used images to interpret the information. 27% users conclude that the navigation is moderate since the button in the application does not have blink functionality to indicate it is actually a button.

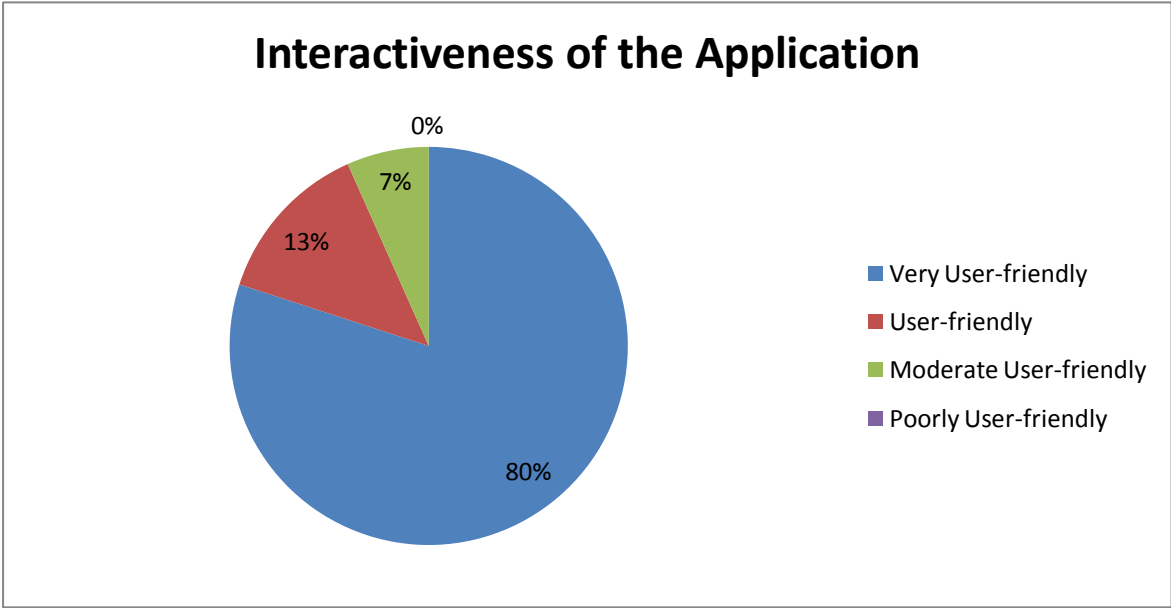


Figure 30: Interactiveness of the Application

Based on figure above, 80% of users agree that this application is very user-friendly. The reason behind this is because the use of simple yet attractive images and words. Users find that it is easier to navigate and play with the application that using more image and simple to understand. The application is said to be successfully design as NO percentage is recorded on poorly user-friendly.

