**MZUMBE UNIVERSITY**

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**FACULTY OF SCIENCE AND TECHNOLOGY**

**DEPARTMENT OF COMPUTING SCIENCE STUDIES**

**A PROJECT REPORT**

**ON**

**CHILD VIOLENCE REPORTING SYSTEM**

**BY**

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**LIST OF ABBREVIATIONS**

CVRS – Child Violence Reporting system

FBOs – Faith Based Organizations

NGOs – Non – Governmental Organizations

SMS – Short Message Service

USSD – Unstructured Supplementary Service Data

VAC- Violence Against Children

WHO – World Health Organization.

# ABSTRACT

Child violence is any action by a perpetrator that causes intentional harm to a child. Security systems must be designed to defend children from such difficult situations. The advancement in wearable sensor technology, tracking mechanisms, wireless communication protocols allow for development of smart systems that detect and prevent child abuse. In this project**,** we have reviewed USSD application technology and aimed at using it towards child protection against violence by simply dial a code and report a violence. The CVRS is a web-based and ussd-based application that is designed to report and manage child violence that occurred in a particular society. It is designed in order to facilitate monitoring and evaluation of child protection interventions, and to facilitate effective case management for individual vulnerable children.

The CVRS should: provide access to accurate, timely and reliable aggregate level child protection data; facilitate record keeping and information management on cases of child protection in a particular area; track vulnerable children to ensure continuity of care and protection; and facilitate appropriate information sharing between stakeholders and service providers in the best interest of the child.

# **CHAPTER ONE**

# **INTRODUCTION AND PROBLEM DESCRIPTION**

## **Introduction**

This chapter allows the reader to align between the overall issues addressed in this report with the project. At the same time in this chapter explains the scope of the project in detailed. The chapter contains four sections, the first section explains about the Background of the project. Followed by the statement of the problem in the second section, then the project objectives are explained in the third section and lastly it explains about the significant and scope of the project.

## **1.1 Background of the Problem**

Child abuse has for a long time been recorded in literature, art and science in many parts of the world. Reports of infanticide, mutilation, abandonment and other forms of violence against children date back to ancient civilizations. The historical record is also filled with reports of untidy, weak and malnutrition children cast out by families to provide for themselves and of children who have been sexually abused. Violence Against Children includes all forms of violence against people under 18 years old, whether perpetrated by parents or other caregivers, peers, romantic partners, or strangers. Globally, it is estimated that up to 1 billion children aged 2–17 years, have experienced physical, sexual, or emotional violence or neglect in the past year.

As late as the 19th century, cruelty to children, perpetrated by employers and teachers, was commonplace and widespread, and corporal punishment was customary in many countries. But, in the first half of the 19th century, pathologists studying filicide (the parental killing of children) reported cases of death from recurrent physical maltreatment, starvation, and sexual abuse**. (**Editorial 1848)

In recent decades, the extended family structure characteristic throughout African history, within which all members can be supported and protected in the case of crisis, has been negatively affected by socio-economic changes. Traditional forms of rural livelihood and lifestyles are

gradsually being eroded. In the context of poverty, civil conflict, displacement, environmental disaster, and changing patterns of land ownership and use, many families face significant social and economic stress. Thus, although some of the reasons for violence against children in Africa are grounded in traditional ideas of upbringing, others are to be found in the breakdown of old systems of protection due to social shocks and developmental changes, The Law of the Child Act was approved by the Tanzanian Parliament in November 2009. The law enshrines the fundamental rights of children and lays the foundation for a child protection system that will oblige a range of bodies to prevent and respond to violence, abuse and exploitation of children

The study by the Ministry of Community Development Gender and Children (2011) on the National Response to VAC in Tanzania shows that, nearly one in three females aged 13 to 24 in Tanzania reported experiencing at least one incident of sexual violence before the age of 18. Among males in the same age group, more than one in ten reported experiencing at least one incident of sexual violence prior to the age of 18. The same study indicates that, almost three-quarters of both females and males reported experiencing physical violence by a relative, authority figures such as teachers or intimate partners prior to the age of 18. On emotional violence, one-quarter of females and nearly 3 out of every 10 males aged 13 to 24 years reported experiences of emotional violence by an adult during childhood. Between nearly one in twenty females and males aged 13 to 24 years reported that, they were threatened with abandonment by an adult prior to turning 18 years of age.

