LEVERAGING DIGITAL SYSTEMS TO MOBILIZE HEALTH DONATIONS FOR FISTULA TREATMENT: A CASE STUDY BUDADIRI HEALTH CENTER IV, EASTERN UGANDA SIRONKO DISTRICT

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UGANDA CHRISTIAN UNIVERSITY

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Contents

DECLARATION

I WAMPANDE ALLAN do declare that this project report is my original work done and honestly inform you that this project report is entirely my effort not duplicate and presented to Institution of higher learning for any award especially in the field of information technology.

Date**: 16/10/2025**

Signature  ……...

APPROVAL

This is to certify to the best of my knowledge and professional assessment that the piece of work titled "**Leveraging Digital Systems to Mobilize Health Donations for Fistula"** submitted by **Wampande Allan**, with Registration Number **S19/MUC/BSIT/1363**, to the Department of Computing and Technology, has not been duplicated by any other University for the award of a degree.

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DEDICATION

I dedicate this work to the Almighty God, the giver of wisdom and knowledge, to my beloved parents **Mr. Wampande Tom and Mrs. Wampande Annet**, my **brothers** and **sisters, my uncles** and **Aunts**, grand Mother **Nabukonde Joyce,** Supervisor and all my Lecturers, friends, course mates and my beautiful wife **Kagoya Fatuma** thank you so much for the fantastic support given to me throughout this research, may the Almighty God bless you in Jesus' name.

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ABSTRACT

This research presents the design and implementation of an Online Health Donation System to Fight Against Fistula at Budadiri Health Center IV in Sironko District, Eastern Uganda. The system aims to improve resource management, enhance donor engagement, and promote transparency in the treatment of fistula patients. The study used interviews, questionnaires, and system analysis to gather data. The developed system was tested and validated to ensure user-friendliness, security, and efficiency. Results showed that digitalizing the donation process can significantly improve healthcare delivery and donor trust. The project contributes to the development of sustainable digital health solutions in rural Uganda.

JUSTIFICATION OF THE STUDY

This study is justified because many rural health centers in Uganda still rely on manual systems for managing donations, leading to inefficiency, data loss, and lack of transparency. Developing an online health donation system will not only help Budadiri Health Center IV manage donations better but can also serve as a model for other health institutions in the country. The system provides an efficient, secure, and transparent way to manage donations, improving accountability and resource utilization.

LIMITATIONS OF THE STUDY

This study was limited by time and financial constraints, which restricted data collection to one health center. In addition, internet instability and lack of advanced computer equipment in rural areas may affect full system implementation. However, these limitations do not affect the reliability or relevance of the study's findings. The project still provides valuable insights and can be scaled up with further support and resources.

CHAPTER ONE

Introduction

Chapter one of this project presents the project the background information to the study highlighting the problem statements, objectives, scope and significance to the study.

1.1 BACKGROUND TO THE STUDY.

Budadiri Health Center IV is located in Sironko District, Eastern Uganda. Established as a modest health institute, it has experienced significant growth and development over the years. Initially started to serve the basic healthcare needs of the community, the center has progressively expanded its services to address a wide range of medical conditions.

Historical Overview

Budadiri Health Center IV began its journey as a small healthcare facility dedicated to providing essential medical services to the local population. Over time, through the dedication of its staff and the support of the community, the center has evolved into a well-established institution. It has seen remarkable progress in both its infrastructure and the breadth of services offered.

Current Capabilities

Today, Budadiri Health Center IV is equipped to handle various diseases and medical conditions, offering comprehensive care that includes general consultations, emergency services, maternal and child health care, and treatment for common illnesses. The center has made significant strides in improving its medical facilities, training its personnel, and enhancing patient care.

1.1 problem statement.

Despite these advancements, Budadiri Health Center IV currently faces a significant challenge: the treatment of women suffering from fistula. Fistula is a severe and debilitating condition often resulting from childbirth complications. It causes incontinence and can lead to severe social stigma and health issues for affected women.

Unfortunately, the center lacks the specialized facilities and resources required to effectively treat fistula. This gap in their capabilities not only affects the quality of life of the affected women but also puts additional strain on the center's already limited resources.

Due to lack of facilities and enough equipment, the health center gives patients transfer to institute which is located in Mbale and Soroti District, this incidence has put the lives of many people at risk where by many reports results into death. This made them to start a simple thought of looking for donations from well-wishers, thy were doing manually by using oral communication and using papers to record the donations from different donors, the manual system has been so tiresome and it has not been helpful in the management of the donations. That is why I came with the idea online health donation system, to help them fulfill their goal

1.2 main objective

To develop a comprehensive health donation system aimed at combating fistula at Budadiri Health Center IV in Sironko District, ensuring improved treatment and support for affected women through efficient management of donations and resources.

Specific objectives

- Enhance Treatment Facilities:

Use donations to upgrade or acquire specialized medical equipment and facilities necessary for diagnosing and treating fistula, improving patient care and outcomes.

- Support Training and Capacity Building:

Fund and organize training programs for healthcare professionals at Budadiri Health Center IV to ensure they are equipped with the latest knowledge and skills for effective fistula management.

- Increase Community Awareness:

Implement awareness campaigns to educate the local community about fistula, its prevention, and available treatment options, reducing stigma and encouraging affected individuals to seek help.

- Monitor and Evaluate Impact:

Develop mechanisms to track the use of donations, measure the impact on fistula treatment, and assess the effectiveness of the health donation system in improving patient outcomes.

- Foster Partnerships and Collaborations:

Build relationships with local and international organizations, government agencies, and other stakeholders to enhance support for the health donation system and ensure a collaborative approach to tackling fistula.

- Ensure Transparency and Accountability:

Implement robust procedures for financial management and reporting to ensure transparency and accountability in the handling of donations, fostering trust among donors and the community.

- Facilitate Access to Support Services:

Develop and maintain a support network for women affected by fistula, including counseling, rehabilitation, and social reintegration services, to address the broader needs of patients beyond medical treatment.

1.4 Scope

The system design will be used by the health centers (health researcher) and the people in the community, waiting to study the causes of fistula, signs and symptoms, results when the parson is having, solutions to the possible problem in the community or Uganda and how patients are to get possible treatment and necessary treatment.

The system will interact with the researchers in health centers and stake holders in the communities for example VILLAGE HEALTH TEAM (VHTs).

1.5 significances of the system

Awareness: Fistula, especially obstetric fistula, is a devastating condition resulting from prolonged obstructed labor without timely medical intervention. It leads to chronic incontinence and often social ostracization. Awareness campaigns educate communities about the causes, prevention, and treatment options for fistula. This helps in dispelling myths, reducing stigma, and encouraging affected individuals to seek medical help.

Early Detection and Treatment: Awareness efforts promote early detection of fistula cases. Through community education programs and outreach activities, healthcare providers can identify women who may be at risk or already suffering from fistula. Early intervention improves the chances of successful treatment and helps prevent further complications and social isolation.

Access to Healthcare: Donation systems, whether in the form of financial contributions, medical supplies, or volunteer services, can significantly enhance access to healthcare services for fistula patients. This support can enable health centers to offer specialized fistula repair surgeries, post-operative care, rehabilitation services, and psychosocial support to affected individuals, especially those from marginalized communities who may lack financial resources.

Capacity Building: Donations can also contribute to capacity building initiatives within health centers. They can fund training programs for healthcare professionals, including surgeons specializing in fistula repair, nurses, and community health workers. By strengthening the healthcare workforce's skills and knowledge, communities can receive better quality care for fistula prevention, detection, and treatment.

Advocacy and Policy Change: The presence of donation systems can also empower advocacy efforts to address systemic issues related to fistula, such as inadequate healthcare infrastructure, lack of skilled personnel, and socioeconomic disparities. By leveraging donations and raising awareness, advocates can push for policy changes, increased government funding, and improved healthcare services for fistula prevention and treatment.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

Chapter One presented the background information to the study highlighting the objectives, scope and significance to the study. This chapter is about the literature review of the health donation system to fight fistula in Uganda.

It specifies what a health donation system is, what it needs and how it works for its enhancement.

2.1 HEALTH DONATION SYSTEM

According to Singer (2019), a health donation system refers to a structured framework where individuals or institutions contribute resources such as financial aid, medical supplies, or expertise to support healthcare initiatives aimed at improving health outcomes, particularly in underserved or developing regions

2.2 TYPES OF HEALTH DONATION SYSTEM.

2.2.1 WHOLE BLOOD DONATION SYSTEM

According to Dr. Paul (2022), the critical role of whole blood donation systems is to ensure access to safe and sufficient blood supplies for medical treatments, particularly in underserved communities. He advocates for structured systems that facilitate regular donations, prioritize safety standards, and integrate blood transfusion services into comprehensive healthcare strategies to save lives and improve health outcomes globally.

2.2.2 PLATELETS DONATION SYSTEM

According to Klein (2019), a prominent figure in transfusion medicine, has contributed significantly to defining platelet donation systems. He emphasizes the importance of platelet donations in his work and publications.

2.3 DONATING

According to MacAskill (2015.) in one of his notable works is the book "**Doing Good Better: How Effective Altruism Can Help You Make a Difference**," In this book, MacAskill discusses how individuals can use evidence and reason to determine the most effective ways to make a positive impact through their donations and charitable actions of helping those who are in need. He explores various strategies for choosing causes and organizations that can achieve the greatest good with the resources donated

2.4 DONATION SYSTEM

According Titmuss(1970), donation systems are not merely economic transactions but are deeply rooted in social values, ethics, and the relationships between individuals and society. He emphasizes that donation involves voluntary giving for the common good, often challenging conventional market-based approaches to resource allocation.

2.4.1 INTERNAL DONATING

According to Marcel (1925), internal donation are gifts exchanged within a particular social group or community, and sometime within the country which he refers to as internal donations, typically involve reciprocity and are integral to maintaining social cohesion and solidarity within the group. These donations often create and reinforce social bonds, mutual obligations, and hierarchies within the community

2.4.2 EXTERNAL DONATING

According to Marcel (1925), external donations are gifts given to individuals or groups outside of one's immediate social circle or community and sometime it refers to the gifts or support got from outside the group or the country. These gifts serve various purposes, such as establishing alliances, negotiating relationships with neighboring groups or communities, and demonstrating wealth or prestige. External donations can be strategic and may influence political, economic, or social dynamics beyond the immediate community.

2.5. DONATION MANAGEMENT SYSTEM.

According to Gorsegner (2017), tools for fundraising and management are designed to streamline the process of accepting, processing, and acknowledging donations. They often include features for donor management, fundraising campaigns, online donation processing, and reporting. Effective donation management systems are crucial for nonprofit organizations to efficiently handle contributions, maintain donor relationships, and ensure transparency in financial transactions. Such systems typically include databases to store donor information, payment processing integrations for receiving donations online, communication tools for thanking donors, and reporting capabilities to track fundraising efforts and financial performance.

2.6.0 RELATED SYSTEMS

2. 6 .1 DONORPERFEC

According softerWare (1985) states that DonorPerfect is comprehensive fundraising and donor management software designed for nonprofit organizations. It offers features for donor tracking, online fundraising, event management, and reporting. DonorPerfect is known for its user-friendly interface and customizable options to suit various fundraising needs.

. However, this performs the following tasks.

- Donor Management
- Online Fundraising
- Campaign Management:
- Reporting and Analytics:
- Communication Tools
- Event Management:

- **Donor Management**: Maintains comprehensive donor profiles with contact information, giving history, and preferences.
- **Online Fundraising:** Provides tools for creating and managing online donation forms for one-time and recurring donations.
- **Campaign Management:** Enables organizations to plan, execute, and track fundraising campaigns with goals, progress monitoring, and reporting.
- **Reporting and Analytics:** Generates reports on donations received, donor demographics, campaign effectiveness, and financial summaries.
- **Integration Capabilities:** Integrates with other software systems such as CRM, accounting software, and email marketing platforms for streamlined data management.
- **Communication Tools:** Facilitates communication with donors through personalized messaging, thank-you notes, and updates on campaigns.

