The 2nd Conference on Management, Business, Innovation, Education, and Social Science (CoMBInES)

Taichung, Taiwan   3-6 March, 2022

MOBILE-BASED DONATION APPLICATION DESIGN AND DEVELOPMENT USING THE SCRUM METHOD

Syaeful Anas Aklani, Daniel Lim
Faculty of Information System, University Internasional Batam
{syaeful@uib.ac.id, 1831023.daniel@uib.edu }

ABSTRACT

In the current era of technology, living standards are increasing, information media can be accessed easily and various technologies are created to facilitate human activities. Almost everyone has decent clothes that they don't use anymore because they don't fit the body or clothes that they don't want to use anymore. People tend to throw away even though the clothes are still worth wearing or keep them even though they are not used. This study discusses the design and development of mobile-based applications. The method used is the Scrum Framework by determining the product backlog, sprint planning, sprint for two weeks, sprint review and sprint retrospective in this study. The result of this research is a mobile-based donation application where donors can donate goods to communities

Keywords: *Donation, Mobile, Scrum, React Native, Application*

INTRODUCTION

In modern-day technological era, residing requirements retain to improve, data media may be effortlessly accessed across the world, and diverse technology had been created to offer comfort for mankind. However, the network nonetheless faces many issues consisting of genocide and useful resource plunder. This trouble reasons the quantity of negative humans to growth each day. Many people or charities searching for donations of their everyday lives. Even the authorities and celebrities are encouraging the network to assist and donate to the ones in need (Mon et al., 2020).Almost all of us has garments which have in no way been used or aren't used anymore for a few reason. Some of them are love it does not suit their frame or antique garments that they do not need to apply anymore. People generally tend to throw away garments despite the fact that they're nonetheless suit for use (Samud & Sulaiman, 2017).Based at the Environmental Protection Agency (EPA) that the fabric technology in 2018 become 17 million tons. This discern represents handiest 5.8 percentage of the overall technology of Material-Specific Data that year. The estimate is primarily based totally on income information from the

American Apparel and Footwear Association. The EPA additionally located that a big wide variety of textiles entered the reuse market, however the wide variety of reused textiles become now no longer protected withinside the cutting-edge technology estimate. Used garments and wipes sooner or later input the waste circulate and turn out to be a part of the formation of waste (Environmental Protection Agency, 2021).Currently, numerous programs with the idea of crowdsourcing are used for fundraising, that is higher referred to as fundraising. However, there are nevertheless few centers that may be used to attach new or used donors to the ones in want. The outcomes of the pre-survey display that many human beings have used objects inclusive of cabinets, chairs and others that could nevertheless be utilized by others. On the alternative hand, many human beings like orphanages and nursing houses want those styles of things (Arifin et al., 2018).The studies entitled "Preloved Donation Mobile Application"

453

performed by (Samud & Sulaiman, 2017) is a observe performed in Malaysia. This observe discusses the trouble of the dearth of programs to aid the donation of used items which might be appropriate for use. The goal of the studies is to inspire extra human beings to donate. The proposed software functions consist of a listing of non-earnings corporations. So this app allows locate high-satisfactory non-earnings corporations in which the principle trouble is stopping human beings from making donations. This studies makes use of agile method and this studies divides the method into three parts. The first element is to decide the person-tales wherein to divide the purposeful necessities primarily based totally on the extent of importance. The 2d is to set the length for the person tale to honestly end and the final is the person tale trying out phase.Furthermore, the studies entitled "The Implementation of Scrum Framework for Developing Fundraising Mobile Applications" performed through (Sasmito & Fauzan, 2020) is a examine that increases the limitations that may be skilled in fundraising in which fundraising may be used for any cause, each bodily and non-bodily. The constraints in query are the period of facts shipping resources, low accuracy of facts dissemination, much less preference of investment methods, low ranges of public trust, and much less than best fundraising calculations. The cause of this studies is to offer answers to those problems, specifically through designing and growing a mobile-primarily based totally software program software to elevate price range the usage of the Scrum approach. This examine indicates that the usage of the Scrum approach can fast entire the introduction of a fundraising software which simplest takes 35 days.