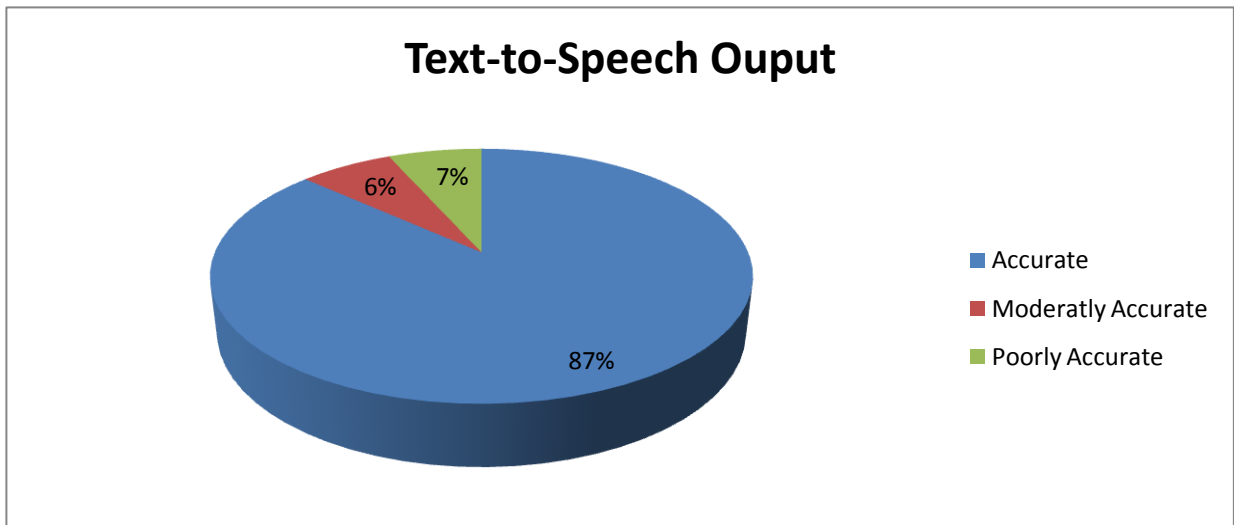


Figure 31: Text-to-Speech Output

Most of the users which is 87% have the same opinion that the text-to-speech function is accurate and easy to understand. The explanation is given one at the time and easily understood. However, about 13% of users find that they have difficulty in capturing the speech said as the function used different accent compared to their normal accent.

As a conclusion, the pre-test is considered successful as it manages to get feedback and comments from users in order to improvise the applications. Basically, the review on navigation and design is covered in pre-test. Later on, post-test is performed to derive a better conclusion about the application.

4.4.2 Post-Test

Post –Test was performed after modification is made to the application. The set of question is more or less similar to the pre-test. However, during post-test, it is more focus and specific on the question asked. . The users are allowed to test the functions of the system, performance, and

if the system has reached its objective to ease their lives and help on handling with their infants and baby. The questions flows are as shown below:

- 1) The system is easy to navigate and use
- 2) The interface is user-friendly and colorful
- 3) The interface is neatly arranged and eases the human eye
- 4) The downloading is free
- 5) The content of the application is truthful
- 6) The text-to-speech is rather accurate
- 7) The system reads out the steps clearly
- 8) Most of my problems are settled using this system

Below, is the graph tabulated from the outcome of the surveys (post-test).

- 1) The system is easy to navigate and use

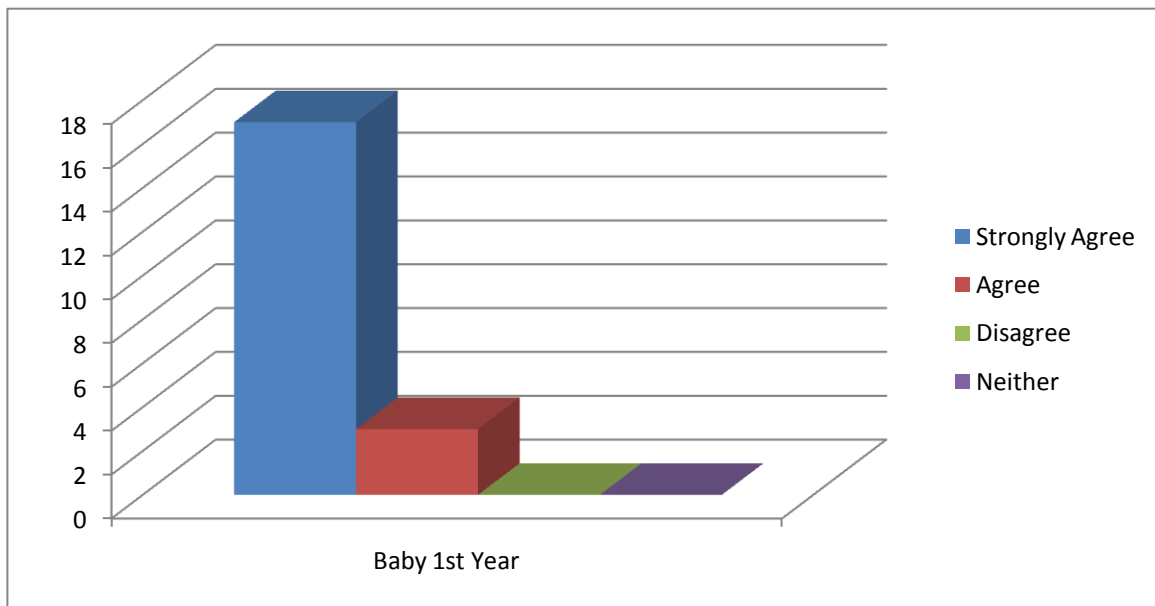


Figure 32: Result on The system is Easy to Navigate and Use

Most of the users, which are 17 out of 20, strongly agree that Baby 1st Year application is easy to navigate and use. The tabulated result is similar with the result from the pre-test conducted earlier which most of the users satisfied with the navigation of the application.