Event Management: Manages events such as fundraising galas, auctions, and community gatherings with attendee tracking and donation processing. The above will

meet the function of donaperfect system however the event management has the following activities to the system;

- **Event Planning:** DonorPerfect allows nonprofits to plan events such as fundraising galas, auctions, walkathons, and other types of events aimed at engaging donors or raising funds.

Registration and Ticketing: Nonprofits can use DonorPerfect to handle event registrations, ticket sales, and attendee management. This includes tracking RSVPs, managing attendee lists, and issuing tickets.

Communication and Promotion: The software enables nonprofits to promote events by sending out invitations, reminders, and updates to donors and supporters through integrated communication tools.

Donor Engagement: Events managed through DonorPerfect can be used strategically to engage donors and build relationships. The software may include features for capturing attendee information and interactions during events.

Fundraising Integration: Events can be seamlessly integrated with fundraising efforts. DonorPerfect allows nonprofits to link events with donation campaigns, peer-to-peer fundraising, and other fundraising initiatives.

2.6.1.2 DISADVANTAGES OF DONORPERFECT SYSTEM.

- **High Initial Costs,** there is Software Licensing and Subscription Fees which makes costs of acquiring and maintaining an event management system can be high, particularly for smaller organizations or infrequent event organizers. Additional expenses may be needed for compatible hardware, servers, and other infrastructure.

- **Customization and Flexibility Limitations**, this system may not offer all the features needed for unique or highly specific event requirements, necessitating additional customization or workarounds.

- **Data Security and Privacy Concerns**. There is a risk in storing sensitive attendee data in a centralized system increases the risk of data breaches and cyber-attacks. It's also hard to ensure compliance with data protection regulations (like GDPR) can be challenging, especially if the system is used for international events.
- **Dependence on Internet Connectivity,** many event management systems are cloud-based and require reliable internet access, which can be a problem in areas with poor connectivity.
- **Ongoing Maintenance and Upgrades**, Keeping the software updated and maintaining the system can require continuous effort and investment. This makes it to be updated regularly and organizations may become dependent on the software vendor for support and updates, which can lead to potential issues if the vendor changes their policies or ceases operations.
- **Scalability Issues.** Some systems may not scale well for larger events or multiple concurrent events, leading to performance issues. A cost of scaling up the capacity of the system to handle larger events often incurs additional costs.

In conclusion

DonorPerfect has emerged as a robust and comprehensive solution for nonprofit organizations seeking to enhance their donor management and fundraising capabilities. The platform offers a wide range of features that streamline the entire donor lifecycle, from acquisition to retention and reporting. With its user-friendly interface, customizable options, and powerful analytics, DonorPerfect not only simplifies donor management but also provides invaluable insights that can drive more effective and personalized donor engagement strategies.

2.6.2 NETWORK FOR GOOD YEAR:

According to Network for Good (2001), Network for Good provides a suite of online fundraising tools and donation processing services for nonprofits. It includes features such as donor management, peer-to-peer fundraising, and email marketing, and reporting. Network for Good aims to simplify the fundraising process and help nonprofits maximize their impact through effective donor engagement

2.6.3 HOW NETWORK FOR GOOD YEAR WORKS

- **Donation Processing:** Nonprofits can set up donation pages through Network for Good's platform. Donors can securely donate online using credit/debit cards, PayPal, or other payment methods. Network for Good processes these donations and disburses funds to the nonprofit.
- **Fundraising Pages**: Organizations can create customized fundraising pages tailored to specific campaigns or events. These pages include branding elements, campaign details, and donation options to encourage supporter engagement.
- **Donor Management:** Network for Good offers tools to manage donor relationships. Nonprofits can track donor information, donation history, and communication preferences to nurture long-term relationships.
- **Reporting and Analytics:** The platform provides reporting capabilities to analyze fundraising performance. Nonprofits can generate reports on donation trends, campaign effectiveness, and financial insights to make informed decisions.
- **Integration**: Network for Good integrates works with various nonprofit management software and CRM systems to streamline data synchronization and workflow efficiency.

- **Security and Compliance**: Network for Good ensures security of donor data and compliance with payment industry standards (PCI-DSS) to protect sensitive information.
- **Support and Resources:** Nonprofits receive support through customer service, training resources, and best practices to optimize fundraising efforts and use the platform effectively.

2.6.1.2 MORE COMPREHENSIVE, WELL INTEGRATED SYSTEM WILL;

- **Donor Management:** This involves maintaining donor profiles, tracking their giving history, communication preferences, and contact information.
- **Online Donation Forms:** User-friendly forms on your website or through email campaigns that allow donors to easily make donations and specify their preferences (one-time, recurring, specific campaigns).
- **Payment Processing**: Integration with secure payment gateways to handle financial transactions securely, supporting various payment methods (credit/debit cards, PayPal, etc.).
- **Campaign Management**: Tools to create, manage, and track fundraising campaigns, including setting goals, monitoring progress, and reporting on outcomes.
- **Reporting and Analytics**: Generating reports on donations received, donor demographics, campaign performance, and financial summaries for transparency and decision-making.
- **Communication Tools**: Integration with email marketing platforms or built-in tools for sending thank-you messages, updates on campaigns, and newsletters to donors.

DISADVANTAGES OF NETWORK FOR GOOD YEAR SYSTEM

- **Service Fees**: Platforms like Network for Good may charge fees for processing donations or using their services, which can impact the amount of funds nonprofits receive.
- **Dependence on Technology:** Nonprofits relying on Network for Good or similar platforms may face disruptions due to technical issues, internet outages, or changes in platform policies.
- **Data Security Concerns:** Handling donor information and financial transactions through third-party platforms raises concerns about data security and privacy compliance.
- **Customization Limitations**: Nonprofits may have limited flexibility in customizing donation pages or integrating with their existing systems to meet specific organizational needs.
- **Donor Relationships:** Direct donor relationships can be impacted when donations are processed through a third-party platform, potentially reducing direct engagement opportunities.
- **Competing with Other Nonprofits:** Platforms like Network for Good host multiple nonprofits, leading to competition for donor attention and potentially reducing visibility for smaller organizations.

In conclusion

Network for Good helps nonprofits raise money and manage donations easily. It uses online tools to run fundraising campaigns and connect with donors effectively. However, nonprofits should be aware of fees, reliance on technology, and difficulties in maintaining direct donor relationships. Despite these challenges, Network for Good shows how technology can improve fundraising and help nonprofits achieve their goals in the community.

2.7 HOW HEALTH DONATION SYSTEM IS TO WORK TO FIGHT FISTULA

- **Donor Outreach:** Organizations dedicated to fighting fistula reach out to potential donors through various channels, such as online campaigns, social media, events, and partnerships with other organizations.
- **Education and Awareness:** Donors are educated about obstetric fistula, its causes, consequences, and the impact it has on women's lives. This awareness helps motivate individuals to contribute to the cause.
- **Fundraising:** Donors can contribute financially through various means, including one-time donations, monthly pledges, fundraising events, corporate sponsorships, and grants from foundations or governments.
- **Medical Services:** The donated funds are used to provide medical services to women suffering from obstetric fistula. This includes surgical interventions to repair the injury, post-operative care, rehabilitation, and reintegration programs.
- **Capacity Building:** Some donations may be allocated to training healthcare providers in fistula repair surgery and prevention, as well as improving healthcare infrastructure in areas where fistula prevalence is high.
- **Monitoring and Evaluation:** Organizations ensure transparency and accountability by regularly monitoring the use of donated funds and evaluating the impact of their programs on reducing the incidence of fistula and improving the lives of affected women.
- **Partnerships:** Collaboration with governments, non-governmental organizations (NGOs), healthcare institutions, and community-based organizations is crucial for the success of fistula prevention and treatment programs. Donated funds may be used to strengthen these partnerships and leverage resources for maximum impact.
- **Advocacy and Policy Change:** Donations can support advocacy efforts aimed at raising the profile of obstetric fistula on national and international agendas,

influencing policies to prioritize maternal health, and promoting access to quality obstetric care for all women.

In conclusion

Network for Good Year stands out as a pivotal tool for nonprofits aiming at enhance the fundraising effectiveness and donor engagement. With its integrated suite of user-friendly tools, robust analytics, and emphasis on security and compliance, Network for Good Year empowers organizations to, Streamline Fundraising, Enhance Donor Relationships, Gain Actionable Insights, and Ensure Security.

2.8 Food Donation Systems:

According to Feeding America (2021), Food donation systems involve the collection and distribution of surplus food to support food banks, shelters, and community organizations addressing food insecurity.

2.8.1 How the system works

Food donation systems involve the collection, sorting, and distribution of surplus food to support food banks, shelters, and community organizations addressing food insecurity. Feeding America (2021); outlines that these systems typically operate through partnerships with grocery stores, farms, manufacturers, and individual donors. The donated food is inspected for safety and quality, sorted, and then distributed to local food banks and agencies serving individuals and families in need across the United States.

2.8.2 **THE ADVANTAGES OF FOOD DONATION SYSTEM**

- **Reduction of Food Waste**: Food donation systems help diverts surplus food from landfills, reducing environmental impact and contributing to sustainability efforts.
- **Support for Food Insecure Individuals**: They provide essential nutrition to individuals and families facing food insecurity, helping to alleviate hunger and improve health outcomes.
- **Community Engagement:** Food donation systems foster community involvement through volunteer opportunities, partnerships with local businesses, and grassroots support.
- **Tax Benefits**: Donors often receive tax benefits for donating surplus food, incentivizing businesses and individuals to participate in food donation programs.
- **Emergency Response:** These systems can respond quickly to disasters and emergencies by providing immediate food assistance to affected communities.

2.8.3 THE DISADVANTAGES OF FOOD DONATION SYSTEM

- **Logistical Challenges:** Managing perishable food items requires efficient logistics for collection, storage, and distribution, which can be complex and costly.
- **Quality Control Issues:** Ensuring the safety and quality of donated food items is crucial but can be challenging, leading to concerns about food safety regulations and liability.
- **Stigma and Dignity**: Some recipients may feel stigmatized or have their dignity compromised when receiving donated food, impacting their willingness to access assistance.
- **Dependency Risk**: Reliance on donated food may deter efforts to address root causes of food insecurity, such as poverty and inequitable access to resources.

- **Legal and Regulatory Compliance:** Food donation systems must comply with local, state, and federal regulations regarding food handling, storage, and distribution, which can be burdensome.

In Conclusion:

Food donation systems play a crucial role in addressing hunger and reducing food waste, they also face challenges related to logistics, quality control, social stigma, dependency risks, and regulatory compliance. Balancing these factors is essential for optimizing the effectiveness and sustainability of food donation initiatives.

2.9 Technology Donation Systems:

According TechSoup (2020). Technology donation systems facilitate the donation of computers, software, and electronics to underserved communities, schools, and nonprofits

2.9.1 HOW THE SYSTEM WORKS.

Technology donation systems facilitate the donation of computers, software, electronics, and other tech-related items to underserved communities, schools, nonprofits, and individuals in need. These systems aim to bridge the digital divide by providing access to technology that may otherwise be inaccessible due to financial constraints.

The following are the processes it under goes

- **Donation Acquisition**: Donors, including corporations, businesses, and individuals, contribute new or gently used technology equipment such as computers, laptops, tablets, printers, software licenses, and peripherals.
- **Sorting and Refurbishment**: Donated items are inspected, tested, and refurbished if necessary to ensure they meet operational standards and are ready for redistribution.

- **Distribution**: Technology donation programs partner with schools, community centers, nonprofit organizations, and low-income households to distribute refurbished technology. Some programs also offer training and technical support to recipients to maximize the impact of donations.

- **Impact Monitoring**: Organizations often track the impact of donations by measuring metrics such as the number of individuals served, educational outcomes, and community empowerment through technology access.