Then every other observe entitled "Mobile Application For Donation of Items" performed by (Belekar et al., 2021). This observe discusses the layout of an software wherein the software is used to donate beneficial objects along with food, clothing, and others. And additionally covers the want for businesses to arrange donations from web-primarily based totally donors. This studies conducts a literature observe which enables in designing the gadget to be constructed primarily based totally on

preceding studies. This studies has a studies flow, specifically formulating problems, carrying out literature studies, designing and constructing systems.Based on the background and literature study above, the author seeks to provide a platform that can connect those who need goods with those who want to donate them. This design is summarized in a research entitled "Mobile-Based Donation Application Design and Development Using The Scrum Method".

PROPOSED INNOVATION

Based on the background and literature study above, the author seeks to provide a platform that can connect those who need goods with those who want to donate them. This design is summarized in a research entitled "Mobile-Based Donation Application Design and Development Using The Scrum Method". Which will have several features to complete and make it easier to user who want to donate to community and user-friendly mobile design. Design contain login, register, home, community detail, profile, address list and donation screen related.

METHODS

Based at the heritage and literature take a look at above, the writer seeks to offer a platform which could join people who want items with people who need to donate them. This layout is summarized in a studies entitled " Mobile-Based Donation Application Design and Development Using The Scrum Method ".

1. Scrum

The technique utilized by the writer in growing this software is the Scrum Framework. The Scrum Framework is a framework used to expand complicated and extra bendy and quicker merchandise. There are 3 principal roles withinside the Scrum framework operating collectively to provide development merchandise which can be precipitated via way of means of every sprint, those roles make up the Scrum Team, they are: Product Owner, Scrum Master, and Team. Scrum has 6 ranges

for implementation, specifically Product Backlog, Sprint Planning, Spring Backlog, Daily Scrum, Sprint Review and Sprint Retrospective.
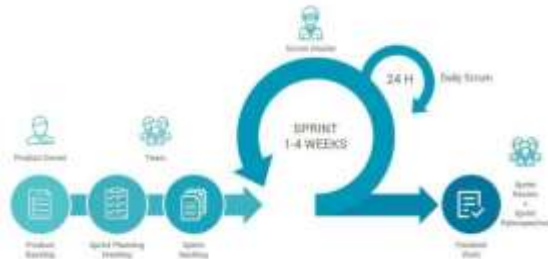

Image 1. Scrum Framework.

Product Backlog

In this degree, the product proprietor and additionally the group then the writer will examine the product to fulfill the wishes wanted withinside the gadget and emerge as a person story. From the outcomes of the analysis, the writer will summarize and decide the concern of the paintings to be accomplished in the course of the sprint. The outcomes of this degree will then be executed on the task improvement degree which has been defined withinside the layout flow.

Sprint Planning

At this degree the writer will formulate the duties to be finished in task improvement primarily based totally on priorities. The creator may also decide how lengthy a dash lasts at this degree. The period of the dash on this look at is 1 week.

Sprint Backlog

At this degree, the writer will create an outline of the actual undertaking this is being labored on and completed in line with the merchant's plan on the product backlog degree. This degree is completed each time you'll do a sprint.

Daily Scrum

At this degree the writer will start to broaden packages and perform the responsibilities which have been decided withinside the dash planning. With the required dash, the writer will offer every day updates at the responsibilities which have been completed.

The writer also can be consulted if he reveals an impediment or issue skilled whilst sporting out the task. Daily Scrum could be performed in line with mutual agreement.

Sprint Review

At this level the writer will start to expand programs and perform the duties which have been decided withinside the dash planning. With the required dash, the writer will offer every day updates at the duties which have been completed. The writer also can be consulted if he reveals an impediment or trouble skilled even as wearing out the task. Daily Scrum may be performed in line with mutual agreement.

Sprint Retrospective

This level is the ultimate level withinside the Scrum methodology. At this level the writer will assessment the gadget evaluation and dash implementation. The enter and recommendations furnished might be used to enhance the first-rate of implementation for the approaching dash.

2.   Unified Modeling Language

The Unified Modeling Language is evolved from the Booch approach, the OOSE approach and the OMT approach used to version object-primarily based totally technology (Anjani et al., 2020).

