App Alert System for Smart Phones

Chee Kin Hoe
Institute of Computer Science & Digital Innovation, UCSI University,
UCSI Heights, 1 Jalan Puncak Menara Gading, Kuala Lumpur, WP Kuala Lumpur 56000, Malaysia

Kasthuri Subaramaniam
Institute of Computer Science & Digital Innovation, UCSI University,
UCSI Heights, 1 Jalan Puncak Menara Gading, Kuala Lumpur, WP Kuala Lumpur 56000, Malaysia

Abdul Samad bin Shibghatullah
Institute of Computer Science & Digital Innovation, UCSI University,
UCSI Heights, 1 Jalan Puncak Menara Gading, Kuala Lumpur, WP Kuala Lumpur 56000, Malaysia
E-mail: 1002163440@ucsiuniersity.edu.my, kasthurisuba@ucsiuniversity.edu.my,
abdulsamad@ucsiuniversity.edu.my

Abstract

In this project the researcher chosen area is the development of an App for forgetful users to take their phones from their cars it functions as a medium to take their phones from their cars. the target users will be senior adults who may be careless or may have memory deteriorating diseases such as dementia or Alzheimer. The researcher used surveys to gather information and used various online resources. The research methodology used by the researcher is modified waterfall model for its simplicity and ability to reverse to different phases. The research methodology used by the researcher is modified waterfall model for its simplicity and ability to reverse to different phases. Overall, the project can be deemed as success as the researcher has successfully developed an App for users to remind them to take their phone before exiting their personal vehicle.

Keywords: Development of an App, Senior Adults, Surveys, Modified Waterfall Model

1. Introduction

Since the introduction of the first smartphone, made by IBM, it was called the IBM Simon it had a calendar, address book, clock, notepad, keyboard, touchscreen and email capability. Since then, humans have been using this device to benefit themselves in daily tasks such as navigating, working and using it as a form of entertainment [3]. But with good the bad always come. Below are the problem that users are facing:

- Elderly users who have dementia may forget to take their smartphones.
- The underground basement parking is too dark and did not notice their smartphones in the holder.
- Buying a new smartphone is affordable but repairing or buying a new car is a liability.

With the problems identified, we propose to build a notification App for forgetful users when the car engine has been shut off. The app will notify the user when the ignition has been turned off. The App will be user friendly and simple. he objectives of the research include:

- To identify why users always forget to take their phones from their cars.
- To design a notifying system
- To develop a prototype Notifying App
- To evaluate the system

2. Methodology

2.1 *Impact of Smartphones in Malaysia*

According to Malaysian Communications and Multimedia Commission (MCMC) the use of smartphones and their apps has dramatically increased since the introduction of affordable 5G smartphones in 2021. According to the survey conducted by MCMC

the number of smartphone users in 2021 is 94.8% compared to a mere 78.0% in 2018 [1], [2]. The higher usage of smartphones indicates people are much more digitally connected. As shown in (Fig.1) below.

2.2 What kind of Apps are used in Malaysia

According to the HPUS 2021, MCMC has found out that communication remained the top activity among smartphone users [1]. The survey has found out that 82.9% of the respondents use text messaging. On which it found that 97.3% of users performed at least once a day. Not only that, 78.9% of users communicated via social media and statistics showed 94.4% users performing it at least once in a day [4].

While in the realm of voice communication, the survey has found that 78.6% of respondents use smartphones for voice calls and 80.2% benefit from it once a day.

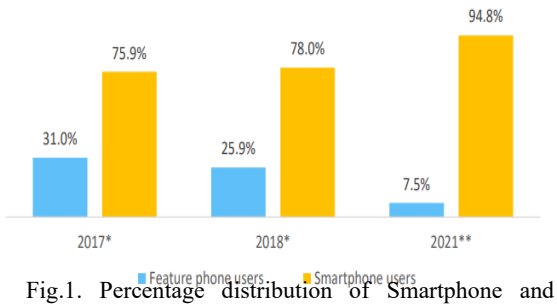
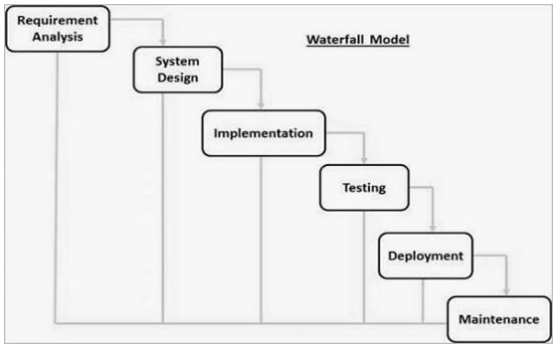


Fig.1. Percentage distribution of Smartphone and feature phone users, 2017 to 2021.

Fig.2. Modified Waterfall model



2.3 Methodology that had been used in app development

For the researcher's case it is developing an App for forgetful users to take their smartphones from their cars. As for this the researcher have discussed with his/her supervisor the choices the researcher has for developing the App. The researcher may have some factors to consider such as suitability of the methodology, the confidence of the researcher using that methodology, and factoring the time constraint [5] [6]. After considering all the factors, the researcher has decided to go with the modified waterfall model as can see in (Fig.2).

According to the survey created by the researcher titled "FYP Survey: Forgetfulness, Phones & Cars" has received a total of 40 respondents. This is all possible without the use of various distribution channels such as Facebook, Word of Mouth, Instagram and family members.