2.9 .2 Advantages of Technology Donation Systems

- **Digital Inclusion**: Technology donation systems promote digital literacy and empower individuals with access to educational resources, job opportunities, and essential services online.

- **Environmental Benefits**: By extending the life of electronic devices through refurbishment and reuse, these systems contribute to sustainability efforts by reducing electronic waste.

- **Corporate Social Responsibility (CSR)**: Donating technology allows businesses to fulfill CSR goals, enhance their public image, and contribute positively to the community.

2.9.3 CHALLENGES TECHNOLOGY DONATION SYSTEMS

- **Digital Divide**: While technology donation systems aim to bridge the digital divide, disparities in access to reliable internet connectivity and ongoing technical support can limit the impact of donated devices.

- **Data Security**: Donors and recipients must address data security concerns associated with donated devices, ensuring that personal information is securely erased before redistribution.

- **Sustainability:** Technology donation programs need sustainable funding and partnerships to continue operating effectively over the long term, including ongoing support for maintenance and upgrades.

In Conclusion

Technology donation systems play a crucial role in promoting digital inclusion, supporting educational opportunities, and empowering underserved communities. However, they also face challenges related to logistics, digital infrastructure, data security, and long-term sustainability. Addressing these challenges requires collaboration among donors, recipients, and community stakeholders to maximize the benefits of technology access for all.

2.10 CLOTHING DONATION SYSTEMS:

According to Goodwill Industries International, (2020). Clothing donation systems facilitate the collection and redistribution of gently used clothing items to individuals and families in need, it donates to countries across the world.

2.10.1 HOW CLOTHING DONATION SYSTEM WORK.

Clothing donation systems operate through partnerships with various stakeholders, including individuals, businesses, nonprofits, and community organizations. These systems aim to address clothing insecurity, promote sustainability through reuse, and support social welfare initiatives.

However, clothing donation system under goes through the following processes;

- **Donation Collection:** Donors contribute gently used clothing items through drop-off locations, donation bins, scheduled pickups, or designated collection drives organized by charities and nonprofit organizations.
- **Sorting and Quality Control:** Donated clothing undergoes sorting to assess quality and condition. Volunteers or staff inspects items to ensure they meet standards for cleanliness and usability.
- **Distribution**: After sorting, clothing items are distributed through various channels. This includes local clothing banks, shelters, thrift stores, community centers, and direct distribution events organized by nonprofits.

- **Community Engagement**: Clothing donation systems often involve community engagement activities, such as volunteer opportunities for sorting and distributing clothes, fundraising events, and awareness campaigns to encourage ongoing donations.
- **Impact Monitoring:** Organizations monitor the impact of clothing donations by tracking metrics such as the number of individuals served, types of clothing distributed, and community feedback on the program's effectiveness.

2.10.2 ADVANTAGES CLOTHING DONATION SYSTEM

- **Immediate Assistance:** Clothing donation systems provide immediate assistance to individuals and families facing clothing insecurity, especially during emergencies and seasonal changes.
- **Environmental Benefits**: Reusing clothing items reduces waste and promotes sustainability by extending the lifecycle of textiles.
- **Community Support**: Donors and volunteers contribute to community cohesion and support social welfare initiatives through their participation in clothing donation programs.

2.10.3 CHALLENGES OF CLOTHING DONATION SYSTEM

- **Logistics:** Managing large volumes of donated clothing, including sorting, storage, and distribution, can pose logistical challenges for organizations, particularly with limited resources.
- **Quality Control:** Ensuring donated clothing meets quality standards for cleanliness and usability requires dedicated resources and attention to detail.
- **Stigma and Dignity:** Some recipients may experience stigma or discomfort when receiving donated clothing, impacting their dignity and self-esteem.

In Conclusion

Clothing donation systems play a vital role in addressing clothing insecurity, promoting sustainability, and fostering community support. While they offer significant benefits, such as immediate assistance and environmental impact reduction, these systems also face challenges related to logistics, quality control, and social perceptions. Effective management and community engagement are essential for maximizing the positive impact of clothing donation programs on individuals and communities in need

2.11 BOOK DONATION SYSTEMS:

According to Books for Africa, (2019). Book donation systems is the collection and distribution of books to promote literacy, education, and access to reading materials, these books are donated by deferent people from various individuals or country to support the vulnerable Africans mostly the children.

2. 11.1 HOW BOOK DONATION SYSTEM WORKS

Book donation systems operate through partnerships with individuals, schools, libraries, publishers, and nonprofit organizations. These systems aim to increase access to books, support educational initiatives, and foster a love for reading among diverse populations. It also under goes the following processes

Donation Collection: Books are donated by individuals, schools, libraries, publishers, and other stakeholders. Donors contribute new or gently used books through collection drives, drop-off locations, and scheduled pickups organized by book donation programs.

- **Sorting and Categorization**: Donated books undergo sorting to assess their condition, relevance, and suitability for different age groups and educational levels. Volunteers or staff categorizes books based on genre, language, and subject matter to facilitate efficient distribution.
- **Distribution Channels:** Once sorted, books are distributed through various channels:

- Schools and Libraries: Books are provided to educational institutions and public libraries to enhance their collections and promote literacy programs.
- **Community Centers:** Books are made available at community centers, youth clubs, and cultural organizations to encourage reading among community members.
- **Direct Distribution:** Some book donation systems organize events or pop-up libraries where individuals can access free books directly.
- **Promotion of Reading:** Book donation programs often include initiatives to promote reading, such as reading workshops, storytelling sessions, book clubs, and literacy campaigns. These activities aim to engage readers and foster a culture of reading within communities.
- **Monitoring and Evaluation:** Organizations monitor the impact of book donations by tracking metrics such as the number of books distributed, participation in reading programs, and feedback from recipients and stakeholders.

2.11.3 ADVANTAGES OF BOOK DONATION SYSTEM.

- **Promotion of Literacy**: Book donation systems increase access to reading materials, promoting literacy and educational outcomes for children and adults.
- **Community Engagement:** Donors, volunteers, and recipients engage in community-building activities, fostering collaboration and support for educational initiatives.
- **Cultural Enrichment:** Access to diverse books enhances cultural understanding and appreciation among readers, promoting inclusivity and diversity in reading materials.

2.11.3 CHALLENGES OF BOOK DONATION SYSTEM

- **Quality Control**: Ensuring donated books are in good condition and suitable for intended recipients requires careful inspection and sorting processes.
- **Logistical Coordination**: Managing large volumes of donated books and coordinating distribution efforts across multiple locations can be complex and resource-intensive.
- **Sustainability**: Maintaining sustainable funding, volunteer support, and partnerships is essential for the long-term viability of book donation programs.

In Conclusion

Book donation systems play a critical role in promoting literacy, supporting education, and enriching communities through access to reading materials. While they offer significant benefits, including educational enrichment and community engagement, these systems also face challenges related to logistics, quality control, and sustainability. Effective management and collaboration among stakeholders are essential for maximizing the impact of book donation programs on literacy and educational outcomes worldwide

2. 12 TOY DONATION SYSTEMS:

According to Toys for Tots Foundation (2018). Toy donation systems involve the collection and distribution of toys to children in hospitals, shelters, and low-income families during holidays and throughout the year.

2.12.1 HOW TOY DONATION SYSTEM WORKS

Toy donation systems aim to provide joy, comfort, and developmental benefits to children facing adversity or in underserved communities. These systems rely on donations from individuals, businesses, and organizations to gather new or gently used toys for distribution. Toy donation system works in the following steps;

Donation Collection: Toys are donated by individuals, businesses, schools, and community organizations. Donors contribute new toys or gently used toys in good condition through collection drives, drop-off locations, and scheduled pickups organized by toy donation programs.

Sorting and Inspection: Donated toys undergo sorting and inspection to ensure they meet safety standards and are appropriate for distribution to children. Volunteers or staff members check toys for cleanliness, functionality, and age-appropriate content.

Distribution Channels: Once sorted and inspected, toys are distributed through various channels:

- **Nonprofit Organizations**: Toys are provided to nonprofit organizations, children's hospitals, shelters, and community centers that serve children in need.
- **Holiday Programs:** Many toy donation systems organize special events during holidays, such as Christmas or birthdays, where donated toys are distributed to children to celebrate these occasions.
- **Direct Distribution:** Some toy donation programs set up toy libraries or play centers where children can access and play with donated toys directly.

Promotion of Play and Development: Toy donation programs often include initiatives to promote play, creativity, and child development, such as toy drives, play workshops, and educational activities that engage children and families.

Monitoring and Evaluation: Organizations monitor the impact of toy donations by tracking metrics such as the number of toys distributed, participation in toy-related activities, and feedback from recipients and caregivers.

2.12.2 ADVANTAGES OF TOY DONATION SYSTEM

- **Joy and Comfort**: Toy donation systems bring joy and comfort to children facing difficult circumstances, fostering emotional well-being and happiness.
- **Developmental Benefits**: Toys support children's cognitive, social, and emotional development through imaginative play, creativity, and social interaction.
- **Community Engagement**: Donors and volunteers participate in community-building activities, fostering compassion and support for children in need.

2.12.3 CHALLENGES OF TOY DONATION SYSTEM

- **Safety and Quality Control:** Ensuring donated toys are safe, clean, and age-appropriate requires rigorous inspection and adherence to safety guidelines.
- **Logistical Coordination**: Managing toy collection, sorting, and distribution logistics across multiple locations can be complex and resource-intensive.
- **Sustainability:** Maintaining ongoing support, funding, and partnerships is crucial for the sustainability and effectiveness of toy donation programs over time.

In Conclusion

Toy donation systems play a crucial role in bringing happiness, supporting development, and fostering community engagement through the provision of toys to children in need. While they offer significant benefits, including emotional support and developmental opportunities, these systems also face challenges related to safety, logistics, and sustainability. Effective management, collaboration among stakeholders, and community involvement are essential for maximizing the impact of toy donation programs on children's well-being and development.

2.13 BENEFITS OF HEALTH DONATION SYSTEM

- Increased access to healthcare for underserved populations.
- Support for medical research and innovation.
- Strengthening of healthcare infrastructure.
- Promotion of public health initiatives and disease prevention.
- Emergency response and disaster relief efforts.
- Empowerment of vulnerable groups, especially women and children.
- Contribution to global health security and economic development.

2.14 CHALLENGES OF HEALTH DONATION SYSTEM.

- **Donor Fatigue**: Over time, donors may become fatigued or disillusioned with continuous appeals for donations, impacting the sustainability of funding streams for health initiatives.
- **Transparency Issues:** Lack of transparency regarding how donated funds are utilized can erode trust among donors and hinder future fundraising efforts.
- **Logistical Constraints:** Delivering healthcare services, especially in remote or conflict-affected areas, can pose logistical challenges such as transportation, infrastructure limitations, and security concerns.
- **Sustainability:** Many health issues require long-term solutions, but reliance on short-term funding cycles can lead to gaps in service provision and hinder sustainable impact.
- **Dependency:** Overreliance on external donations can create dependency among recipient communities or healthcare systems, undermining local capacity building and ownership

In conclusion

Health donation systems are very important for helping people with health problems around the world, especially in places where there isn't enough health care. These systems include donations like blood, organs, tissues, bone marrow, and plasma. They save lives, make health better, and help with medical research. Health donation systems also encourage people to be kind and work together. They give important things to help communities stay strong and work well together. But there are challenges, like how to move things around, make sure they're safe, and keep getting help. We need new ideas, people working together, and strong rules to make health donation systems work best. These systems show how working together can make healthcare fair and save lives worldwide

2.14 Comparison of related systems

Table 1: Comparisons for the Related Systems

Systems	Strengths	Weaknesses	Technology
Donor perfect donation System	Efficient donor management Customizable reports	Costly for small nonprofits, learning curve for new users	Web-based
Technology	Access to updated technology,	Compatibility issues, outdated donations	Web-based.
Donation system	supports digital literacy digital communication	it’s too costly to maintain it faces much malwares over the network	

Clothing donation system	Provides clothing to those in need, reduces textile waste	Sorting and storage challenges seasonal demand fluctuations.	Web-based.
Book donation System	Promotes literacy, educational resource availability	Quality control of donated books, distribution logistics	Web-based.
Toy Donation System	Brings joy to children reduces waste	Safety concerns, age-appropriate donations	Web-based.
Food Donation System	Addresses immediate hunger needs, community involvement	Shelf-life of donations , logistics of perishable items	Web-based.