## **1.2 Problem Statement.**

In Tanzania there is children population of 50.15% according to census of 2012 who are aged from 0-17 years. This population faces the problem of violence through different means that are sexual, physical and emotional violence. Example most of the girls are being raped by strangers, lovers and sometimes by guardians ending up pregnant or with some sexual transmitted diseases. There are some of the parents set out marriage for girls between 11-17 years as to gain the dowry. Meanwhile others are sent to provide labor whereby some are being physical tortured by their employees. Other parents stop their children from schooling and ask them go the begging in streets. Others are physically tortured mostly by their guardians and other kinds of violence. Violence has

a lot of negative impacts that can results in physical injury, sexually transmitted infections, anxiety, depression, suicidal thoughts, unplanned pregnancy, induced pregnancies and even death.

With these all kinds of violence a child does not have enough power to defend him/herself. Currently there is no proper system to report out quickly by the victims or witnesses to the specific NGOs that are responsible for these kinds of violence so that can be solved. Instead, the victims have to go physically to the NGOs or report to the police. This takes long procedures and may end up not be solved due to corruption.

Hence the project is expected to solve these problems by developing the CVRS which helps the victims to report out quickly these actions of violence to the NGOs in Tanzania so as to be solved out.

## **1.3 Project Objectives and Research Questions**

### **1.3.1 General Objective**

### The general objective of this project is to develop CVRS. This is a USSD-based application that provides access to an accurate, timely, safer, and easier way for users (victims and witnesses) to report on violence against children to the NGOs responsible in Tanzania.

### **1.3.2 Specific Objectives**

### The specific objectives of the project are as follows:

1. To enable reporters (victims and witnesses) to report child abuse using a mobile phone and an USSD application.
2. To enable NGOs to preview the reports sent via the USSD application.
3. To enable the system to send back the feedback to a particular user (victim or witness) via SMS
4. To assist NGOs in obtaining data and clear statistics on VAC

### **1.3.3 Research Questions**

The set of questions below drove the work of this project

1. Does the system to report violence in Tanzania exists?
2. Which methods are used in reporting child violence?
3. Does the method you are using solve those cases?

## 

## **1.4 Significance and Scope of the Project**

### **1.4.1 Significance of the Project**

Through implementing this project of developing the CVRS which report child violence, the society will move forward realizing the following significances:

1. Cases would be reported and solved on Violence Against Children. The victims or witnesses will report to the NGOs who will be responsible for monitoring cases to the police and ensure that they grow solved.
2. Services against child violence will be improved. This will be due to quick reporting of the acts and the involvement of the NGOs who will thoroughly follow up.
3. Children’s rights will be fully exercised. The children will be helped and hence have right to education and right to life. The community will be able to prevent and respond to practices and behaviors harmful to children. The community will also be involved to report the acts on violence and hence help the NGOs fight against violence.
4. NGOs will be able to have clear statistics on the violence that have occur in the country. The reported violence will be recorded in the database that help to determine the violence acts in the country.

### **1.4.2 Project Scope**

The project is aimed at delivering the CVRS, and project documentation. The system was developed to report child violent acts by any citizen in Tanzania, except for the violent acts that do not occur in the country. Not only do they report, but they also keep records of violent acts and provide feedback to the reporter. It is developed to be used by victims, parents, caregivers, NGOs, FBOs, teachers, and the police. Primary stakeholder of the system is a child. The system was developed on Software Development Life Cycle(SDLC), and the methodology used is prototyping. The types of child violence reported include physical, emotional, and sexual abuse. The system is developed through USSD technology a communication protocol used in GSM networks for sending short messages.

**1.5 Conclusion**

This was introductory chapter. The chapter has highlighted background of the problem with a focus on the global context concerning violence against children. The chapter has also provided an overview of violence against children in Africa, in Violence against Children in Tanzania.