Use Case Diagram

Use Case diagrams are used to discover what features exist in an utility or machine and who has the proper to apply those features (Pribadi et al., 2021). And in accordance to (Gustriansyah et al., 2019) Use Case diagrams are utilized in software program or machine improvement due to the fact they are able to provide an explanation for the interactions that arise among customers and the machine itself.
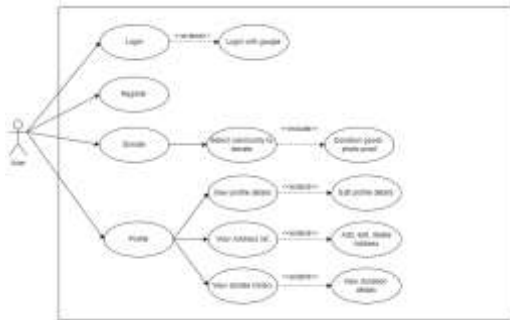
Image 2. Use Case Diagram.

Entity Relationship Diagram

Entity Relationship Diagram is a diagram that describes the connection among the information withinside the table (Hartono & Shauqy, 2020).
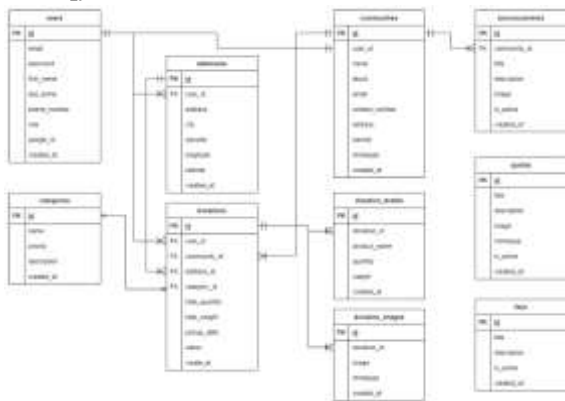

Image 3. Entity Relationship Diagram.

3. Features

The application to be labored on has numerous functions and menus which are wanted primarily based totally at the product backlog carried out, particularly as follows:

Login

A function in which donors can log in to an account that has been registered within inside the database or log in the usage of google sign in.

Image 4. Login.

Register

A feature where donors can register by entering the personal data needed for account creation which is divided into three stages.

Image 5. Register.

Home

The main page of the application which has several sections such as a slideshow with images and quotes, a list of communities that can be donated, and an FAQ section which contains frequently asked questions and answers.

Image 6. Home.

Community Detail

Pages to use to view community details such as an overview of the community, email, phone number and address.
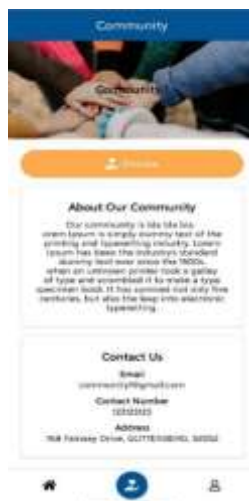

Image 7. Community Detail.

Profile Menu

On this page the user can briefly view personal data such as profile picture, username, email and there is a menu for users to change their username and phone number. This page also has navigation buttons to view a list of addresses, a list of donations and also a logout.
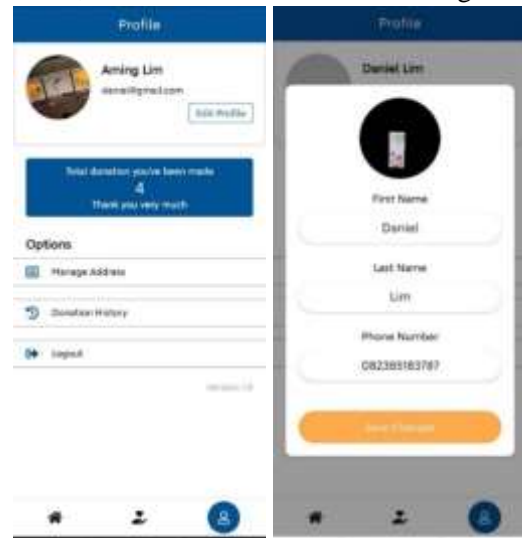

Image 8. Profile.