2.15 conclusions

This chapter mainly described the literature review of health donation systems where we gatherer information about other related systems, how they function and the enhancements needed in order to improve the current health donation system to fight fistula in Uganda.

CHAPTER THREE

Research Methodology

2.0 Introduction

The methodology focuses on the patterns of research, approaches to data collection, techniques for analysis, and tools that are used for designing and implementing the Health Donation System to Fight Fistula. The methodology aligns with the specific objectives of the proposed system.

3.1 System Study and Analysis

Fact-finding techniques are used in this project to determine the system and user requirements, as well as system inputs and outputs. This greatly determines what the system is expected to do. These techniques include:

3.2 Data Collection Techniques

3.2.1 Interview

Interviews serve as a forum for talking to people and can be structured, unstructured, or semi-structured. The researcher conducts interviews with stakeholders, including healthcare providers and patients, to identify and specify functional and non-functional requirements. The interviews are both semi-guided and unguided and contain both closed and open-ended questions. This approach helps obtain data about the operation of existing systems, their problems, strengths, information flow, and processing.

3.2.2 Observation

The researcher observes various activities related to health donation and fistula treatment. Observations include patient registration, donation processes, and storage methods. Pen and paper are used to note observations such as the level of congestion and the efficiency of manual systems in place.

3.2.3 Reviewing Existing Documents

The researcher reviews existing documents and literature to gather more information about fistula treatment and health donation systems. This includes checking relevant websites and scientific articles, which provide the necessary information.

3.2.4 Questionnaires

Questionnaires are used to gather information from users of the health donation system. Questionnaires, submitted to healthcare providers and patients, aim to gain statistical information about the challenges and efficiency of current donation processes. This feedback helps in understanding the system's requirements for efficiency and effectiveness. The questionnaires to used are.

- **The causes of fistula and its impacts,** this will help to make awareness to people at least to take care and avoid some risks which may result into the cases.
- **Treatment Protocols:** Observe the current treatment protocols followed at the center, including surgical procedures, post-operative care, and rehabilitation services provided to patients.
- **Patient Demographics,** gather information about the demographic profile of patients treated at the fistula health center. This includes age, gender, socio-economic status, and geographical distribution.
- **Types and Severity of Fistula Cases:** Understand the different types of fistula cases treated at the center (e.g., obstetric, traumatic) and their severity levels. This helps in assessing the varying needs of patients.
- **Medical Equipment and Infrastructure**: Assess the availability and condition of medical equipment used for diagnosis, surgery, and patient care. Note any deficiencies or needs for upgrading.

- **Staffing and Expertise:** Evaluate the expertise and qualifications of healthcare staff involved in fistula treatment, including surgeons, nurses, and rehabilitation specialists.
- **Patient Flow and Management:** Study how patients are referred, admitted, treated, and discharged from the center. Identify any bottlenecks or inefficiencies in patient flow.
- **Data Collection and Management:** Examine how patient data is collected, stored, and managed within the center. Assess the adequacy of information systems for tracking patient outcomes and follow-ups.
- **Community Engagement and Outreach**: Explore the center's efforts in community outreach, education, and awareness campaigns related to fistula prevention, treatment, and stigma reduction.
- **Financial and Resource Constraints**: Understand the financial challenges faced by the center in terms of funding for surgeries, medical supplies, and staff salaries.
- **Patient Support Services**: Investigate the availability of psychosocial support, counseling, and reintegration services provided to fistula patients post-treatment.

3.3 Data Analysis Methods

Researchers use data analysis application software, including Microsoft Excel, to capture and record data from observations. This includes noting the time spent by patients during registration, the level of congestion, and waiting times. Data is then represented graphically using bar graphs.

3.4 System Analysis and Design

The analysis and design of the system involve identifying the inputs, processes that transform inputs into outputs, and satisfying system constraints. Data flow diagrams and entity relationship diagrams are used to demonstrate data transfer processes and relationships among entities in the system.

3.4.1 System Analysis

System analysis involves identifying and summarizing data to extract useful information and develop conclusions. Requirements are determined based on the system study, including:

Functional Requirements

- Facilitate efficient health donation processes.
- Ensure secure and accurate data entry and storage.
- Provide real-time tracking of donations and beneficiaries.
- Generate comprehensive reports on donation activities and outcomes.

Non-Functional Requirements

- Ensure high system reliability and availability.
- Maintain data privacy and security.
- Provide user-friendly interfaces for both healthcare providers and patients.
- Ensure compatibility with various operating systems and devices.

3.4.2 System Design

i. Process Modeling

Process modeling is achieved using Data Flow Diagrams (DFDs) to show processes and external entities in the system. The end product is a detailed description of

processes involved. The information used in building the DFDs is obtained from the Data Dictionary.

ii) Data Modeling

Data modeling is achieved using Entity-Relationship Diagrams (ERDs) to show data requirements and relationships. This yields the structure of relations in the relational schema (database).

3.5 System Implementation

This stage involves the physical realization of the database and application design, using Data Definition Language (DDL) of the selected Database Management System (DBMS).

3.5.1 Implementation Tools

In the implementation stage, the following tools are used: xamp/Apache server, MySQL, PHP, JavaScript, Notepad++, Windows operating system.

3.5.1.1 Xamp

Xamp is a free server bundle that includes Apache, MySQL, and PHP. Pages are stored in the system's special folder accessible on the network via the machine's IP address.

3.5.1.2 PHP

PHP is an open-source server-side programming language extensively used for web scripts, integrated with HTML, and used in content management systems and other web applications.

3.5.1.3 MySQL

MySQL is an open-source Relational Database Management System (RDBMS) using Structured Query Language (SQL). It is noted for its speed, reliability, and flexibility, suitable for multi-user databases.

3.5.1.4 HTML

HTML, the predominant markup language for web pages, provides a means to describe the structure of text-based information in a document and includes interactive forms, embedded images, and other objects.

3.6 System Testing and Validation

3.6.1 Testing

Testing involves executing application programs to find errors and observe if they behave as expected. The process includes:

- Testing system performance, efficiency, disk space, and throughput.
- Checking compatibility with different operating systems (e.g., Windows XP, Linux, and Windows 7).
- Testing for security issues like resistance to remote attacks and authentication procedures.

3.6.2 Validation

Validation is an assessment of the operational health donation system to ensure that it meets the intended purpose and needs of system users. Validation involves checking whether the Health Donation System to Fight Fistula meets the identified user, functional, and non-functional requirements. Validation is performed by providing the system to end user representatives who test the system to verify that it meets the intended user requirements.

3.6.3 Conclusion

In summary, this chapter describes the methodologies used for different patterns of research, approaches to data collection, techniques for analysis, and tools used for designing and implementing the Health Donation System to Fight Fistula.

CHAPTER FOUR

System Study, Analysis and Design

This chapter concerns the study of the existing system, analysis of the requirements for the system, process and data modeling.

4.1 The study of the Existing System

From the data gathered about the existing health donation systems at the district level through interviews, observation, and review of any available documents, it was discovered that there is no formalized system currently in place at the health centers for managing donations. Health centers rely on manual processes or ad-hoc methods to manage donations, which are often inefficient and lack proper documentation.

Interviews and Observations: Discussions with healthcare workers, administrators, and other stakeholders revealed that the lack of a structured donation management system has led to several issues and below are some of them;

- **Resource Mismanagement**: Without a formal system, it's challenging to track donations and ensure that resources are allocated effectively to treat fistula cases.
- **Donor Engagement**: Donors have no clear or reliable way to register their contributions or receive feedback on how their donations are being used.
- **Operational Delays**: The absence of an organized system results in delays in accessing funds and resources necessary for treating patients.

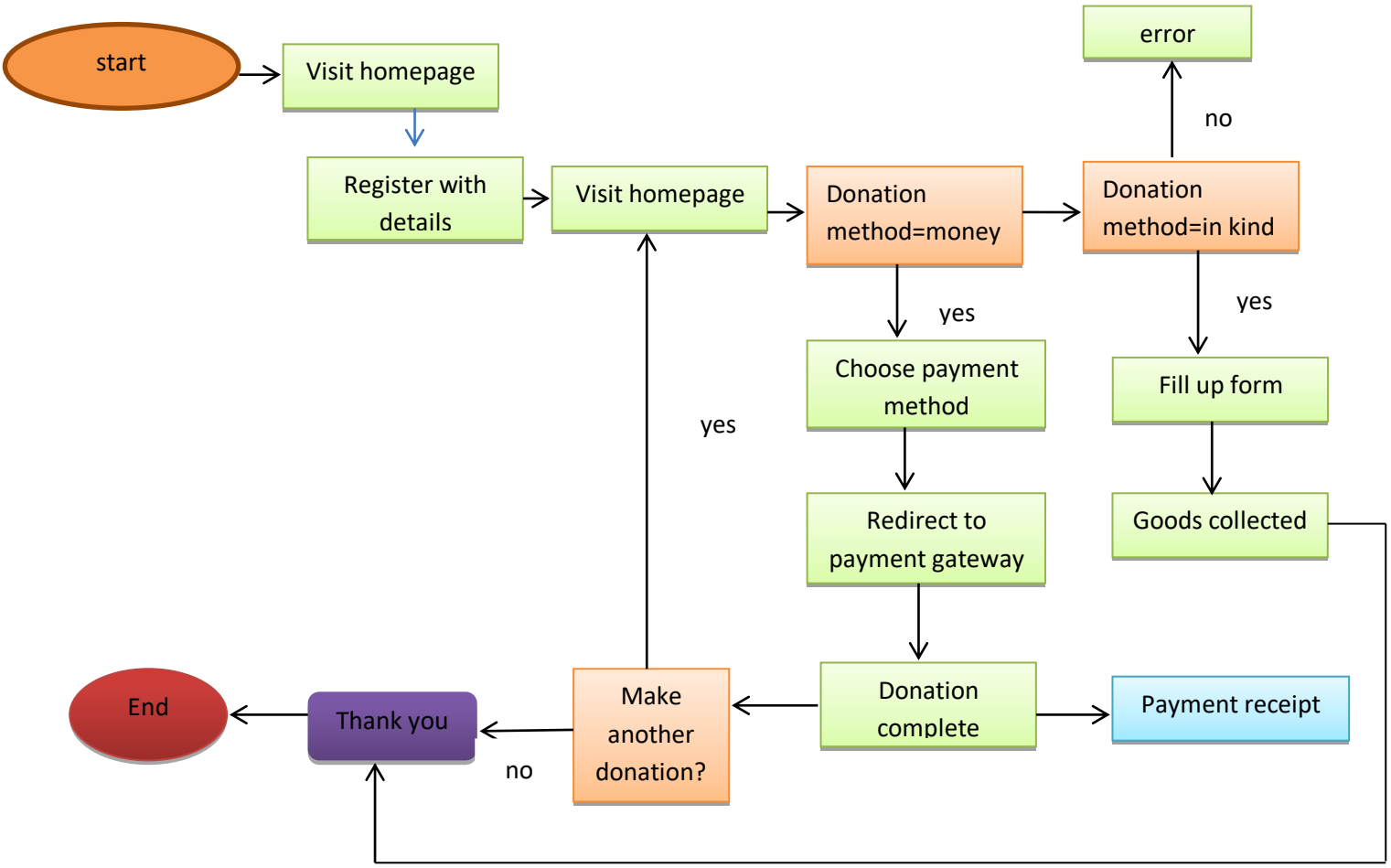
Review of Existing Documentation: Although there were minimal documents available for review, the few that existed were not standardized or consistent. This further emphasized the need for a system that could offer transparency and accountability in managing health donations.