2) The interface is user-friendly and colorful

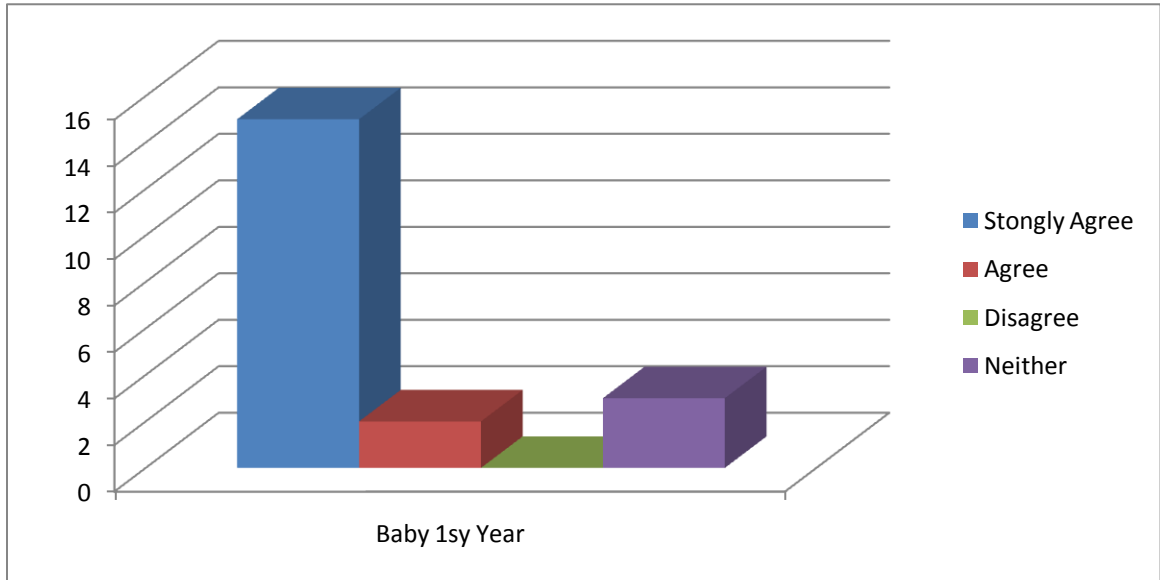


Figure 33: Result on The Interface is User-Friendly and Colorful

Based on the figure shown above, users are really happy and excited with the interface and design. More than half of respondents, 15 users, strongly agree that the interface is user-friendly and colorful. Most of the users who actually like the interface are women. They find it really cute and comfortable to cooperate with. Three of the users find it the interfaces are normal and neither user-friendly nor colorful are men.