Address List

On this page users can see a list of addresses that have been saved and there are functions to add, delete and edit addresses. In the additional address form, the user can enter a location point in the address which can help the community to find the address easily.
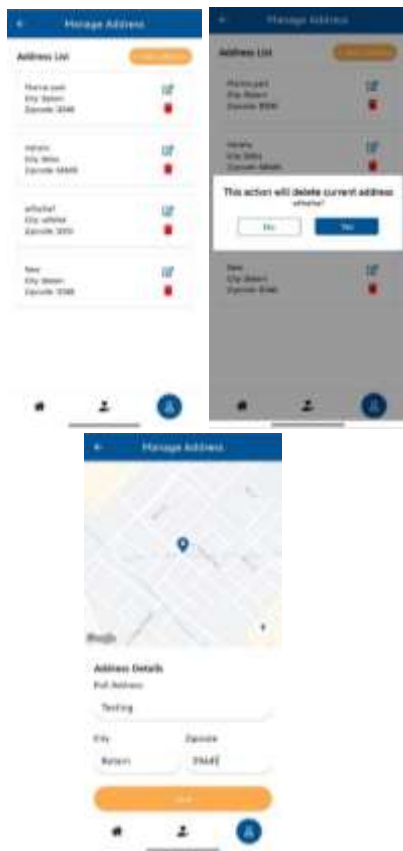
Image 9. Address List.

Donation History

On this page, users can view the history of donations and also donation details such as status, community that was donated, address, list of donated items and also a list of photos of donated items.
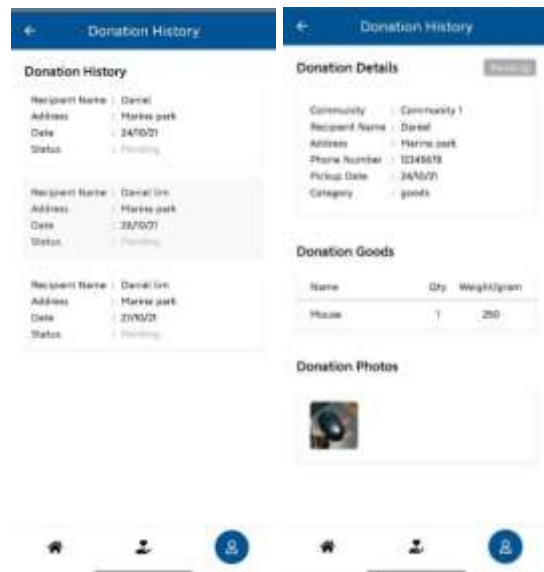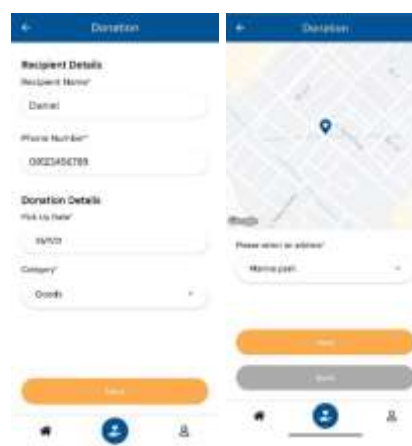

Image 10. Donation History

Donation Form

A feature where users can make donations by filling out the required data forms such as user data, category of goods, choosing an address for picking up goods based on the stored address, and taking pictures of the goods to be donated.
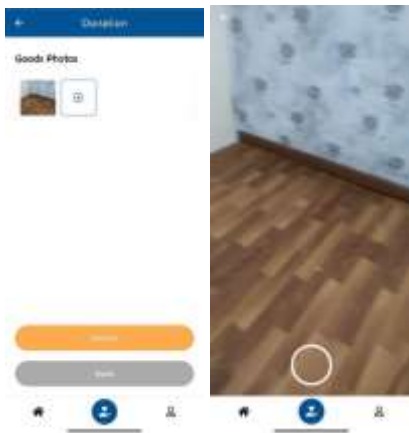
Image 11. Donation Form.