Justification for a New System: The findings from the study of the current situation highlight the urgent need for an Online Health Donation Management System. Such a system would:

- **Streamline Donation Processes**: Allow for efficient registration and management of donations.

- **Enhance Resource Allocation**: Ensure that donations are directed to where they are most needed.
- **Improve Donor Engagement**: Provide donors with feedback on how their contributions are making an impact.

4.1.1 **workflow for health donation system,**



4.1.2 Strength of the existing System

i. The use of paper management system enables user to be very accurate writing

4.1.3 Weakness of existing System

i. There is online donation process
ii. No feedback given to the donors
iii. No data retrieve, meaning there is no database to the system.

4.2 Data analysis results

I used different data techniques in collecting data in order to come up with accurate information, I was able to come with different challenges, the institute is facing in trying to treat the patients facing with fistula in the whole district, the institute has no online donation which can track the donors in large number to support their mission.

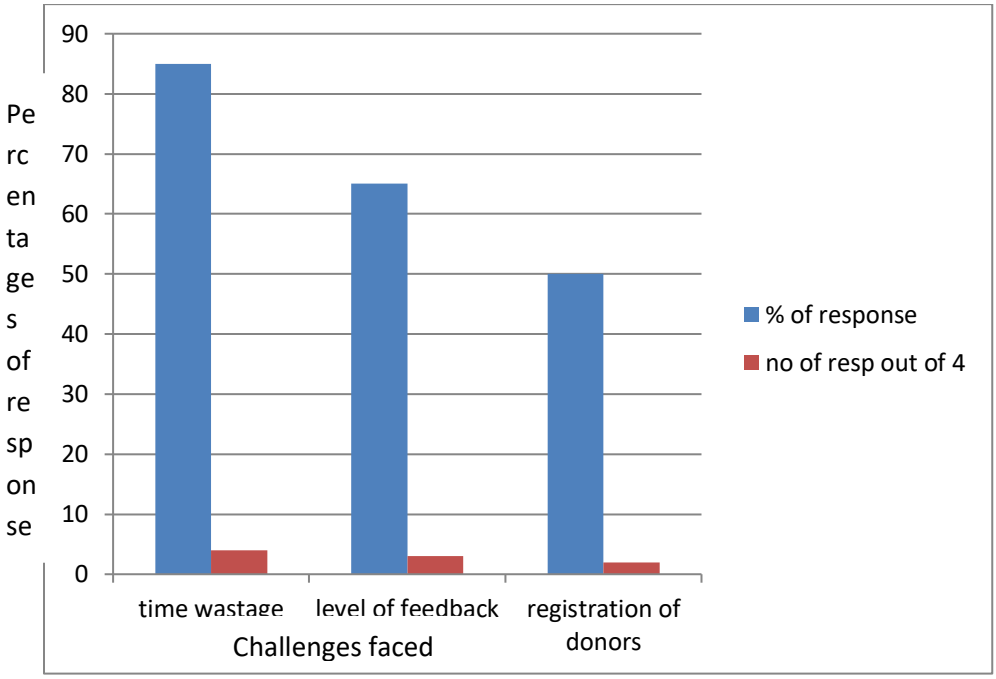
- The major challenge of the current system is that donors have no clear or reliable way to register their contributions or receive feedback on how their donations are being used, there is also time wastage where by the donor has to move to the health center to donate. The absence of an organized system results in delays in accessing funds and resources necessary for treating patients whereby it put the life of the patient at risk. The example of an analysis on the challenges associated with the current system is shown in Table 1.

4.2.1 The tabular representation of the challenges associated with the current health donation.

Table 2: Challenges associated with the current system.

Challenges	Number of respondents out of 4	Percentage of respondents
Time wastage	4	85
Level of feedback	3	65
Registration of donors	2	50

4.2.2 The Graphical Representation of the Challenges faced by the current financial management system.



4.2.1 User Requirements

These are statements, in a natural language, of what services the system is expected to provide and the constraints under which it must operate. Below are the user requirements for the system;

i. The system should allow the donors to register
ii. The system should allow the donors to select the method of donation and the type of currency thy are desired to use
iii. The system should be easy to use.
iv. The system should authenticate the users by putting the accessing with the passwords.
v. The system should allow the admin to record the information of the patients and the treatment.

4.2.2 Functional requirements

A Functional requirement is a description of activities and services that the online health donation System provides in terms of proceeding and data handling. So according to the tools used to collect data from the users, the following functional requirements are;

i. The system should generate reports on to the donors annually on how the donations were used.
ii. The system should store and retrieve information and the donors and donations.
iii. The system should update the donors about the situation of the patients.
iv. The system should enable employees to record the information of the patients.

4.2.3 Non-functional requirements

A non-functional requirement is description of other features, characteristics and constraints that define the satisfactory of the system therefore it describes how the Online donations System is to perform. Some of these requirements which were considered during the design of the system include;

i. The user should be able to access the system at any time of the day.

ii. The system should authenticate users through username and password.

iii. The system should provide fast processing to all user requests.

iv. The system should be flexible, and easy to update.

v. The system should process user's tasks as fast as possible.

vi. The online financial transfer Management System should be reliable.

4.2.4 System requirement

The system requirement includes requirements that are needed to include certain functionality in the system. It involved describing the system and the properties in that system. They include the hardware and software requirements as follows;

4.2.4.1 Hardware Requirements

Table 3: Hardware requirements

Hardware component	**System requirement**	**Justification**
Processor	Intel Core i3 or above	The Intel Core i3 provides efficient performance, supports multitasking, and is suitable for running health donation management software seamlessly
Processor speed	2.0 GHz or above	This speed ensures that the system can handle real-time data processing, which is crucial for managing donations and related transactions effectively.
Disk space	256 GB SSD or above	A 256 GB SSD offers fast read/write speeds and sufficient storage for donor information, transaction logs, and health center records.
RAM	4 GB and above	8 GB RAM ensures smooth operation of the system, espec concurrent users or large volumes of data.
Network Interface	Ethernet 10/100/1000 Mbps	High-speed network connectivity is essential for secure and efficient data transfer within the donation management system
Power Supply	500W or above, with UPS backup	Ensures stable operation and protection against power interruptions, which is critical for maintaining data integrity in the donation system.

4.2.4.2 Software Requirements

Table 4: Software requirements

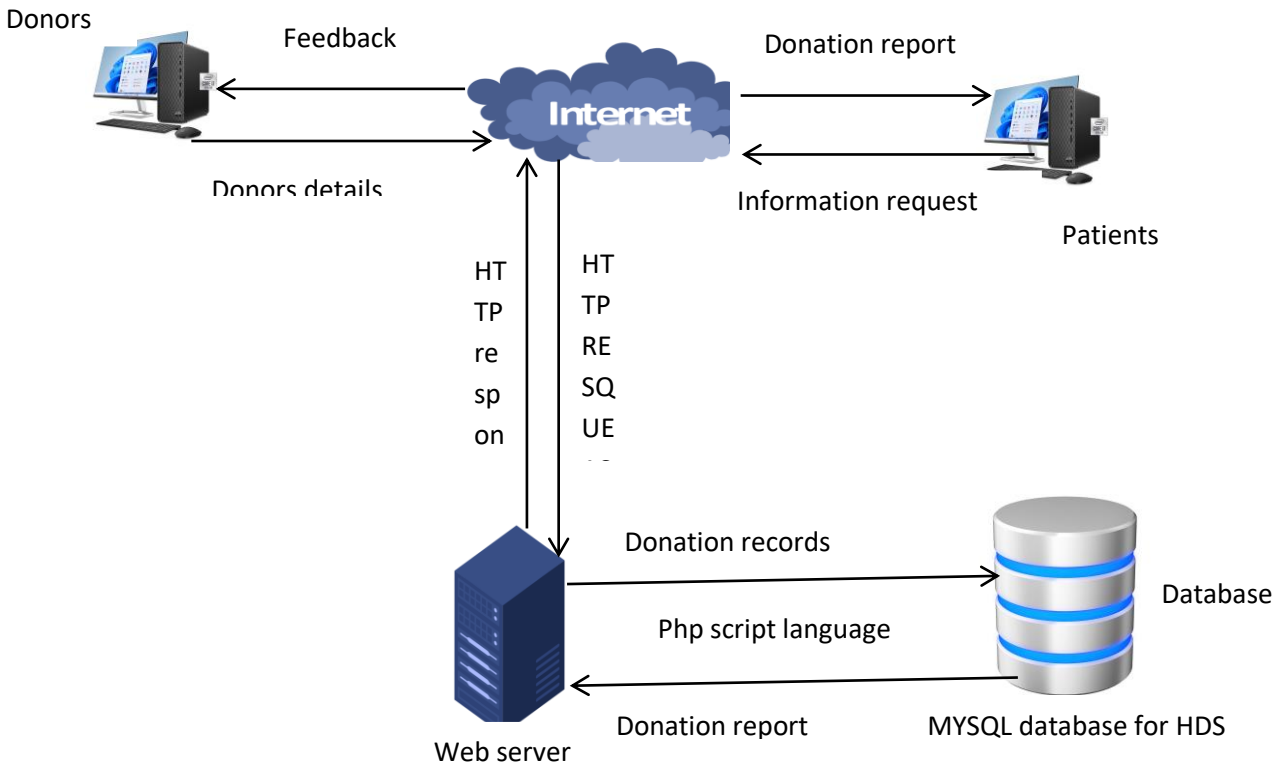
Software Component	**System Requirement**	**Justification**
Operating System for the server	Windows NT or above	Windows NT adopts a new layered device-driver architecture that provides many advantages in terms of flexibility, maintainability, and portability.
Operating system for the client PC	Windows XP	Windows XP can be used on personal computers, including home and business desktops, laptops and media centers.
Web Server	Apache Web Server Version 1.3	This is a web server software notable for playing a key role in the initial growth of the World Wide Web.
Web Browser	Opera Mobile Emulator	It is the default browser shipped with Windows XP and is also made available for Windows NT 4.0.
Database Management System	MySQL server version 3:23.48	MySQL is an open source relational database management system (RDBMS) that runs as a server providing multi-user access to a number of databases.

4.3 System Design

In the system design phase, process modeling involved use of Data Flow Diagrams (DFD), and Data modeling involved use of Entity Relationship Diagrams (ERD).

4.3.1 Architectural Design for the System

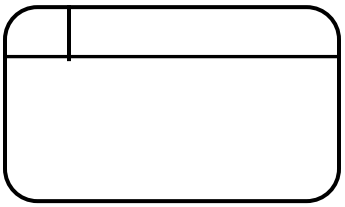
The architectural design shows how the OFTMS is comprised of the different subsystems namely Data collection, Data Processing, Data Storage and Data Display. The figure below shows an architectural diagram of the Online Financial Transfer Management System.



4.3.2 Process Modeling

These show how information or data will be moving around the health donation System from the entry to various repositories or data stores.

