

Design and integration challenge of effective HCI-prototypes for Traditional Funding Platforms

Ainan Ali Soomro^{*1}, Adnan Arain²

^{*1}Department of Computer Systems Engineering, Mehran University of Engineering and technology Jamshoro Sindh, 76090, Pakistan ainan.ali.soomro@gmail.com¹

²Department of Computer Systems Engineering, Mehran University of Engineering and technology Jamshoro Sindh, 76090, Pakistan
adnan.arain@faculty.muuet.edu.pk²

ARTICLE INFO

Article History:

Accepted: 01 April 2023

Published: 28 April 2023

Publication Issue

Volume 10, Issue 2

March-April-2023

Page Number

593-601

ABSTRACT

Charity organizations struggle to attract donors due to poor UI and varying donor perspectives, resulting in them investing resources in marketing rather than addressing people's needs. Existing funding platforms lack HCI-based solutions, making it difficult for donors to effectively interact with recipient organizations. This donor-recipient relationship is crucial in modern times with advanced technology, but donors often face obstacles while donating or lack options based on demographics, audience insight. The research proposes a new prototype model, called charity360 onwards, that enhances the UI/UX and HCI approach for all existing charity platforms. The model is scalable and applicable to various funding platforms, and visualizes the donor-recipient relationship effectively. The charity360 model utilizes demographic data to establish a trust-based relationship between donors and recipients. Its unique synaptic mapping feature allows for global recipients, giving donors unprecedented control over their charitable contributions. The model includes audience and demographic insights that have not been previously available, providing an easier donation process for both tech-savvy and non-tech-savvy donors. The charity360 model has the potential to amplify donation processes in any society and strengthen integrated welfare efforts among global organizations, making it a valuable addition to the field of charity.

Keywords: Human computer integration (HCI); HCI Models; Demographic Insights; Mobile Apps and charity360.

I. INTRODUCTION

Over the past three years, the pandemic crisis has had a significant impact on human behaviour,

particularly in how people use computers and machines. Lockdowns and restrictions on movement have led to a surge in online services, creating new demands for Human-Computer Interaction (HCI)

from both service providers and their customers. While traditional manufacturing sectors have suffered, there has been growth in one-man businesses and startups. The scarcity of resources has also encouraged charitable giving and fundraising for those in need and for developing businesses. By incorporating HCI principles, we aim to design and integrate an innovative funding service platform (charity360) that provides a better user experience and is reliable and feasible.

Despite the advantages mentioned earlier, there are also some drawbacks. Non-profit organizations (NPOs) that operate under the radar can be flagged by the Financial Action Task Force (FATF), which has recommended some solutions. The FATF conducted a study on the risks of terrorist financing in NPOs, analysing 102 case studies from 14 countries worldwide. Despite the problem being acknowledged over ten years ago, the study revealed that the threat of NPO exploitation by terrorist organizations still exists. While the risk of terrorist organizations misusing the NPO sector is relatively low, it undermines public trust in the sector and has a disproportionately negative impact on NPO operations. The study found a link between an NPO's activities and the possibility of terrorist abuse. In order to boost public confidence in the nation's non-profits and help funders make wise decisions, an unbiased monitoring group produced a report on Standards of Transparency and Best Practices. The Standards are divided into blocks and are used to evaluate NPO sector compliance; the majority of these blocks are crucial for preventing terrorist financing, including several that deal with partner relations.

Our research focuses on practical aspects of funding, donation, and allocation, including information sharing among various organizations. We have incorporated Human-Computer Interaction (HCI) into our funding platform (charity360) to facilitate crowdfunding and donations. Our aim is to simplify the use of modern, complex technology for

individuals who may not be tech-savvy, in order to keep up with the constantly evolving world of technology and daily use of interactive screens.