3) The interface is neatly arranged and eases the human eye

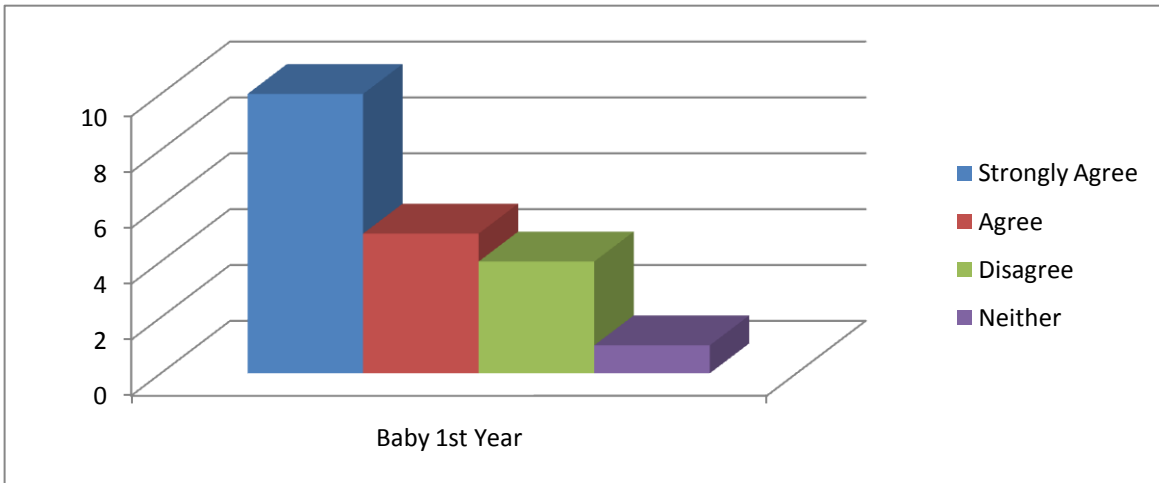


Figure 34: Result on The Interface is Neatly Arranged and Eases the Human Eyes

As can be seen in Figure 34, 10 users strongly agree that the interface arrangement is neat and pleasant to human eyes. However, there are 5 users that do not really satisfy with the arrangement of the interface. Some of them prefer to have similar size of image for each category; Development, Baby Care, Feeding and Health.

4) The downloading is free

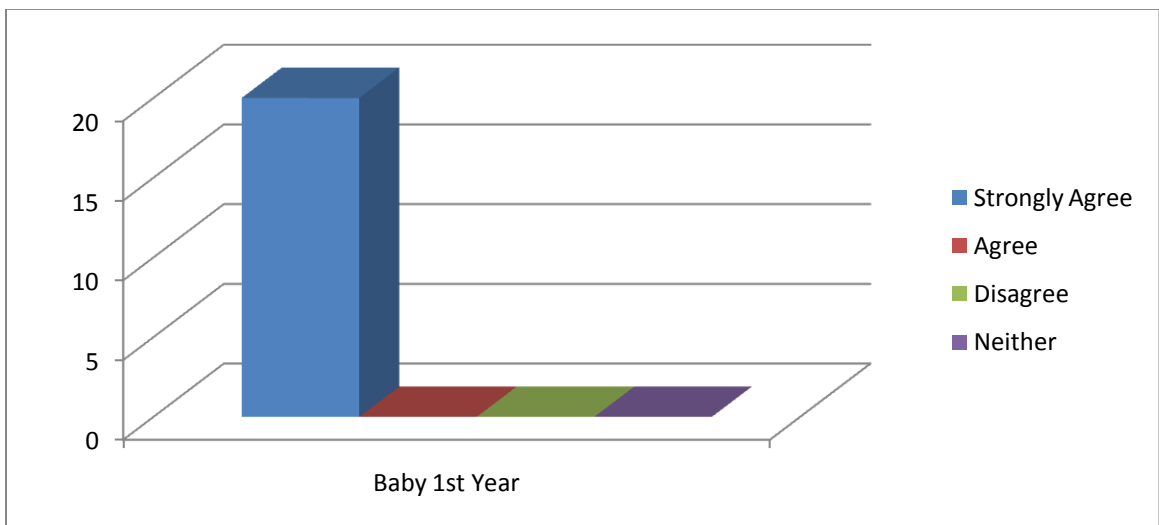


Figure 35: Result on The Downloading is Free

Result above shows that all users be of the same mind regarding the fees to download Baby 1st Year application. After the implementation of the applications, there is no charge for users to download the application.