4.3.2.1 Key Symbols

Symbol	Name
	External entity
	Data store
	Data flow
	Process

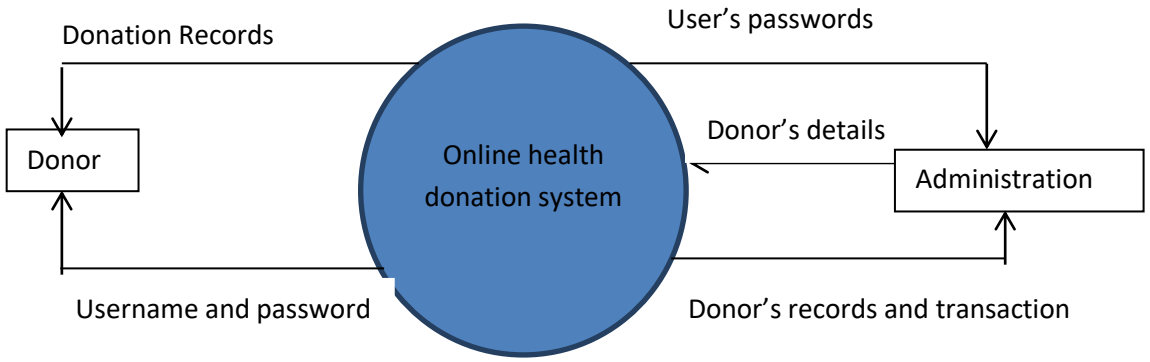
Description of the above key symbols;

i. An Entity is a real-life object with an independent existence that interacts with the system.
ii. Data store shows where data is stored after being processed. This can be a database or a file.
iii. Data flow shows the movement of data within the system and also connects processes, data stores and external entities.
iv. A Process is a series of activities or actions to accomplish a desired task.

4.3.3 Data Flow Diagrams (DFD).

It is one of the most important modeling tools used by system analysts. It is used to illustrate how data flows in a system. DFD's use a number of symbols to represent systems. There are four kinds of symbols. These are used to represent four kinds of system components. Processes, data stores, data flows and external entities.

4.3.3.1 The Context Level DFD

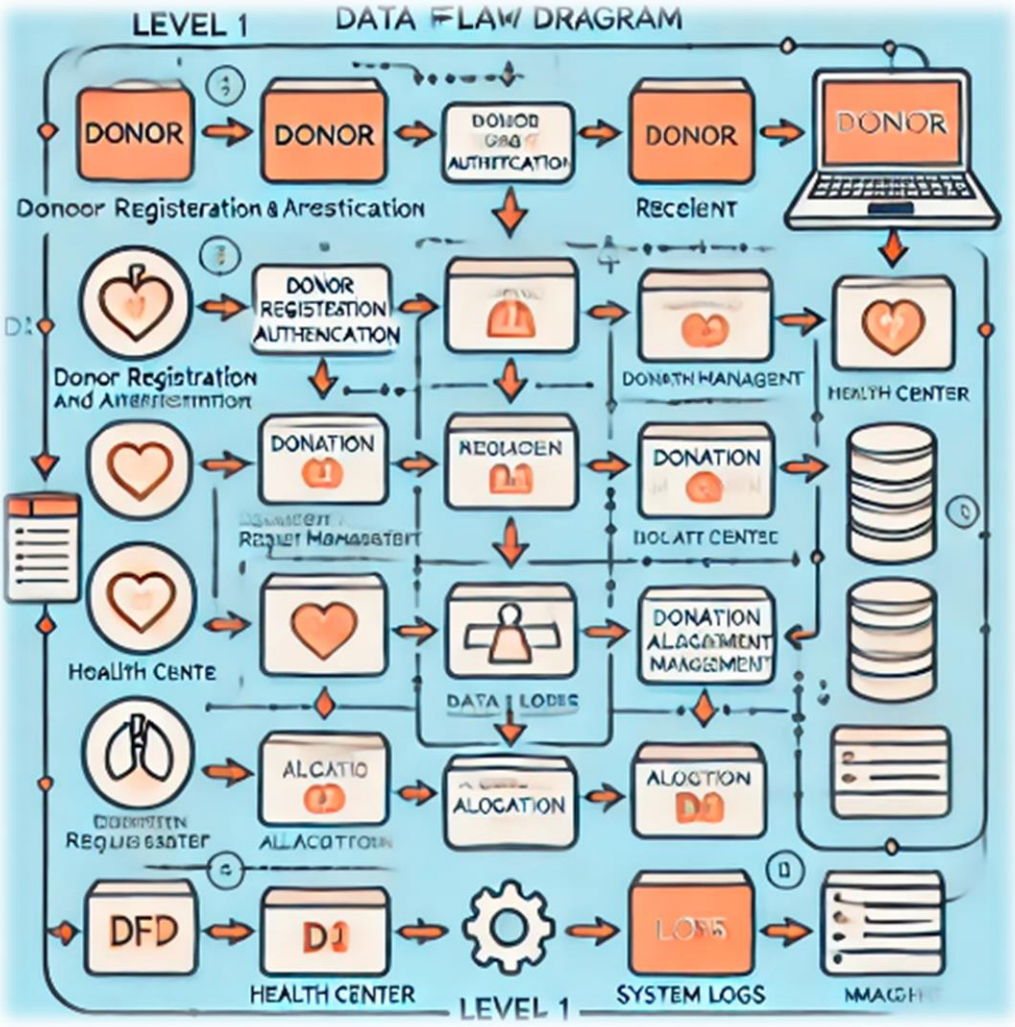


In figure 4.3: user logs into the online health donation system and when user is authenticated, can requests for donation and the feedback is then sent to the user. The administrator also logs into the system and when authenticated can query for data and receives immediate feedback.

4.3.3 Data Flow Diagrams (DFD).

It is one of the most important modeling tools used by system analysts. It is used to illustrate how data flows in a system. DFD's use a number of symbols to represent systems. There are four kinds of symbols. These are used to represent four kinds of system components. Processes, data stores, data flows and external entities.

4.3.3.2 The Level 1 DFD for the Online Financial Transfer Management System



Description for the level 1 DFD

In this subsection, there are tables describing all the design objects used in developing the system. They include Processes, Data flows, Data stores and the External entities.

Description for Processes

Table 5: Description of Processes

Process	Description
Authentication Process	Verification of username and passwords of users
User Registration Process	Capture all user details
Donor Registration Process	Captures all donor's details
Patient registration process	Captures all the patients' details
Donation processes	Donations tracked
Employees	Employees details

Description of Data Stores

Table 6: Description for Data stores

Data store	Description
User Data	Stores user's passwords and usernames
Donor Data Store	Stores donor's registration details
Donation transaction Process	Stores Transaction details or records
Patients Data	Stores all patients details or information
Employees	Stores all the employee details

Description for External Entities

Table 7: Description of External Entities

Entity	Description
Employee	Feeds new organization details into the system
Donor	Donate using the system
Administrator	Monitors and manages the system
Account	Contains health center's details
Patients	To make appointments using the system

4.3.4 Identification of Entities and their Attributes

Table 8: Identification for Entities and their Attributes

Entity	Description	Attributes
Donor	Donor, is the parson that gives support to the institute or health center	donor_id Surname other_name Telephone E-mail location sex nationality Age

Bank	Bank, is the place which own the accounts of the institute	bank_id name Address
employee	Employee is the person which feeds the system with the information	Employee's_id Surname other_name Telephone E-mail location sex nationality Age
Department	Department is a section/division of health center that is responsible to receive the donations from the donors on behalf of the patients	depertment_id name telephone
Patient	Patient, is the parson who is being supported by donor either treatment or other requirements	Surname other_name Telephone E-mail location sex nationality

		Age

4.3.5 Modeling Relationships between

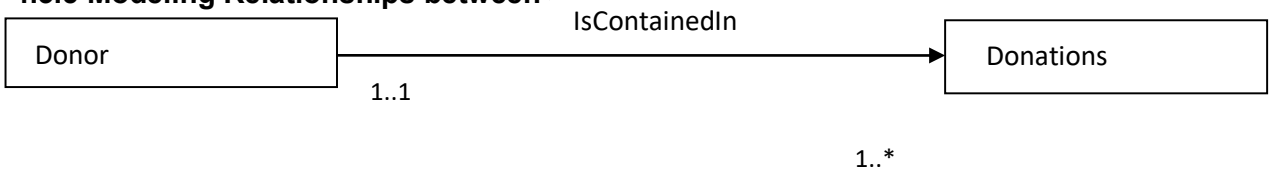


Figure 4. 1: Relationship between donor and donations

A Donor can make one or more donations, while a Donation is made by one and only one Donor.

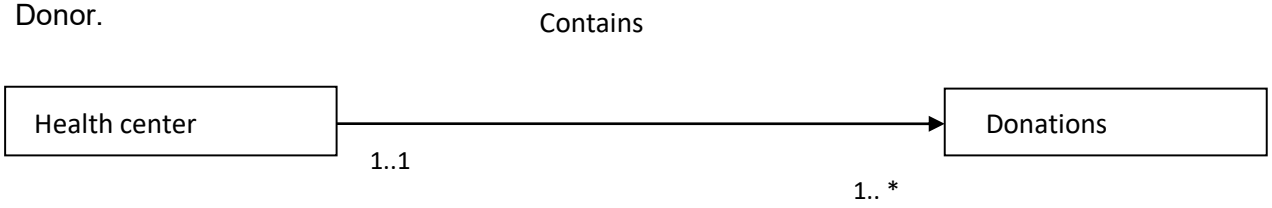


Figure 4. 2: Relationship between health center and donations

A Health Center receives one or more donations, and each donation is directed to one and only one Health Center

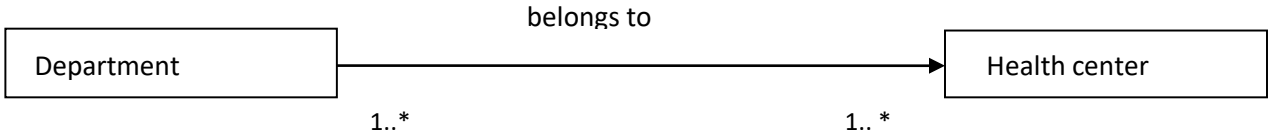


Figure 4. 3: Relationship between department and health center

A Health Center can have one or more departments, and a department belongs to one and only one Health Center

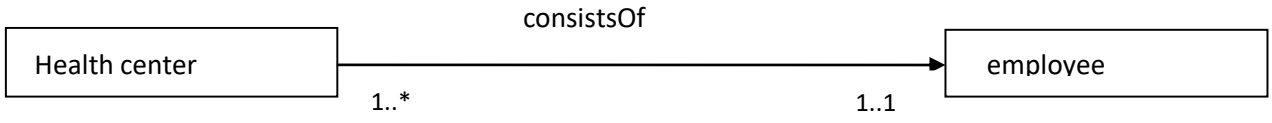
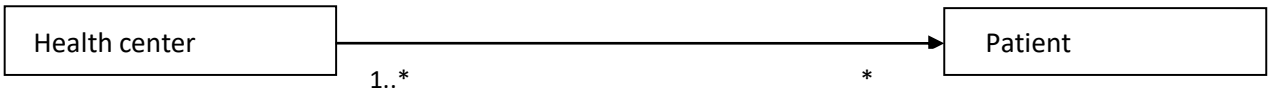


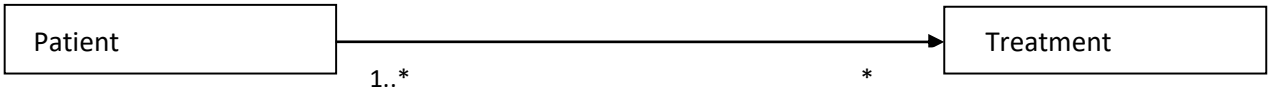
Figure 4. 4: Relationship between health center and employee

A Health Center employs one or more employees, while an Employee works at one and only one Health Center



Fingure 4.10: Relationship between the health center and the employee

A Health Center provides services to one or more patients. A Patient can receive services from one or more Health Centers.

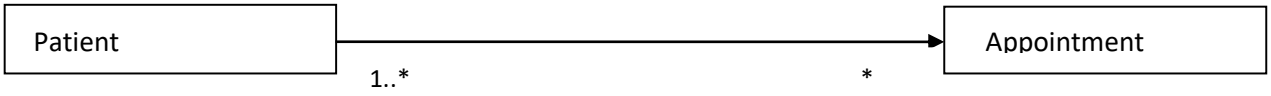


Fingure 4.10: Relationship between the patients and the treatment

A Patient can receive one or many Treatments.