II. Literature Review

Author	Research Title	Year	Comment
[1] Hanyang WU and Xianchen zhu	Developing a Reliable Service System of Charity Donation during The Covid-19 Outbreak.	2020	In this paper author proposed Service System of Charity Donation that will use crypto currency.
[10] Anja Thieme, Danielle Belgrave and Gavin Doherty	A Systematic Review of the HCI Literature to Support the Development of Effective and Implementable ML Systems	2020	In this paper author's review, current ML work regarding psycho-socially based mental health conditions from the computing and HCI literature.
[3] Djoni Haryadi Setiabudi and I Gede A. Widyadana	The User Interface and The Implementation of Mobile apps for Donors	2019	In this paper authors aims to explore the user expectations of the mobile apps on the

	in Natural Disaster in East Java, Indonesia		process of donation applying the principles of HCI
[5] Wei Shen and Xiaolei Zhou	Research on the human-computer interaction mode designed for elderly users.	2015	In this paper, author research on human-computer Interaction (HCI) mode is mainly to improve the quality of interaction between elderly user and computer.
[8] Shneiderman, B., & Plaisant	Designing the user interface: Strategies for effective human-computer interaction	2013	In this paper author aim is to develop a new web portal based on the rules by Shneiderman which the web portal produce will met all the design rules proposed by Shneiderman .
[4] Min Kyung Lee, Karen P. Tang, Jodi	Understanding Users Perception of Privacy	2011	In this paper author study on users' perceptions

Forlizzi, Sara Kiesler	in Human Robot Interaction.		and attitudes toward privacy in human-robot interaction, based on interviews that we conducted about a workplace social robot.
------------------------	-----------------------------	--	--

III. User centric design

Design of an effective digital platform tailored to meet the existing requirements of donors and recipients and devise its integration with the existing recipient system. Perform a comparative analysis between both (traditional and proposed) platforms with the help of recipients/ organizations. We design the ease with which users can discover features within an application is referred to as discoverability [2]. This design also shows Stability with correct mapping according to the mental model of the user. The function of this application should be accessible so that people can see what it's doing right now and what buttons or controls are available. Everything is included in technology, which makes our lives more reliable and faster. Technology significantly affects how businesses work [12]. The technical infrastructure of an organization affects the relationships, knowledge, and culture within it. Additionally, it affects the safety of commercial premises and vulnerable information. In this research paper we will discuss all the possible solutions of the above issues. Our charity 360 model is user friendly due to its exclusive features.

IV. Traditional Apps Verses Charity 360

We've spent plenty of time in a mobile-optimized world that it's easy to take mobile UI design for

granted. At this point, nearly a decade after cell phones became an essential requirement, we have assuredly figured out the solutions to all of our mobile UI design challenges.

- Charitable organizations of all sizes face a variety of difficulties. The relevance of digital technology as well as some of the unique digital challenges that many charitable organizations must encounter have been highlighted by the present new normal interface [1].
- The traditional digital platform for charity and donation has always in the spotlight of Sluggish and irresponsive interfaces and security issues like miss usage of information or online frauds.
- In crowd funding there is an issue of authenticity you never know the person or an organization that, how much they are authentic or not, people use fake and dummy information to showcase their identities.

For this we have an example of Alkhidmat Foundation how their web and apps works.