**CHAPTER TWO**

# **LITERATURE REVIEW**

## **2.1 Topic Review**

Various researchers have conducted the surveys, research on the Child violence in Tanzania. The following are the findings of different research and surveys conducted on child violence

Violence against children according (Organisation, 2020)to includes all forms of violence against people under 18 years old. For infants or younger children, violence mainly involves child maltreatment (physical, sexual, emotional and neglect).

According to 2009 Tanzania Violence against children Survey revealed the extent to which children are sexually assaulted, raped, physically attacked and emotionally abused. Emotional Violence is an emotional abuse, for instance, being called bad names, being made to feel unwanted, or being threatened with abandonment. Physical Violence is any physical act of violence, for instance, being slapped, being pushed, or being hit with a weapon (e.g., a knife or a gun). Sexual violence is any sexual act of violence against someone’s will, for instance, a completed non-consensual sex act (i.e., rape), abusive sexual contact and non-contact sexual abuse (e.g., threatened sexual violence, exhibitionism, verbal sexual harassment). Females and males who experienced sexual violence also tended to report exposure to physical and emotional violence. More than 80% of females and males aged 13 to 24 years’ old who experienced sexual violence before age 18, also experienced physical violence before age 18. More than 40% of females and 50% of males who experienced childhood sexual violence also experienced emotional violence prior to age 18 years. (Simba, 2011)

According to the National Plan of Action to End Violence Against Women and Children (NPA-VAWC) in Tanzania 2017/18 – 2021/22, it shows; 39% of females, since age of 15 years old, experienced at least one incident of physical violence. Almost 33% of females aged 15 to 49,

experienced physical violence in the 12 prior to the survey. (Tanzania Demographic and Health, 2010). Approximately 33% of females and 14% of males reported experiencing sexual violence

before age of 18 years old. 72% of females and 71% of males reported experiencing physical violence. Nearly 25% of both females and males reported experiencing emotional violence. 35% of females globally reported experiencing sexual intimate partner violence. (Government of the United REpublic of Tanzania, 2016)

## **Review Methodology / Technology of the Project Caliber**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S/N | Methodology | Description | | Strength | Weaknesses |
| 1 | Waterfall | Each phase must be completed before the next phase can begin and there is no overlapping in the phases. this means that any phase in the development process begins only if the previous phase is complete. In waterfall model, the phases do not overlap. | | * Easy to manage due to the rigidity of the model. Each phase has specific deliverables and a review process * Simple and easy to understand and use | * Does not allow much reflection or revision * Old and outdated * It is very difficult to go back and change something that was not well-documented or thought upon in the concept stage |
| 2 | Agile | A software development approach based on iterative development. Agile methods break tasks into smaller iterations, or parts do not directly involve long term planning. The project scope and requirements are laid down at the beginning of the development process | | * Responding to changes over following plan * Customer collaboration over contact negotiation * Testing and superior quality product | * it creates confusion and crucial decisions taken throughout various phases can be misinterpreted at any time by different team members. * Training and skill required * Scalability for large projects |
| 3 | Rapid Application development(RAD) | A development model prioritizes rapid prototyping and quick feedback over along drawn out development and the testing cycles | | * Requirements can be changed at any time * Reviews are quick * More productivity with fewer people | * Suitable on for small with small development time * More complex to manage compared to other models * Needs highly skilled developers. |
| 4 | Extreme programming(XP) |  | | * Stable software through continuous testing * Error avoidance through continuous testing * Close contact with the customer | * Relatively high cost * Requires version management * Customer must participate in the process |
| 5 | Prototyping |  |  | |  |

* + 1. **Agile methodology**

A software development approach based on iterative development. Agile methods break tasks into smaller iterations, or parts do not directly involve long term planning. The project scope and requirements are laid down at the beginning of the development process. Plans regarding the number of iterations, the duration and the scope of each iteration are clearly defined in advance. Each iteration is considered as a short time in the Agile process model, which typically lasts from one to four weeks. The division of the entire project into smaller parts helps to minimize the project risk and to reduce the overall project delivery time requirements. Each iteration involves a team working through a full software development life cycle including planning, requirements analysis, design, coding, and testing before a working product is demonstrated to the client. The phases of Agile Model are as follows: requirements gathering, design the requirements, construction/ iteration, testing/ quality assurance, deployment, and feedback.