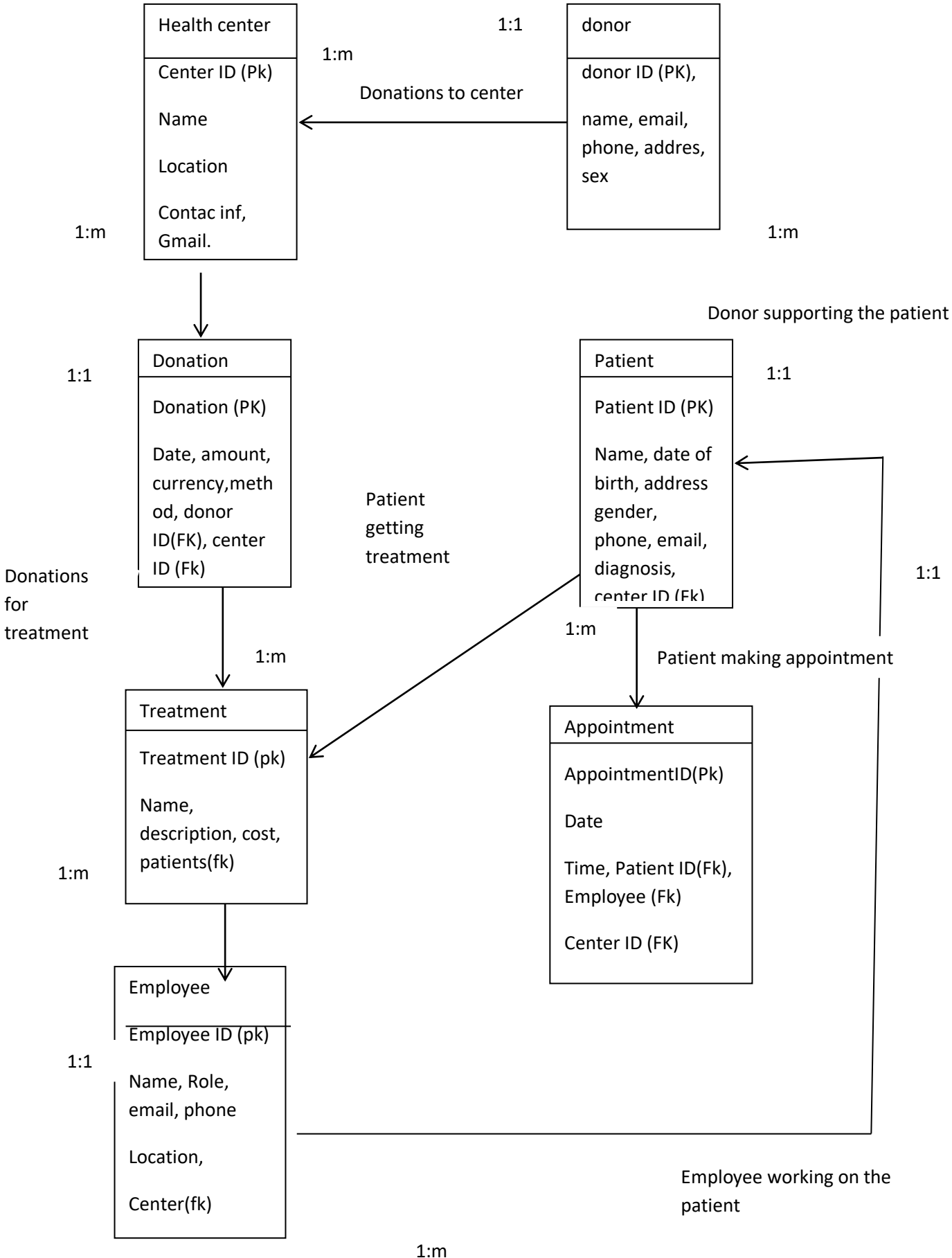
A Treatment is provided to one and only one Patient

Fingure 4.10: Relationship between the patients and the appointments



One patient can many appointments and many appointments can be made by many patients

4.3.6 The Entity Relationship Diagram



4.3.7 Mapping of ERD to Relational Schema

4.3.7.1 donors

Table 9: The Customer table

Field Name	Data Type	Constraint
donorID	int(13)	Primary Key, not null
Fname	varchar(25)	Not null
Lname	varchar(22)	Not null
Telephone	int (15)	Not null
Email	varchar(33)	Not null
Address	varchar (32)	Not null
Sex	varchar(7)	Null
Nationality	varchar(22)	Not null

4.3.7.2 health center

Table 10: The health center table

Field Name	Data Type	Constraint
Center ID	int(14)	Primary Key, not null
Name	varchar(30)	Not null
Telephone	Int(22)	Not null
Address	varchar(25)	Not null
email	varchar(22)	Not null

4.3.7.3 Donation

Table 11: The donation table

Field Name	**Data Type**	**Constraint**
Donarion ID	int(17)	Primary Key, Not null
date	int(17)	Not null
Amount	int(30)	Not null
currency	Varchar(20)	Not null
Method of donation	Varchar(20)	Not null
Donor ID	Int(16)	Foreign Key, Not null
Center ID	Int(16)	Foreign Key, Not null

4.3.7.4 patient

Table 12: The patient table

Field Name	**Data Type**	**Constraint**
Patient ID	int(22)	Primary Key, Not null
First name	varchar(20)	Not null
Last name	varchar(20)	Not null
Date of birth	Int(15)	Not null
Gender	varchar(15)	Not null
Phone number	Int(13)	Not null

Email	Int(22)	Not null
Diagnosis	varchar(23)	Not null
Center ID	int (23)	Foreign key, Not null
Address	varchar(23)	Not null

4.3.7.5 Treatment

Table 13: The treatement table

Field Name	**Data Type**	**Constraint**
Treatment ID	int(20)	Primary Key, Not null
Name	varchar(18)	Not null
Description	Varchar(70)	Not null
Cost	Int(30)	Not null
PatientID	Int(20)	Foreign Key, Not null

4.3.7.6 appointment

Table 14: The appointment table

Field Name	**Data Type**	**Constraint**
Appointment ID	int(20)	Primary Key, Not null
Date	Int(15)	Not null
Time	int(15)	Not null

Telephone	int(12)	Not null
Patient ID	Int(15)	Foreign key, Not null
Employment ID	Int(15)	Foreign Key, Not null
Center ID	Int(15)	Foreign Key, Not null

4.3.7.8 employee

Table 15: The employee table

Field Name	**Data Type**	**Constraint**
employee ID	int(20)	Primary Key, Not null
First name	varchar(20)	Not null
Last name	varchar(20)	Not null
Gender	varchar(15)	Not null
Phone number	Int(13)	Not null
Email	Int(22)	Not null
location	varchar(23)	Not null
role	Vachar(20)	Not null
Center ID	int (23)	Foreign key, Not null

4.4 Conclusion

In summary, this chapter is mainly based on the study of the existing system, analysis of the requirements for the system, processes and data modelin

CHAPTER FIVE

System Implementation, Testing and Validation

This section describes the implementation of the design models in of the system and also shows the different results generated by the system. Therefore, screen shots of the system will be displayed to show how the system displays results given a command.

5.1 System Functions

The Online health donation System provides the administrator with the rights such as managing user accounts, verifying the donations and analyzing the entire system processes by the system administrator/manager. The employees are able to receive and enter patient's details onto the system.

5.1.1 Functions provided to all users.

The Online health donation System allows for authentication of users and security by prompting for their user names and Passwords if they are to access the system services.

5.1.2 Functions provided to the donors.

The donors when authenticated are able to view the details of their donations especially the how his donations are being used, mostly to view the reports.

5.1.3 Functions provided to the employee

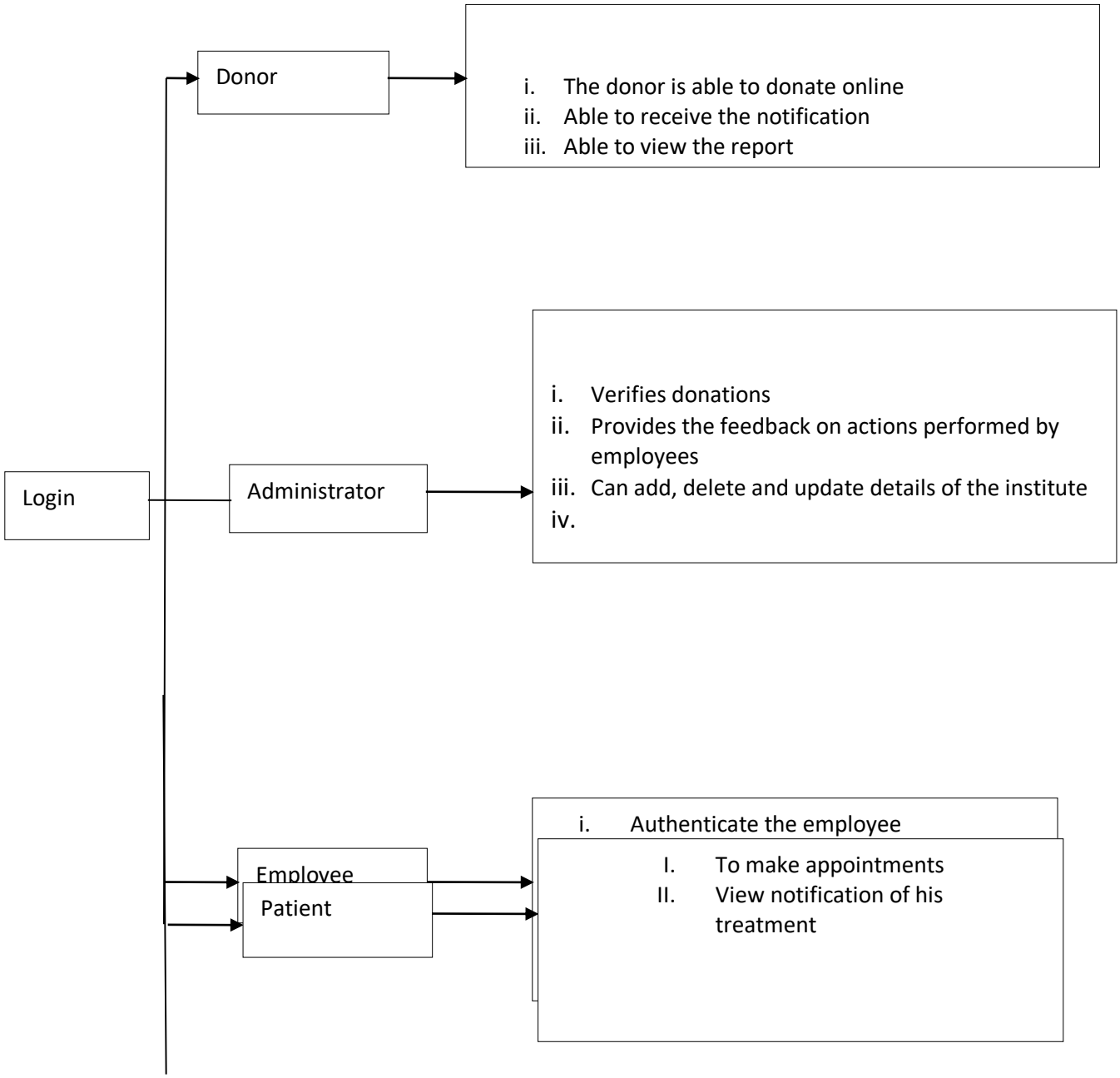
The employees are able to interact with the system after they have logged in the system, whereby thy can enter the donation details, patient's details into the system and on top of that reply messages to the donors and looking for more.

5.1.4 Functions provided to the manager/administrator

The manager is able to view the amount deposited by the donor, and customers. The manager is also in control with his employees and the patients, he can add and delete the details of the patients and the employees.