Figure.1 Here you need to fill the accurate information regarding your donation

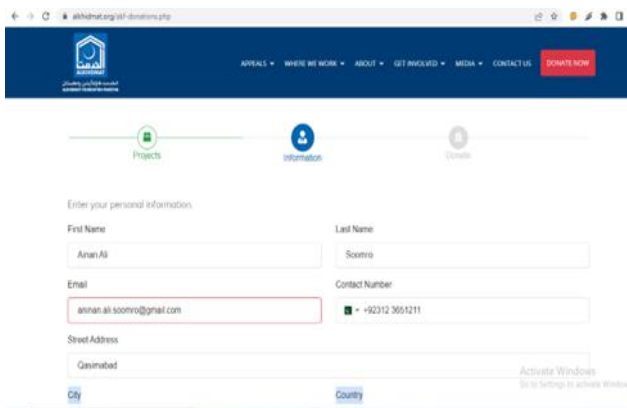


Figure.2 Select donation option

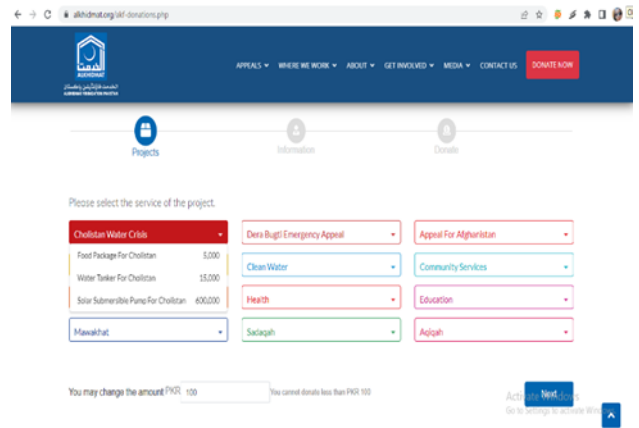


Figure.3 select your payment option

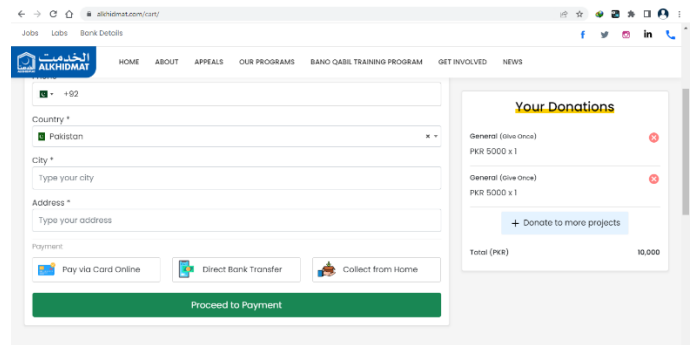
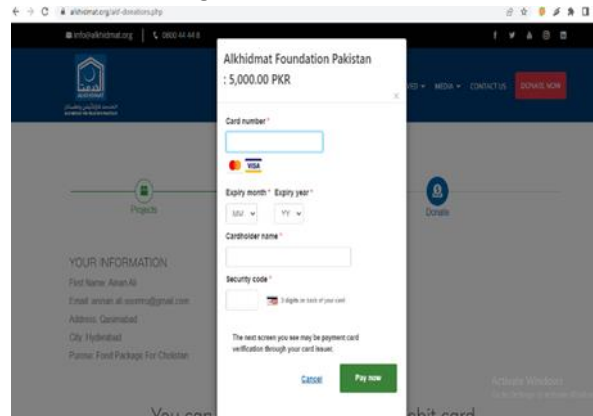


Figure 3. Add card details



IV.I. Issues in traditional platforms

- Separate websites and applications (limited applications/ features)
- No cartography-based searching
- Location-wise donation/ record does not exist.
- Limited categories for donation available (Sadaat, Transgender, etc)
- Donation insight is not provided to users
- Repetitive entries
- SDG's, religious and multiple societal crowdfunding is rare.

- Membership is not offered always or its open for Public

As a member of the social welfare community, you understand the crucial role of technology in connecting people. One of the most popular ways to provide assistance or collaborate with those in need is through crowdfunding or fundraising. This approach is recognized and appreciated worldwide, and technology is enabling social welfare organizations to work together more effectively and increase their impact.

The ongoing new typical interface has featured the significance of digital platform deterrents that numerous foundations associations need to overcome. The significant issues in computerized collaboration are problematic clients and data abuse. In crowd funding there is an issue of credibility: no one can say for sure assuming the individual or an association you are managing is true or not on the grounds that individuals utilize the created data to show their characters [8]. Several social media platforms, including Facebook, offer donation options through their pages, allowing users to donate to a specific cause in a selected area. However, to ensure customer satisfaction, it is important to explore new ways of interaction. In today's digital age, users demand more visually appealing and interactive screens. Therefore, we should consider modifying our current charitable model by adding more buttons and simplifying the donation process. Additionally, the incorporation of digital cash could make a significant difference. People require options for more complex interfaces, yet building interfaces with more options and fewer complications results in delighted customers. Customer satisfaction is critical in internet marketing since most customers will switch to a rival after just one negative experience [11].