5) The content of the application is truthful

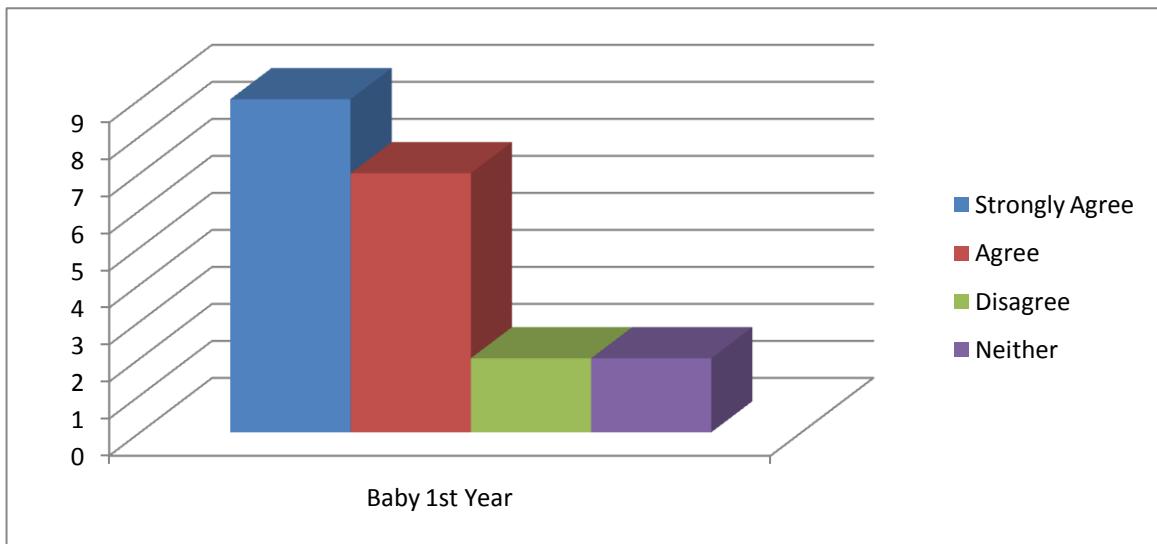


Figure 36: Result on The Content of the Application is Truthful

Based on the figure shown above, majority of users strongly agree and agree that the content of this application is truthful. The content and information is useful for them in order to handle their babies. However, there are 4 out of 20 users find the content is not enough and nor really useful. They expect to have more information included.

6) The text-to-speech is rather accurate

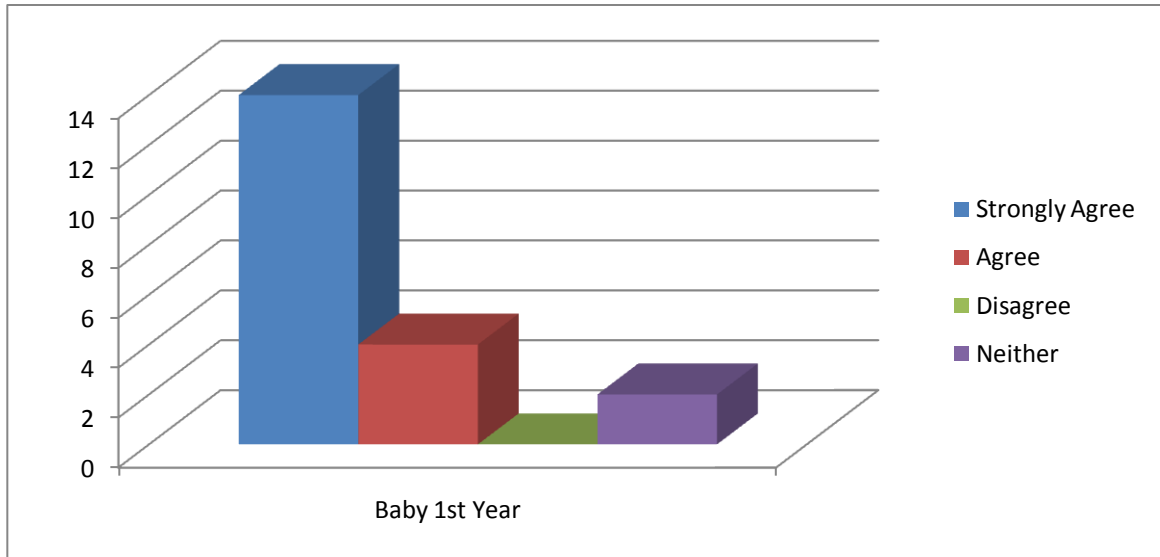


Figure 37: Result on The text-to-Speech is rather Accurate

Figure above shows the tabulated result for text-to-speech function. Majority of the users, 14 respondents said that the text-to-speech function is rather accurate. However, certain users cannot really understand the words being spoken due to the accent. This is the similar result that is collected during pre-test.