5.2 System map

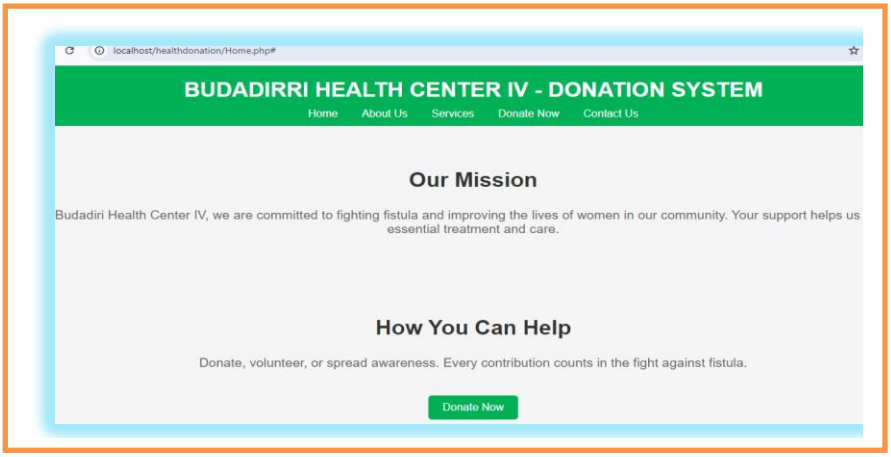
Figure 5.1: System Map showing functions provided by the system to each user



5.3 Sample Screen-shots

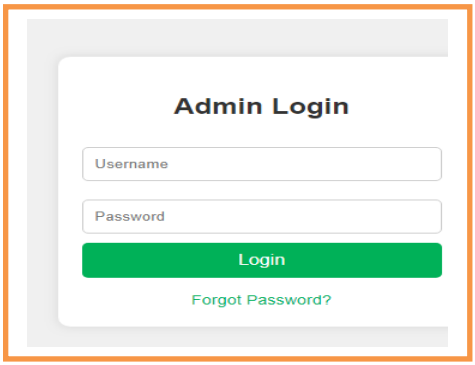
5.3.1 System home page

Figure 5.2 this image helps the donors and all users to access the system and interact with it as they with



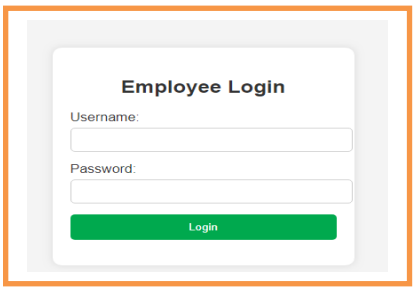
5.3.3 Administrative view page

This is where admin logins into the system and access other pages for the system



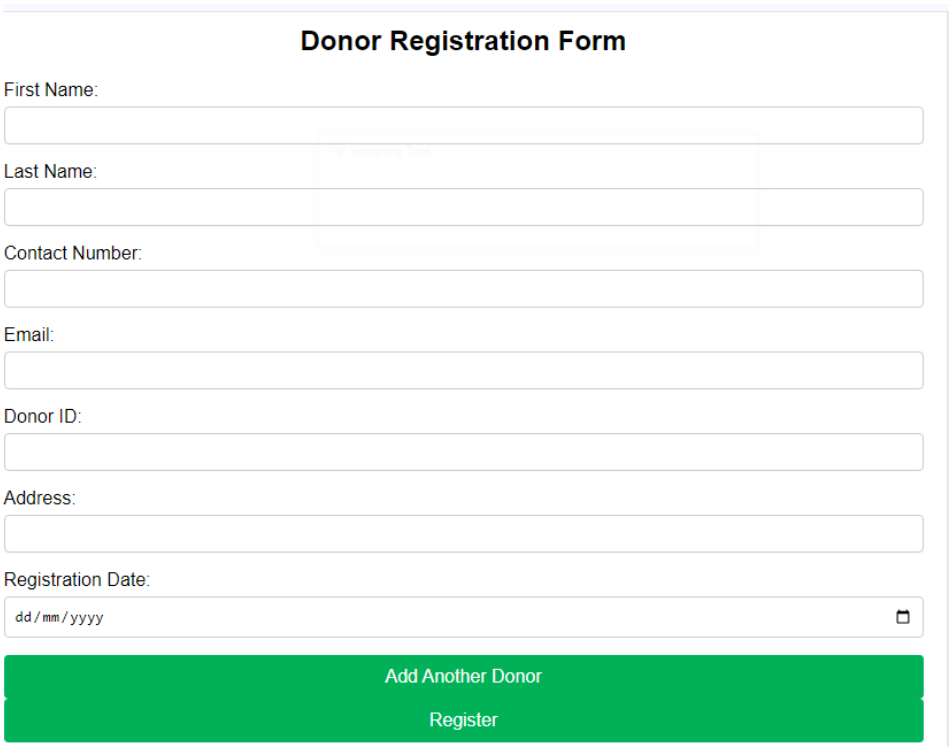
5.3.4 Employee's login page

Shows an employee's login page where he or she selects the employee option as his or her username and fills in a password to login into the system where he or she add the can talk to the donors, enter patients' information, and perform other duties.



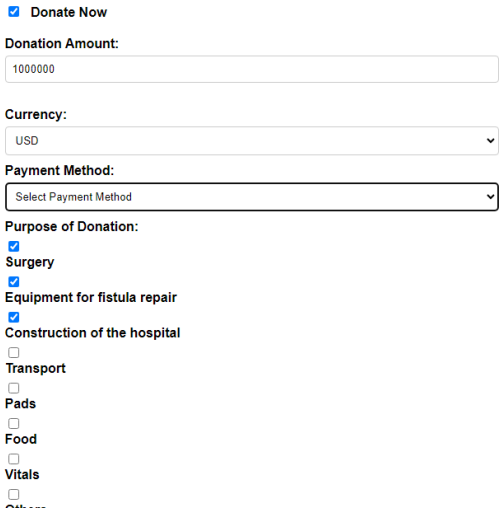
5.3.5 donor form

This is the form where the donor fills in to register with institute



5.3. donation form or donate now

This form donors help to fill in the mount they are donating, currency thy are using, method, purposes, and others as shown below,



5.3.5 videos,

This page is to health the employees, show the patients, how fistula is caused, impacts, treated and give support.

5.4 System Testing and Validation Results

We carried out system testing with an aim of finding out errors that were in the system. We also performed system Validation to ensure that the system conformed to the then defined user needs and requirements. This still in the process

5.4.1 System Testing Results

The Online health donation System is to be presented to users with the intent to find out errors and observing if it behaved as expected. The faults were corrected and the process was repeated until the system was proven to be working according to users' specification and performance requirements.

Table 16: System Validation.

the Online Financial Transfer Management System for the health donation system was tested by users to see if it met their needs. The users found the system easy to use, fast, and effective in meeting their requirements. Feedback was gathered using a questionnaire to ensure the system worked correctly, especially with data input and output. Overall, the users were satisfied with its performance.

Feature	**Number of users out of 10**	**Percentage of users**
Learnability	8	75
User friendly	9	95
Improves the transaction process	8	80
Solves the problem of delays by customers wanting to make instant transactions	9	90

5.5 Conclusion

In summary, this chapter described the system functions provided to all users like donors, employees, patients, managers or administrators and the various screen shots used in the system. Testing and validation were performed where the system was checked to see if it had any errors and whether it met the specified user requirement respectively to which the results were gathered.

CHAPTER SIX

Summary, Recommendations, and Conclusion

6.1 Summary

All the stated objectives of the health donation system to fight fistula at Budadiri Health Center IV in Sironko District have been successfully achieved. The system was designed to automate the manual donation management process currently in use. Donors are now able to make donations online, view their donation history, and update their account details. Donors can also change their contact information and request new login credentials if they have already been registered in the system.

For security reasons, each donor is given a unique username and password, which will be the only way to access the system through a secure interface. The system administrator has overall control and privileges.

6.2 Recommendations

Further research is needed to address any weaknesses in the system, especially as new health centers continue to emerge, each with unique operational requirements. Similar systems should be developed for other health centers in Uganda that are still using manual processes. For instance, an online records management system could make it easier for both donors and health centers to manage donation-related information.

6.3 Future Work

The system should be extended to:
i. Provide a platform where donors can interact through an inbuilt forum to discuss ongoing initiatives and share experiences.
ii. Generate reports on the financial impact of donations, including tracking how funds are used.
iii. Offer transparency by displaying detailed information about specific projects funded by donations.

6.4 Conclusions

The objectives of the health donation system for fighting fistula at Budadiri Health Center IV have been achieved. The major strength of this system is its ability to facilitate proper online interaction between donors and the health center. Donors can now easily make donations, view and print their donation history, and support ongoing projects.

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Appendix I: Interview Schedule Sample Questions for Health Donation System

i. What is your opinion about the current donation management systems in your organization?

ii. What is your highest academic qualification?

iii. Do you have an efficient donation management and tracking system at Budadiri Health Center IV?

iv. What are the expected roles of a donation management system in supporting fistula treatment at your health center?

v. Does your organization set targets and budgets for donation management and utilization?

vi. What are some of the challenges you face with your current donation management process?

vii.Is your current system for managing donations user-friendly?

viii. What solutions do you think could best enhance your current donation management system?

ix. Does your system support data and information backups for donation records?

x. What are your expectations from the new health donation system?

xi. How do you rate the performance of the current system in managing donations?

xii. How do you rate the reliability of the current donation management system?

xiii. How do you rate the simplicity of using the current system?

xiv. How do you rate the security of donor information and funds within the current system?

Appendix II: Questionnaires

Dear Respondent,

I am a final year BSIT student from Uganda Christian university (Mbale University college) conducting my final year research on Internet systems with a focus on the topic: Health Donation System to Fight Against Fistula; A Case Study of Budadiri Health Center IV in Sironko District. This research is purely academic, and the information you provide will be treated with the highest level of confidentiality.

Any assistance you render me in answering these questions will be highly appreciated.

Please put a tick () in the spaces provided.

i. What is your position in the organization?

ii. Top Management ……. Middle Management ……. Operational Management …….

iii. Number of years worked

10 years and above……. 5-10 years ……. 3-5 years …… 0-3 years ….

iv. What is your highest educational qualification?

Certificate …… Diploma …… Degree ……. Masters ……. PhD …….

v. Do you have a Donation Management System?

No ……. Yes ……

vi. Do you review your Donation Management System?

No ……. Yes …….

vii. Does your current system track donation allocations?

No …… Yes ……..

viii. Do you use your system to generate reports on donation impact?

No……. Yes…….

ix. What should the new system provide?

……

……

……

x. How do you rate the costs associated with your current system?

Very expensive……. Expensive ……... Cheap ……. Very cheap…….

xi. How user-friendly is your current system?

Good ……. Very good ……. Very fair ……. Fair……

Appendix III: The System Validation Questionnaire

i. Is the new donation system easy to learn?

Yes …….

No …….

ii. Does the new system improve the donation management process?

Agree ……

Disagree ……

Not sure …….

iii. How would you rate the user-friendliness of the new health donation system?

Below 40% …….

50% …….

60% ……

Above 80% ……...

iv. Does the new system capture all the required information from donors?

Yes …….

No …….

v. Does the new system reduce delays and streamline the donation process?

Yes ……

No ……

vi. Give any other comments

……

……

……

……

Appendix IV: Pseudo Code

Pseudo Code for Donation Transaction

Start;

Donor enters username and password

If username or password is invalid, return an error message

Else

Return donor account details

Donor enters the amount to be donated

If the amount is greater than the available balance, return an error message

Else Process the donation and update the system

Pseudo Code for a Donor

Start;

If donor enters username and password;

If username or password is invalid, return an error message

Else

Return the donor registration page

Donor enters personal details for the new account

If the donor is already registered, return to the donation page

Else

View donor account details.