Our design methodology enables donors to choose recipients based on demographics in our interface, Charity 360. We prioritize transparency by keeping a

record of how donations are utilized and allowing users to register and view donation history. Users can search for items by selecting specific SGD's and search for areas and organizations to donate to in a simple manner. Additionally, we provide a feature that enables users to connect with Google maps in real-time so they can choose the exact location and purpose for their donation.

- Donate now: By selecting the donate now option, you will be taken to a web page with donation alternatives.
- Donate by location: This is the feature where we provide you with location options that where would you most likely donate . The steps are depicted in the diagrams.
- Donation categories: As the funding is supplied in a variety of methods in Islam, we categorize it to
- make it easier and more functional for users.

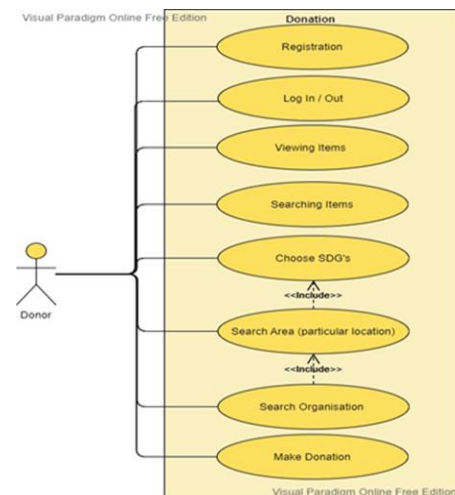


Figure 4 Step by Step process of purposed model

V. Design Methodology

Designing an effective prototype that caters to the needs of various generations. The design must be user-friendly and intuitive for people of all ages to use. In order to achieve this goal, the principles of Human-Computer Interaction (HCI) are being employed to replace complex funding processes with simple and accessible procedures employing

Touchscreen Graphical User Interface [10]. As a result, the user will be able to connect to real-time Google maps in order to donate in the area or location or purpose user desires Technology has transformed the way the social sector works, with a significant impact on every aspect of life.

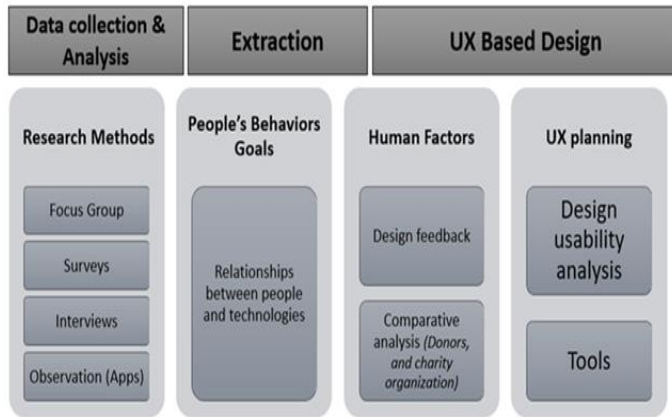


Figure 5

VI. Crowd funding verses Charity

In charity360 apart from individual efforts and calls to action, there are professional groups and organizations that are dedicated to addressing social issues. These groups are composed of experts who possess the knowledge and skills to navigate procedures and matters efficiently in order to achieve more effective results. These organizations are registered with the relevant authorities and offer a diverse range of services aimed at improving the lives of individuals or preserving the world as a whole, with the ultimate goal of making it a better place to live. These groups or organizations typically focus on specific causes or issues and can have millions of members worldwide. They operate on a larger scale, leveraging their expertise and resources to create meaningful impact. Whether it's advocating for human rights, protecting the environment, promoting healthcare access, supporting education, or addressing poverty and inequality, these organizations work tirelessly to make a difference in their respective areas of focus. One key aspect of these organizations is that