## The con of the agile model is that it creates confusion and crucial decisions taken throughout various phases can be misinterpreted at any time by different team members.

Due to the ratio of the work in respect to time, the methodology used for CVRS was the Prototyping methodology. **Prototyping** is a software development model in which prototype is built, tested, and reworked until an acceptable prototype is achieved. It comprises of requirement gathering and analysis, quick design, build a prototype, initial user evaluation, refining prototype, implementing product and maintain. (Gomaa, 2011)The prototype was used in this system because the system is more prone to encounter requirements changing to refine real requirements. Users are actively involved in development. Therefore, errors can be detected in the initial stage of the software development process. Missing functionality can be identified, which helps to reduce the risk of failure as Prototyping is also considered as a risk reduction activity. prototype helps to gain a better understanding of the customer’s needs. it also encourages innovations and flexible designing.

**Phases involved in the prototype**.

1. Requirements gathering and analysis.

In this phase, the requirements of the system are defined in details. The requirements of the CVRS are defined and categorized into three parts the functional, non- functional and the system requirements. During the process, the users (community) of CVRS were interviewed to know what is their expectation from the system that is expected to be designed.

1. Quick designing phase.

This phase gives a brief idea of the system to the user. Here a simple design of the system is expected to be created.

1. Building a prototype.

A prototype is a small working model of the required system. It is constructed basing on the requirements gathered from the users and based on the quick design of **CVRS.** A

prototype is expected to be taken to the users for comments and suggestions and the advance more on the system.

1. Initial user evaluation.

In this stage, the proposed system is presented to the users for an initial evaluation. It helps to find out the strength and weakness of the working model.

1. Refining prototype.

This phase will ensure that all the requirements specified by the user are met. When the user is satisfied with the developed prototype, a final system is developed based on the approved final prototype.

1. Implementing product and maintain.

The final system is developed based on the final prototype to ensure the users satisfactions are met.

## **Domain Review**

It explains about the similar systems that exists in the firm and compare it with the CVRS project as to sort out the weaknesses left out and to know the gaps that are available in the market which is our opportunity to bring satisfaction to the users and good functionalities. The system are as follows:

1. **Child Welfare Information Gateway**

It a web-based system that connects child welfare information and related professionals to comprehensive information and resources.  Information will be made available to law enforcement to investigate. Ithelps with reporting child abuse and neglect or to speak with a counselor. Helps protect children, adoption and related professionals as well as the public to information and strengthen families. It promotes the safety, permanency and well-being of the child and families. Also the one can call using 1.800.422.422.4453, the calls are confidential and available for 24 hours. After you making a report, it will be sent to Child Protective Services (CPS). When CPS

receives a report, the CPS worker reviews the information and determines if an investigation is needed. The CPS worker may talk with the family, the child, or others to help determine what is making the child unsafe. The CPS worker can help parents or other caregivers get services, education, or other assistance. (Gateway, 2018). This provides the importance of quick reporting using the calls.[[1]](#footnote-1)

**The Weakness of this system**

The system is not equipped to accept reports of suspected child abuse or neglect. Also, it is the web based system, that can be accessed via smartphones and personal computers as to report violence. To needs to use of voice that cannot safe for the child when reporting to the police.

1. **Real-time Violence Detection.**

Detection of violence event in surveillance systems is playing a significant role in law enforcement and city safety. This system provides highest accuracy and the fastest speed to detect all forms of violence. It takes the input of the CCTV video feeds and after drawing inference, recognizes if violent movement is going on. To address the butterfly effects impact in our setting, it was made a unique model and a theorized system to handle the issue utilizing deep learning. The model takes the input of the CCTV video feeds and after drawing inference, recognizes if a violent movement is going on This system helps to capture the actor violence in the crowed place, one could not recognize without the help of cameras. It is objected to make a pseudocode real time violence

detection which takes a video. May it be with audio or without and somehow alerts when violent activities are detected with highest order of accuracy when model is generalized. (Patel, 2021)

**The weakness of this system**

It is very expensive to implement in the whole country. Also, it is very difficult to put cameras in the village areas. This kind of system can work in areas that are crowded or populate, meaning it is not effective to work in areas with scattered population. Therefore, the it does not capture violence that occur in scattered areas. Also it time consuming.