4. Software and Tools

In the process of working on this system using several software and tools as follows:

Visual Studio Code

Visual Studio Code is an open source text editor developed by Microsoft. This application is relatively light and has extensions that make it easy for users to develop so that it has become one of the most popular developments lately (Mustafeez, n.d.).

React Native

React Native is a framework that uses the Javascript programming language which will be stored as a bundle file in an APK file and will be executed in the Javascript VM along with the application (Zhang et al., 2021).

MongoDB

MongoDB is an open source document based on a non-relational NoSQL data store (Makris et al., 2019). As a means of cloud servers as data storage. MongoDB can be used in both development and production processes.

Express Js

Express JS is a framework from NodeJS which is designed to be simple and flexible for backend development and APIs that allow developers to design different architectures (Adani, 2021).

LIMITATIONS

The limitations on this project are:
- Does not have an algorithm to get list of community close by user location or suggestion.
- This project isn't included with admin panel website for the community to handle the incoming donations that has been submitted through mobile apps.

FUTURE WORK

This diagnosed studies limitation may be taken into consideration as likely studies course for future work. Where will have different technology and method in design and develop a mobile application.

REFERENCES

Adani, M. R. (2021). *Mengenal Lebih Dekat dengan Framework Express JS dan Kelebihannya*. https://www.sekawanmedia.co.id/express-js/

Anjani, D., Hilaliyah, H., & Novianti, D. (2020). M-Absence : Analysis and Design using Unified Modelling Language (UML). *Journal of Physics: Conference Series*, *1539*(1).

Arifin, Y., Permai, S. D., Pudjihastuti, H., Dwiputra, K., Faisal, F. R., & Marcellino. (2018). Untukmu.Com : the Crowdsourcing Application To Leveraging the Used of Secondhand Goods. *Social Economics and Ecology International Journal (SEEIJ)*, *2*(2), 64–72.

Belekar, S., Rajput, R., Gharat, K., & Raut, P. (2021). Mobile Application for Donation of Items. *International Journal for Research and Innovation*, *1*(4), 2581–7280. www.viva-technology.org/New/IJRI

Environmental Protection Agency. (2021). *Facts and Figures About Materials, Waste and Recycling*.

https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/textiles-material-specific-data

Gustriansyah, R., Suhandi, N., & Antony, F. (2019). The design of UML-based sales forecasting application. *International Journal of Recent Technology and Engineering*, *7*(6), 1507–1511.

Hartono, S. B., & Shauqy, A. F. (2020). Pengembangan Sistem Informasi Arus Kas Dengan Metode Sdlc (System Development Life Cycle) Pada Madin Al-Junnah. *ISOQUANT : Jurnal Ekonomi, Manajemen Dan Akuntansi*, *4*(1), 1.

Makris, A., Tserpes, K., Spiliopoulos, G., & Anagnostopoulos, D. (2019). Performance evaluation of MongoDB and PostgreSQL for spatio-temporal data. *CEUR Workshop Proceedings*, *2322*.

Mon, C. S., Cheng, K. Y., & Shibghatullah, A. S. (2020). Mobile application: donate day. *Journal of Physics: Conference Series*, *1529*(3).

Mustafeez, A. Z. (n.d.). *What is Visual Studio Code?* https://www.educative.io/edpresso/what-is-visual-studio-code

Pribadi, R. I. A., Pambudi, A., & Ardiansyah. (2021). EDonation Android Application for Used Goods Donation using Location-based Service. *Journal of Physics: Conference Series*, *1751*(1).

Samud, S. A. B., & Sulaiman, S. (2017). *Preloved Donation Mobile Application*. 1–5.

Sasmito, G. W., & Fauzan, A. (2020). The implementation of scrum framework for developing fundraising mobile applications. *International Journal of Advanced Science and Technology*, *29*(1), 1654–1663.

Zhang, X., Breitinger, F., Luechinger, E., & O'Shaughnessy, S. (2021). Android application forensics: A survey of obfuscation, obfuscation detection and deobfuscation techniques and their impact on investigations. *Forensic Science International: Digital Investigation*, *39*, 301285.