they rely on donations from individuals and communities all over the world to fund their operations and initiatives. These donations can come from various sources, including individuals, foundations, corporations, and governments. Technology plays a crucial role in enabling this global network of organizations to function effectively. Through online platforms, social media, crowdfunding, and other technological tools,

these organizations are able to raise awareness, mobilize support, and gather resources to further their

mission. Technology also facilitates communication and collaboration among members of these organizations, who may be spread across different geographic locations. It allows for efficient coordination of efforts, sharing of information and best practices, and monitoring and evaluation of progress. Moreover, technology enables these organizations to leverage data and analytics to inform decision-making, measure impact, and continuously improve their strategies and interventions. The use of technology has also enabled these organizations to reach a wider audience and engage with stakeholders in innovative ways. They can leverage social media to raise awareness, generate public support, and influence policy. They can use online platforms for fundraising campaigns, volunteer recruitment, and advocacy efforts. Additionally, technology has enabled these organizations to harness the power of data and digital tools to amplify their messages, tell compelling stories, and engage with diverse audiences, resulting in increased awareness, engagement, and support for their cause.

These professional groups and organizations working on social issues play a critical role in driving positive change on a larger scale. They bring together experts who utilize their skills and knowledge to navigate complex issues and achieve more effective results.

Technology plays a pivotal role in enabling these organizations to operate globally, facilitate communication and collaboration, leverage data and analytics, and engage with stakeholders in innovative ways. Through their collective efforts and the support of donations from around the world, these organizations contribute towards creating a better future for individuals and the world as a whole. These organizations rely on donations received from all over the world to provide the services they do. Technology alone makes this global network possible, and it is quite helpful in getting better results.

VII. Results And Discussions

Home Page: Here user view the home page of Charity 360 web application.



Figure 6 Home page

Donate by SDG's (Sustainable Development Goals) here user can donate by SDG's

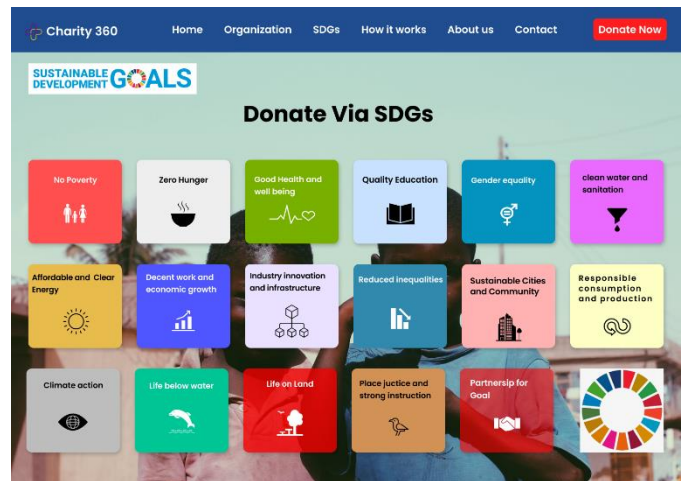


Figure 7: Donate by SDG's page

Donate by Location here user can donate by selecting a specific location form Map.