1. **Child Protection Information Management System.**

The CPIMS is a web-based case management tool and database designed to capture, store, process and manage child protection services data in order to facilitate monitoring and evaluation of child protection interventions, and to facilitate effective case management for individual vulnerable children. (Force, 2019). The CPIMS should: provide access to accurate, timely and reliable aggregate level child protection data; facilitate record keeping and information management on individual cases of child protection; track vulnerable children to ensure continuity of care and protection; and facilitate appropriate information sharing between stakeholders and service providers in the best interest of the child. Data Protection Impact Assessment (DPIA) and the Inter-Agency Guidelines for Case Management and Child Protection. The purpose and function of the CPIMS is to: Support case workers to run a more efficient and effective case management service for child protection. Supports family tracing efforts (matching of cases to tracing requests). Support data collection online and offline. (Tjan, 2018)

**Weaknesses of the CPIMS**.

It only works in devices that have access to mobile application. It is also unable to automatically detect whether cases are already receiving case management.

1. **Rainbow.**

A chatbot to support victims of domestic violence. This chatbot is able to deliver tailored conservation to children facing domestic violence abuse. The survivors and those at risk can access the rainbow chatbot through Facebook Messenger to have a conversation with Bo.

Through a conservational exchange online, Bo is a friendly bot and empathetic boot that provides training on the signs of abuse and resources available to those in need. Rainbow also provides an alternative intervention to individuals who don't want to access these support systems but still need help, improving the overall effectiveness of service delivery for domestic abuse. rAInbow’s impact to date are: developing specialized content, including free legal advice and information for survivors who experience additional barriers. Translate the data from rAInbow's conversations to inform policy and support positive change. rAInbow has the ability to gather evidence that has never before been recorded or known. This data can assist policy makers, law enforcement agencies, and civil society to deliver services that are more user-oriented. Develop partnerships

with frontline services and resources that are able to support child that are interested in leaving an abusive situation. Training of the natural language processing model, based on real time data from users, to better address their needs as they navigate the content. This allows Bo, the chatbot, to be more friendly and personable.

**The weakness of the Rainbow.**

The system is biased towards people with no social networks (Facebook). It does not solve the violence that occurs in other social media. It needs knowledge to interact with the bot. It is time-consuming because it requires collecting data from Facebook.

1. **Kentucky Child.**

Service Website is provided for the Custodial Parent (CP) and the Non-Custodial Parent (NCP) to access information pertaining to their child support cases. Based services website for website for reporting concerns of child / adult abuse and neglect issues the system also allows to make calls during non- business hours and holidays. This system it also reports adult violence. (kentucky, 2010)

**The weakness of the system.**

The site is only available Monday – Friday from 8:00am- 4:30 pm eastern time. For the non-working hours and holidays one cannot report the violence. More human power is required to receive therefore; some calls may be ignored.

**Summary table for the domain review.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/N** | **SYSTEM** | **DESCRIPTION** | **STRENGTH** | **WEAKNESSES** |
| 1 | Child Welfare Information Gateway | It a web-based system that connects child welfare information and related professionals to comprehensive information and resources. | -Explores how abuse and neglect affect children, adolescents, adult survivors, and society.  - It helps with reporting child abuse and neglect or to speak with a counselor | -The system is not equipped to accept reports of suspected child abuse or neglect.  it is the web based system, that can be accessed via smartphones and personal computers as to report violence.  -It needs to use of voice that cannot safe for the child when reporting to the police. |
| 2 | Real-time Violence Detection. | Detection of violence event in surveillance systems is playing a significant role in law enforcement and city safety. This system provides highest accuracy and the fastest speed to detect all forms of violence. It takes the input of the CCTV video feeds and after drawing inference, recognizes if violent movement is going on. | -provides highest accuracy and the fastest speed to detect all forms of violence. | - Expensive to implement in the whole country.  - It is very difficult to implement.  - it is not effective to work in areas with scattered population. |
| 3 | Child Protection Information Management System. | -It is the broader open-source and browser-based Primero (Protection-related information management for emergency response operations) software platform. The CPIMS is the module that supports child protection case management (CM) programs. | -facilitates monitoring and evaluation of child protection interventions, and to facilitate effective case management for individual vulnerable children. | -It only works in devices that have access to mobile application.  –It is also unable to automatically detect whether cases are already receiving case management |
| 4 | Rainbow | A chatbot to support victims of domestic violence. It is able to deliver tailored conservation to children facing domestic violence abuse. The survivors and those at risk can access the rainbow chatbot through Facebook Messenger to have a conversation with Bo. | -developing specialized content.  - Training of the natural language processing model, based on real time data from users | -The system is biased towards people with no social networks (Facebook).  -It does not solve the violence that occurs in other social media.  - It needs knowledge to interact with the bot.  -Time-consuming. |
| 5 | Kentucky child | Based services website for website for reporting concerns of child / adult abuse and neglect issues the system also allows to make calls during non- business hours and holidays. This system it also reports adult violence. |  | The site is only available Monday – Friday from 8:00am- 4:30 pm eastern time. For the non-working hours and holidays one cannot report the violence. More human power is required to receive therefore; some calls may be ignored. |