3.1 Survey Results

In the first question the researcher has asked what age is the respondent. According to the survey, 18 respondents are in between 31-60 years old while 15 are young adults in between 18-30 years of age and another 7 which are seniors in the golden years. According to the survey conducted by the researcher. The number of respondents that currently possessed diseases that deteriorates memory are as follow. Respondent that has dementia are 10 respondents while 6 have Alzheimer disease.

3.2 Use Case Diagram

Shown below in (Fig.3) is the Use Case Diagram which represents the methodology used during the development of the App. The Use Case Diagram is used to organize and identify the requirements required for the Forgetful Alarm App.

3. Results and Discussion

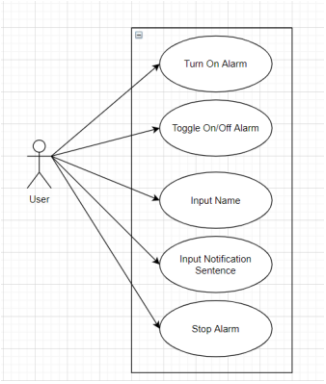


Fig.3.Use Case Diagram

3.3 Implementation

In this section, the implementation of the App is discussed. To develop the App the researcher used Java as the backend programming language and use Extensible Markup Language (XML) to develop the frontend of the App. Android Studio was also used in developing the App [7].

3.4 Evaluation

After successfully developed the App. The researcher will conduct testing to determine whether the App satisfy the requirements that had been identified [8], [9]. To ensure the apps functionality, the researcher has conducted various ways of testing to test the App. The various ways are Unit Testing and User Acceptance Testing.

3.5 User Acceptance Testing

Before the user acceptance test, the researcher would ask the participants which would be selected from the previous survey to download the App and use the app in their daily routine. Participants are asked to commute to work as usual but with a twist of putting their phones in their phone holders and charging it using the cars cigar lighter that can be function as a charging port. In (Fig.4) majority of the participants has agreed that the app is useful.

Fig.4. Usefulness of the App.

4. Conclusion

In conclusion all the objectives of the App development had been met and users who used the app had shown interest and can see the potential of this app. Based on the results of this researcher it can be concluded that this app can benefit users in helping them to remember to take their phones from their car. Some recommendations had been elevated from the users during their time using the app. One of the recommendations received during the evaluation is to have reminders to take medication or take an insulin jab. To improve the overall usability of the app the researcher has found some ways to improve the app.

References

1. "Hand Phone Users Survey 2021 (HPUS 2021)," Malaysian Communications And Multimedia Commission, Cyberjaya, 2021.
2. Z. Lazzari, "Technology & How We Communicate," 27 August 2018. [Online]. Available: https://smallbusiness.chron.com/role-cell-phone-communication-today-31479.html. [Accessed 25 May 2023].
3. B. Jung, "What Are the Benefits of Smartphone Technology," 12 February 2019. [Online]. Available: https://smallbusiness.chron.com/role-cell-phone-communication-today-31479.html. [Accessed 25 May 2023].
4. Indeed Editorial Team, "What Is an App? Types of Apps and Examples," 11 March 2023. [Online]. Available: https://www.indeed.com/career-advice/career-development/what-is-an-app. [Accessed 25 May 2023].
5. "Mayo Clinic," 12 October 2022. [Online]. Available: https://www.mayoclinic.org/diseases-conditions/dementia/symptoms-causes/syc-20352013. [Accessed 22 May 2023].
6. "Dementia cases set to ruse 312 per cent by 2050: Is Malaysia prepared?," 8 June 2022. [Online]. Available:

https://adfm.org.my/dementia-cases-set-to-rise-312-per-cent-by-2050-is-malaysia-prepared/. [Accessed 25 May 2023].

7. "Mayo Clinic," 02 February 2023. [Online]. Available: https://www.mayoclinic.org/diseases-conditions/alzheimers-disease/symptoms-causes/syc-20350447. [Accessed 25 May 2023].
8. R. A. Armstrong, "Folia Neuropathological," What causes Alzheimer's disease, p. 20, 2013.
9. E. Ng, "A brief history of cars in Malaysia," 9 August 2022. [Online]. Available: https://mytukar.com/blog/a-brief-history-of-cars-in-malaysia/. [Accessed 27 May 2023].

Authors Introduction

Chee Kin Hoe

He is currently an undergraduate student, pursuing his study in Diploma in Information Technology from Institute of Computer Science and Digital Innovation (ICSDI) at UCSI University, Malaysia.

Dr. Kasthuri Subaramaniam

She is currently an assistant professor at Institute of Computer Science and Digital Innovation (ICSDI), UCSI University, Kuala Lumpur, Malaysia. She earned both her bachelor's degree in computer science and a master's degree in computer science from the University of Malaya. Her research interests include human-computer interaction, etc

Dr. Abdul Samad bin Shibghatullah

He received the bachelor accounting degree from Universiti Kebangsaan Malaysia, Bangi, Malaysia in 1999, the M.Sc. degree in computer science from the Universiti Teknologi Malaysia, Skudai, Malaysia in 2002, and the Ph.D. degree from the Brunel University of Uxbridge, United Kingdom. He is currently Associate Professor at UCSI University, Kuala Lumpur, Malaysia. His current research interests include optimization, etc.