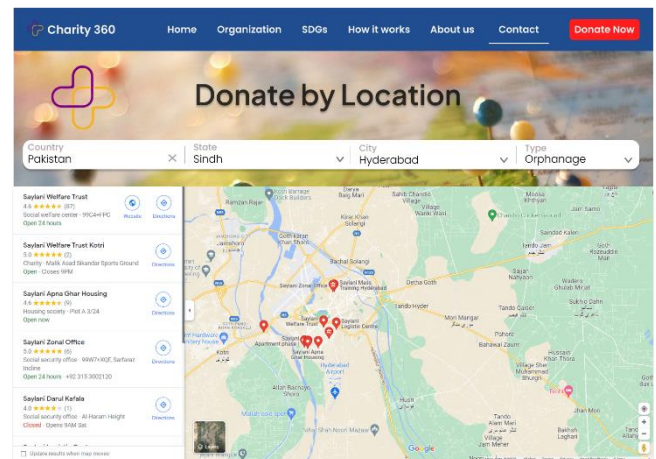


Figure 8: Donate by location Page

Personalised Dashboard here user can track their charity activities

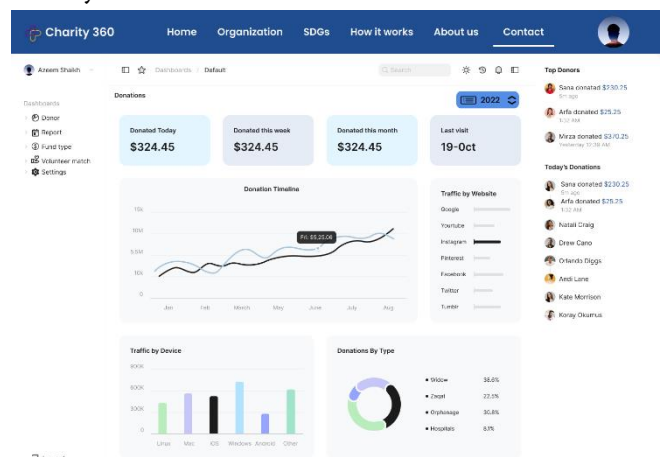


Figure 9: Personal Dashboard page

Adding account information or by just selection any bank option if user have saved the bank details it will automatically deduct the amount one you allow it not need to inter data repetitively

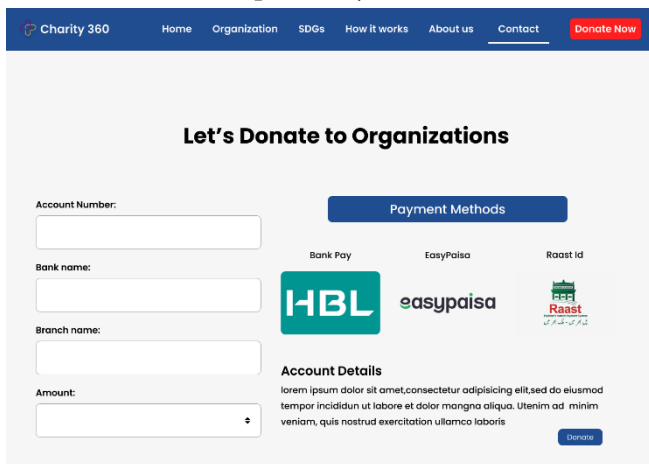


Figure 10: account detail Page

Thankyou dialogue box showing that your donation has been processed

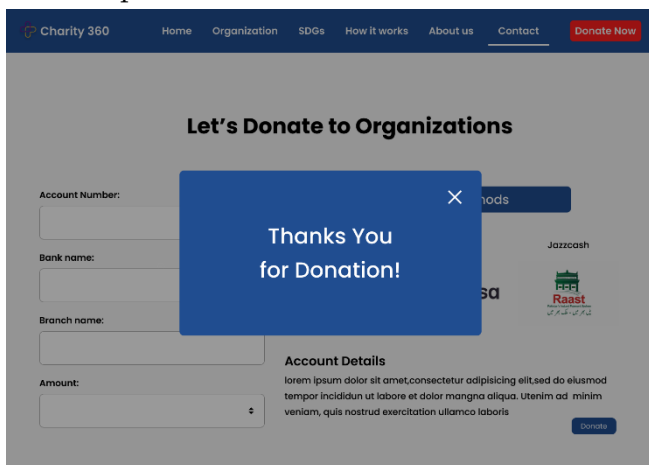


Figure 11: Thankyou dialogue box

VIII. Conclusion

Human-Computer Interaction (HCI) has the potential to revolutionize the user experience in donation platforms, particularly in terms of synaptic designs, trust-based processes, and prototype integration in modern devices and funding platforms. In the post-pandemic era, donors are increasingly seeking uniform control over relevant parameters of their

donations. The innovative and effective charity360 prototype, presented in this research, offers a solution that can be applied to various funding platforms, opening new dimensions of insightfulness and establishing trust among donors. Through rigorous analysis of HCI principles, the charity360 prototype has been found to adhere to best practices in user interface design. Its user-friendly nature has been confirmed through comparative analysis with traditional funding frameworks, making it accessible to diverse groups of users.