7) The system reads out the steps clearly

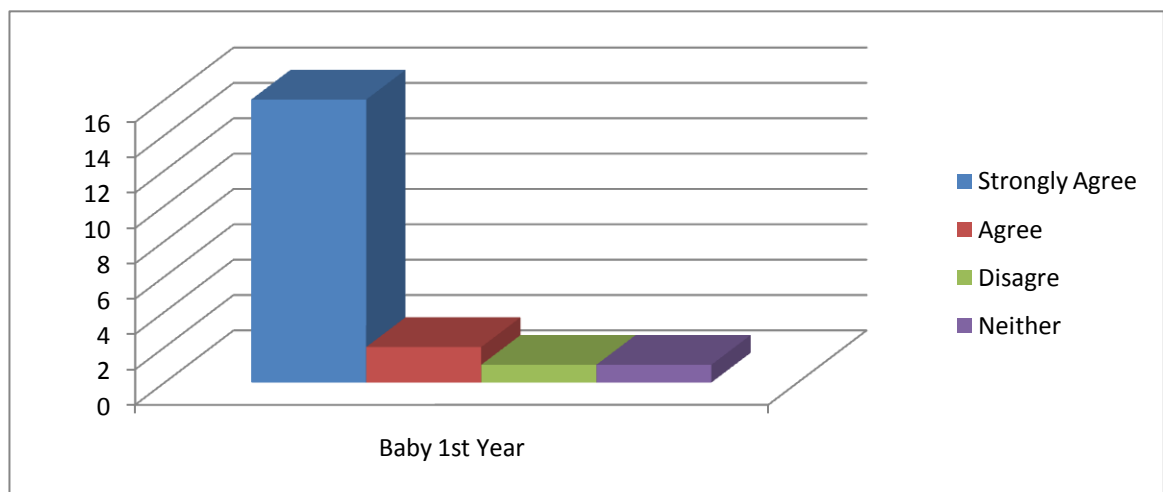


Figure 38: Result on The System Reads Out the Steps Clearly

Most of the users strongly agree that the systems read out all the steps clearly. However there are minor numbers of users that find the steps is read out to fast and they cannot fully follow the instructions given.

8) Is this app ease young parents problem?

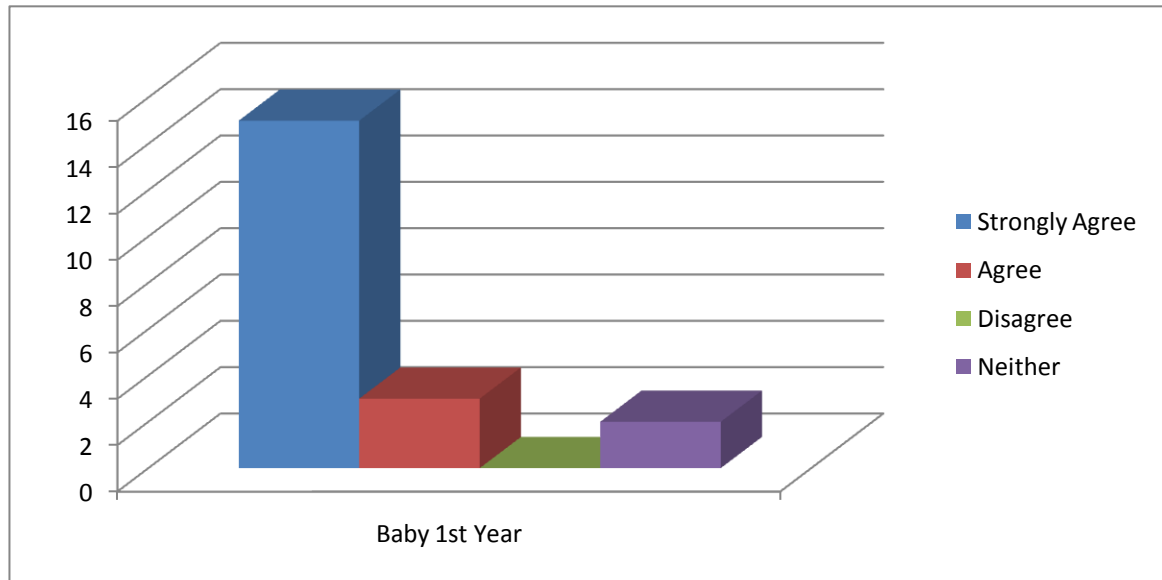


Figure 39: Result on Most of my Problems Settled

Figure a shows that majority of users agree with this application, it would help them in order to care for their baby better. Only 2 of the respondents have neutral opinion on this application as they thought it might and might not help the young parents.