## **2.4 Problem Conclusion**

All the above systems show that there is need forthe child violence reporting systems for the society. This helps to control and prevent the occurrence of the humiliating actions to the children. The weakness of the existing systems mentioned above sorts out the development of the **CVRS** using the USSD and SMS-notification system. This will enable the community to report violence regardless of the device they have, time of reporting and location of the victim. The **CVRS** does not need internet to report violence hence becoming cheap and more convincing for the users. The system will enable the NGOs get informed and work with the police to solve the cases and provide a comfortable environment for the child.

# 

# **CHAPTER THREE**

# **REQUIREMENT ELICITATION AND SYSTEM ANALYSIS**

## **3.1 Introduction to Requirement Elicitation**

The requirements describe what the system should do and what services are delivered. These requirements reflect the needs for the users of a system to report violence against children in a society. Requirement elicitation is the activity of collecting requirements of the system from stakeholders using several requirements gathering methods such as observation, interview and desk method research. The process of requirement elicitation is in three stages that is requirement discover, requirement classification, prioritization and requirement specification. (sommerville, 2009)

### **3.1.1 Requirements Gathering Methods**

For the fully functionality of the system, data was gathered through observation and interview method. The data obtained was analyzed using thematic and content data analysis to obtain the functional and non-functional requirements needed for **CVRS** development.

1. Observation method

A well organized and systematic, observation was conducted to extract relevant and meaningful information from the heap of data. The observation conducted showed that the violence against children does exist and it growing at a higher rate. The different examples of violence were observed like physical torture, child labor, child sexual abuse, denial to the right of basic needs. Also it was observed that there is a manual reporting system of child violence in Tanzania. This does not help out in solving the cases and ending up violence in the country.

1. Interview method

An interview was conducted to confirm the observations results. It was unstructured to children, teachers, police officers and the NGOs. About 75% of the interviewee’s answers revealed that they are child violence existing in the society. Also it showed that there is a

need for a proper and safer way of reporting the issues. Hence, the results obtained revealed the need for a proper, safe, easy and quick way of reporting any violence against children.

As well as to help NGOs to keep record about the issue, help to reduce the violence against children. Therefore, this was the motivation towards developing **CVRS**.

1. Desk Research Method

It refers to reviewing verified information about a particular subject using different electronic sources and references. In desk research, three books/review works were considered (as shown in the references) including: Violence Against Children in Tanzania: Findings from a National Survey 2009 National Plan of Action to End Violence Against Women and Children in Tanzania 2017/18 - 2021/22. A Study of the Drivers of Violence Against Children and Positive Change in Tanzania and Zanzibar.

Hence, from the results obtained, it was observed that there is a problem in manual reporting of child violence cases. Therefore, this was the motivation towards developing **CVRS**.

## **3.2 Elicitation and Classification of Requirements**

The requirements for the system are classified into functional, non-functional requirements and system requirements. The functional requirements explain the services of the system or what the system intend to do while the non-functional requirements show the operations of the system. System requirements explain what is required for the system to function (operate).