The working principles and architecture of charity360 exemplify sustained innovation and a forward-looking approach towards future-reliant UI designs.

As we transition into a new era after the pandemic, the charity360 prototype is poised to make a significant contribution to funding service systems. Its ability to seamlessly integrate with existing traditional frameworks and provide a frustration-free donation experience can greatly enhance the donor experience. The charity360 prototype's emphasis on trust-based processes and synaptic designs further establishes its potential as a valuable addition to the donation sites.

Moreover, in conclusion, the charity360 prototype, based on HCI principles and analysed through comparative analysis, presents a promising solution for improving the user experience in donation platforms. Its sustained innovation and future-reliant UI designs position it as a cutting-edge prototype with the potential to revolutionize the way donations are made and processed in the modern era.

IX. BIBLIOGRAPHY

- The UX book: Rex Hartson, Partha S. Pyla, 2012.
- Designing with mind in mind (Second edition) (p.219-222): Jeff Johnsons, 2014.
- Human computer interaction: Scott Mackenzie, 2013.
- HCI Models, theories and frameworks: John

- M.Carroll, 2003.

X. REFERENCES

- [1]. Hanyang WU and Xianchen Zhu. Developing a Reliable Service System of Charity Donation during The Covid-19 Outbreak. 2020
- [2]. Gong Chao Design & Art School, Beijing Institute of Technology Beijing, China. Human-Computer Interaction: Process and Principles of Human-Computer Interface Design
- [3]. Min Kyung Lee; Karen P. Tang; Jodi Forlizzi; Sara Kiesler. Understanding users, Perception of privacy in human-robot interaction. 2011 6th ACM/IEEE International Conference on Human-Robot Interaction.
- [4]. Simon Hakiel. A deliverables-oriented approach to the integration of HCI into the design and development of software products.
- [5]. Djoni Haryadi Setiabud and I Gede A. Widyadana. The User Interface and The Implementation of Mobile apps for Donors in Natural Disaster in East Java, Indonesia. The 2019 Technology Innovation Management and Engineering Science International Conference (TIMES-iCON2019)
- [6]. Peng Bian; Yi Jin; Nairen Zhang. Research on human-computer interaction design for distance education websites. 2010 5th International Conference on Computer Science & Education
- [7]. Wei Shen; Xiaolei Zhou. Research on the human-computer interaction mode designed for elderly users. 2015 4th International Conference on Computer Science and Network Technology (ICCSNT)
- [8]. Dewan, S., & Riggins, F. J. (2005). The digital divide: Current and future research directions. *Journal of the Association for information systems*, 6(12), 298-337.
- [9]. (Shneiderman, 2010)C. (2010). Designing the user interface: Strategies for effective human-computer interaction. Pearson Education India.
- [10]. KHUAN, O. (2013). STUDY OF FSKKP PORTAL BASED ON SHNEIDERMAN“ S EIGHT GOLDEN RULES. *J. Teknol.*
- [11]. Emily Hunter, zendesk: 5 ways a customer satisfaction can improve your business, 2018

Cite this article as :

Ainan Ali Soomro, Adnan Arain, "Design and integration challenge of effective HCI-prototypes for Traditional Funding Platforms", *International Journal of Scientific Research in Computer Science, Engineering and Information Technology (IJSRCSEIT)*, ISSN : 2456-3307, Volume 9, Issue 2, pp.593-601, March-April-2023. Available at doi : <https://doi.org/10.32628/CSEIT2390248>
Journal URL : <https://ijsrcseit.com/CSEIT2390248>