As conclusion for the post-test, this mobile app is rather good in terms of the performance. Besides, the Baby 1st Year system scores a better grade in terms of the user friendliness, the interface and appearance and the users find it easy to navigate the text-to-speech function. On the other hand, Baby 1st Year can still improve on the content of the app as majority of the users are concern about the information given. In other words, the users are looking for something simple and easy that is less complex.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5 CONCLUSION AND RECOMMENDATIONS

5.1 CONCLUSION

As a whole, this report is focus to propose a relevant topic that integrates the aspect of baby daily care with the advancement of technology which is Interactive Infant and Toddlers Care (ITTC) Module for young parents. An android mobile application called “Baby 1st Year” will be develop to tap on the technology aspect of the project. All researches done to convince that mobile application technology is a new era whereby people found it essential and helpful to ease their daily life. This mobile application is focusing in young parents as the users of the apps. This project is developed to ease the young parents in term on handling their infants and newborn. This report also discussed on the method use in order to gather all data and to develop the application itself. In addition to this, results and findings regards to the project is share in the report to support the data collected earlier.

Integrating baby daily care with the mobile application is one of the methods in order to serve community in larger scale. With this integration, benefits are seen in every angle possible. This project provides a platform for young parents to have better guidance and knowledge when dealing with their newborn, babies or infants. Looking back to the objectives of this project which are:

- 1) To identify basic guidance using Mother Child Integrative Development Care Model (IDC) to help young parents dealing with newborn or infants.
- 2) To translate the basic guidance to obtain a set of design requirement for android application development.

3) To develop an interactive android application, “Baby 1st Year” based on design requirements.

I hope to accomplish these goals in order to establish this project into the market. To sum it up, this project will benefit the whole community and target market once it is designed and tested according to its phases. Although not being the pioneer in the market, this project will curb and try to accommodate the market whereby other competitions have slacked. In other words, the aim is to be better than the current products similar to this.

5.2 RECOMMENDATIONS

In the near future, the following will be where this project will be heading to be implied and how will it grow from its current status:

- ❖ To include more baby care guides and tips
- ❖ To incorporate random baby care guides and tips in android application from time to time.
- ❖ Integrate the system with speech recognition or voice recognition.
- ❖ To further develop the mobile application and ready to be published into the android market itself ready to be used worldwide.
- ❖ To have more functions for the users like enable the users to add, edit the guide and tips according to their preferences.
- ❖ To widen the scope to infants and babies to 3 years old.
- ❖ Extend the abilities of the application and make it ready to even be published in the iOS platform.

REFERENCES

- [1] **Smartphone. Wikipedia.** Retrieved from <<http://en.wikipedia.org/wiki/Smartphone>>
- [2] **Mobile Application Development. Wikipedia.** Retrieved from <http://en.wikipedia.org/wiki/Mobile_application_development>
- [3] RUBIN T., (1988), “**User interface design for computer systems**”. Ellis Horwood, Chichester
- [4] **Infant Care Definition. Education.com.** Retrieved from <<http://www.education.com/definition/infant-care/>>
- [5] **WHO. Postpartum care of the newborn: A practical guide.** Retrieved from <http://www.who.int/reproductive-health/publications/msm_98_3/msm_98_3_11.html (2007-06-25) 1998>
- [6] Zero to Three (2007). **The Infant-Toddler Set-Aside of the Child Care and Development Block Grant: Improving Quality Child Care for Infants and Toddlers.** Zero to Three Policy Center.
- [7] British Columbia (2005) **Baby Best Chance.** Parent’s Handbook of Pregnancy and Baby Care, Sixth Edition (97-138).
- [8] **Avoid Danger While Baby is Sleeping,** Pa & Ma Magazine (2012), 139(84)
- [9] **Baby Massage,** Baby Centre. Retrieved from <<http://www.babycentre.co.uk/baby/dailycare/massage/> >
- [10] Dr Ferderick L. **Infant Massage Malaysia.** Retrieved from <<http://www.infantmassagemalaysia.com/> >
- [11] Nicola Day (2007). Feeding **Your Baby; from 6months to 1 year.** Nutrition Resources Centre
- [12] **An infant Feeding guide for parents of Infants and Young Children.** Retrieved from <<http://www.macombcountymi.gov/publichealth/HPDC/PDF/County%20Website%20IFG.pdf> >

[13] WHO (2012). **Management of newborn illness and complications**. Retrieved from <http://www.who.int/maternal_child_adolescent/topics/newborn/management_illness_complications/en/>

[14] David Berger M.D. **On the First Sign of Illness**. Holistic Pediatric; Primary Care, Allergies, Autism, ADHD, and Related Disorders.