## **3.3 Specification of Functionalities and Service of the System**

### **3.3.1 Functional Requirements**

These deal with the behaviour of the system basing on how tasks will be captured and produce beneficial output that is desired by the stakeholders. The may be expressed as services, tasks, and functions of the system required to ensure it performs all tasks as it designed to do. The functional requirements are useful study in development of the system that make easy to distinguish the system from the others.

The functionalities of the CVRS

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Ref. No** | | | | | | | **Function Description** | **Category** | | |
| F1 | | | | | | | Management of Users | | | |
|  | | | | F1.1 | | | The system shall allow reporters to provide the information about child violence via USSD application. | | | Evident |
|  | | | | F1.2 | | | The system must allow NGOs to review and print reports sent by reporters via USSD. | | | Evident |
|  | | | | F1.3 | | | The NGOs must send back feedback to the particular reporter by SMS notification. | | | Evident |
|  | | | | F1.4 | | | The NGOs should be authenticated and authorized to interact with the system. | | | Evident |
|  | | | F1.5 | | | | The system must store the reported information on child violence for further use. | | | Hidden |
| F2 | | | | | | | Management of Dialog | | | |
|  | | F2.1 | | | | The system must show the reporters on the USSD application a welcome message | | | Evident | |
| F3 | | | | | | Management of the System | | | | |
|  | F3.1 | | | | The system must be managed by the administrator. | | | | | Hidden |

### 

### 3.3.2 Non-Functional Requirements

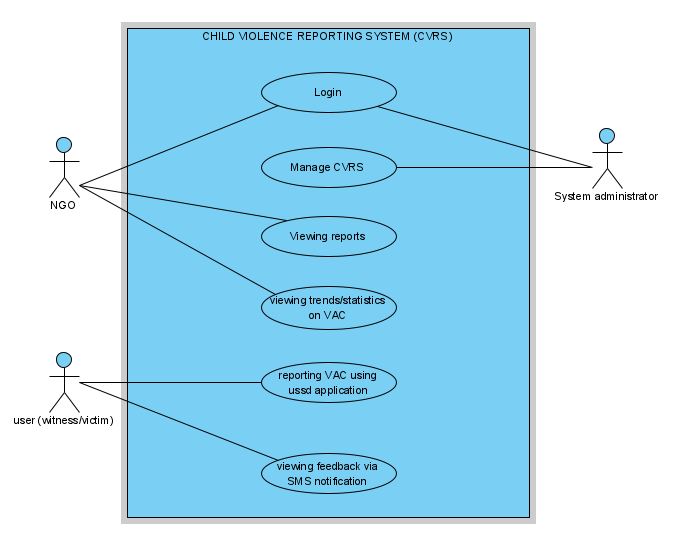
These are constraints on the services or functions offered by the system such as constraints on the development process, standards, reliability, response time and storage requirements non-functional requirements of this system (CVRS) are,

|  |  |
| --- | --- |
| **Attributes** | **Constraints** |
| Specification | The system meets the all functionalities and services of the system. |
| Reliability | CVRS is more reliable system like the existing one since it covers all groups of users. |
| Capacity | The system uses RDMS which allows large capacity of data to be stored. |
| Usability | A system provides a friendly and interactive interface which enable eay access of the application. |
| Maintainability and manageability | This is easily performed through the use of central system managed by the administrator of the system |
| Software and hardware quality | The constraints are met and thus provides easy access to the reporting of the child violence |
| Security | The system shall allow the data privacy policy by the user. |

### 3.3.3 System Requirements

This includes all the prerequisites that need to be installed or should be available for optimal performance of the system. System requirements are more detailed descriptions of the software system’s functions, services, and operational constraints (Ganney, 2013). Software requirements for the system includes:

|  |  |
| --- | --- |
| **Requirement** | **Details** |
| Computer | RAM 4GB (minimum)  HDD 320 GB (minimum)  Processor core i3 (minimum) |
| Application server | Apache (XAMPP) |
| Database | MySQL |
| Web-browser | Google chrome, Safari, Opera-mini, Mozilla Firefox, Internet Explorer |
| Languages | Frontend: HTML, CSS, BOOSTRAP, JAVASCRIPT  Backend: PHP. |
| IDE | Visual studio code |



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