[15] Matt Goddard; **The Marketers Guide to Building a Mobile App**. Retrieved from <<http://www.mstoyanovich.com/LinkClick.aspx?fileticket=M7siRb836b8%3D&tabid=36>>

[16] X.Y & Guo. C (2009). **Human-Computer Interaction Design in Product Design**; First International Workshop on Education Technology and Computer Science

[17] Gong Chao (2009). Human-Computer Interaction: **Process and Principles of Human-Computer Interface Design**.

[18] Ben Falchuk (2009). **Visual and Interaction Design Themes in Mobile Healthcare**. doi 10.410B/ICST.MOBIQUITOUS2009.6751

[19] **Baby Tracker**

<https://play.google.com/store/apps/details?id=com.everydayhealth.android.wtebaby&feature=search_result#?t=W251bGwsMSwyLDEsImNvbS5ldmVyeWRheWhlYWx0aC5hbmRyb2lkLnd0ZWJhYnkiXQ> Retrieved 21st June 2012

[20] **Baby Guide First Year Lite**

<https://play.google.com/store/apps/details?id=com.martview.babyguide1st.lite&feature=more_from_developer> Retrieved 21st June 2012

[21] **100+ Baby Food Recipe Lite**

<<https://play.google.com/store/apps/details?id=com.martview.babyrecipe.lite&hl=en>> Retrieved 21st June 2012

[22] Theresa N. (2012). **Mobile Design Pattern Gallery: UI Patterns for Mobile Application** (rev. 1st Ed.) USA; O'reilly

[23] Peter Silfver (2012 Mac 20). **The Element of Navigation**. Retrieved from <<http://uxdesign.smashingmagazine.com/2012/03/20/the-elements-of-navigation/>> on 25th November 2012.

APPENDICES

- Questionnaire

IITC FEASIBILITY SURVEY

This survey is conducted to ensure whether Baby 1st Year is feasible to be develop and implement to young parents in Malaysia. Your answers will be much appreciated and will be used during analysis of research. Thank you.

1. Gender Male Female
2. Married Yes No
3. Do you have children?
 Yes No
4. Are you aware of the right ways/method in handling newborn during your first time?
 Yes No
5. Have you encounter problem during handling newborn/infants?
 Yes No
6. In your opinion, is it important to know the basic knowledge on newborn/infants?
 Yes No
7. Do you agree with the idea of this application?
 Yes No
8. Do you think this application would be able to help you in taking care of your newborn/infants?
 Yes No

- Interview with Doctors

Interview Outline	
Interviewer: Nurul Hidayah Ishak	Interviewee:
Appointment Details	
Date: Start time: End time: Venue: Department:	
Objectives & Reminders	
<ul style="list-style-type: none"> • To gather user's background information (job scope, daily tasks, system relevancy) • To gather information on current issues on baby development, baby care, feeding and health. • To gather any documents to be reviewed 	
Agenda & Estimated Time	
Introduction Background on the project research objectives Background on the proposed new method <ul style="list-style-type: none"> • Topic 1: Questions on user • Topic 2: Questions on current issues on baby General question:	1 min 5 min 2 min 7 min 10 min 5 min
General Observations:	
Questions: <ol style="list-style-type: none"> 1) Can you briefly explain on your task when dealing with babies? 2) Can you tell me the issue or problem you learn pr experience regarding babies in their first 12 months? 3) Do you think my application would be able to help young parent? 4) What information or tips do you suggest to be included in the application? 	
Relevant questions/Unresolved issues:	

- Post-Test User Survey

IITC User Testing

This survey is conducted to test Baby 1st Year prototype and to record the analyze the data collected for future improvement.

1. The system is easy to navigate and use
2. The interface is user-friendly and colorful
3. The interface is neatly arranged and eases the human eye
4. The downloading is free
5. The content of the application is truthful
6. The text-to-speech is rather accurate
7. The system reads out the steps clearly
8. Most of my problems are settled using this system

Strongly Agree	Agree	Disagree	Neither

- Coding for Baby 1st Year Application

