Software Requirements Specification

For

Newborn Baby Health Tracking Web based System for Midwives

Version 3.0

Prepared by

J.A.D.Nirmani 21CIS0107

W.M.M.Wijekoon 21CIS0114

B.L.B.Avishka 21CIS0116

Team NeoTrack

29th March,2024

Table of Contents

1. Introduction

This document outlines the Software Requirement Specification (SRS) for a web-based Newborn Baby Health Tracking System (NBHTS) designed specifically for midwives. The NBHTS aims to streamline the process of recording and monitoring the health and development of newborn babies under their care. It provides a secure and centralized platform for data collection, analysis, and communication, ultimately improving the quality of care provided to newborns and enhancing communication with parents.

1.1 Purpose

The Newborn Baby Health Tracking System (NBHTS) is designed to revolutionize how midwives care for newborns. By offering a centralized web-based platform, the NBHTS aims to achieve several key objectives. It enhances efficiency and accuracy by electronically capturing baby health data. This eliminates the need for time-consuming paperwork and reduces errors associated with manual recording. And also, the system empowers midwives with real-time access to comprehensive health information, facilitating data-driven decision-making regarding newborn care. The NBHTS enables early identification of potential health concerns by allowing midwives to effectively track key health indicators. This facilitates timely intervention for any issues that may arise. Furthermore, the system streamlines communication by providing secure messaging tools. This fosters smooth communication between midwives, parents, and potentially pediatricians, ensuring everyone involved stays informed. Finally, the NBHTS offers centralized data storage, securely keeping all baby health information in one easily accessible location for authorized users. In essence, the NBHTS is a comprehensive solution designed to improve the quality of care provided to newborns while streamlining workflows for midwives.

1.2 Intended Audience

Midwives: The primary users of your system would be midwives who work directly with newborn babies and their mothers. They will use the system to store essential data about the newborns they assist with, including medical information, birth details, and follow-up appointments.

Medical Professionals: Other medical professionals involved in the care of newborns and mothers, such as obstetricians, pediatricians, and nurses, may also use the system to access relevant information about their patients.

Administrative Staff: Administrative staff working in healthcare facilities where midwives operate may use the system to manage appointments, billing, and other administrative tasks related to newborn care.

Parents: While not the primary audience, parents of newborn babies may have limited access to the system to view information about their child's birth and medical history, with appropriate permissions and security measures in place.

Healthcare Researchers: Researchers in the field of maternal and child health may find the data stored in your system valuable for conducting studies and analyzing trends related to newborn care and outcomes.

Government Agencies: Government agencies responsible for healthcare regulation and policy-making may use the data collected in your system to monitor population health trends, assess the effectiveness of healthcare interventions, and inform public health policies related to maternal and child health.

1.3   Project Scope

The project scope for this web system will be focused on creating a secure and user-friendly platform specifically designed for midwives to manage the health data of newborns in their care. The system will capture essential information through dedicated modules for vitals & measurements, feeding & diaper logs, developmental milestones, and immunization records. It will prioritize functionalities that enhance efficiency, such as data entry forms and reports. The initial scope will target core functionalities to ensure a solid foundation. Integrations with existing healthcare systems or functionalities for parental access can be considered for future development phases based on project evaluation and stakeholder feedback.

1.4   References

K.M.D.G. Podimanike - Public Health Midwife (Matale Municipal Council) - 0779845320

https://www.health.gov.lk

https://slmc.gov.lk/en/practitioners/midwives

https://www.facebook.com/Midwifelanka.lk

http://cmcc.lk/midwife-registration/

2. Overall Description

This Software Requirements Specification (SRS) V2 details the functionalities, user roles, and data management for our Newborn Baby Health Tracking System, a secure web application designed specifically for midwives. This document incorporates valuable feedback to enhance the user experience and improve communication across all stakeholders.

2.1 Product Perspectives

2.1.1 Midwives : Streamline data collection, gain actionable insights through growth charts, and facilitate secure communication with mothers and MOH officers.

2.1.1.1 Functionalities of midwives

1. Track baby vitals, feeding, sleep, diaper changes, milestones.
2. Generate growth charts.
3. Secure messaging with mothers and MOH officers.
4. View mother's medical history (with mother's consent).

2.1.2 Mothers : Access real-time baby health information, collaborate with midwives in care decisions, and feel empowered through knowledge.

2.1.2.1 Functionalities of mothers

1. View their baby's health data entered by midwives.
2. Update some information (feeding times, diaper changes).
3. Communicate with midwives securely.

2.2   Product Features

1. **Multi-level user access:** Secure logins for midwives and mothers with role-based permissions.

2. **Enhanced data tracking:** Ability to track vitals, feeding, sleep, diaper changes, developmental milestones, and (with mother's consent) mother's medical history.

3. **Actionable data visualization:** Generation of growth charts providing clear visual representations of baby progress.

4. **Secure communication:** Encrypted messaging platform for seamless communication between midwives and mothers.

5. **Reporting and analytics:** Comprehensive reports for midwives on regional baby health trends, including immunization rates and other public health metrics.

2.3   Product Environment

2.3.1 DB Diagrams

1. **"Users" table:** Stores login credentials (username, hashed password) with a user type designation (midwife, mother).

2. **"Baby" table:** Stores baby information (name, DOB, medical ID) with a foreign key linking to the mother's user ID in the "Users" table.

3. **"Vitals" table:** Records weight, temperature, etc., with timestamps

4. **"Feeding" table:** Tracks feeding times, type (breastfeeding/formula), and amount.

5. **"Sleep", "Diaper Changes" table.**

6. **"Milestones" table:** Documents achieved milestones and dates.

"Vitals", "Feeding", "Sleep", "Diaper Changes", "Milestones" tables: Each linked to a specific baby using a foreign key from the "Baby" table.

2.3.2 Use Cases

2.3.2.1 Case 1 : Midwife Records Baby's Weight

1. Midwife logs in to the system.
2. She selects the specific baby from a list.
3. The system displays the baby's weight history.
4. Midwife enters the new weight and date.
5. The system updates the baby's weight data and generates a growth chart.

2.3.2.2 Case 2 : Mother Views Baby's Growth Chart

1. Mother logs in.

2. The system displays a list of her babies.

3. Mother selects a baby.

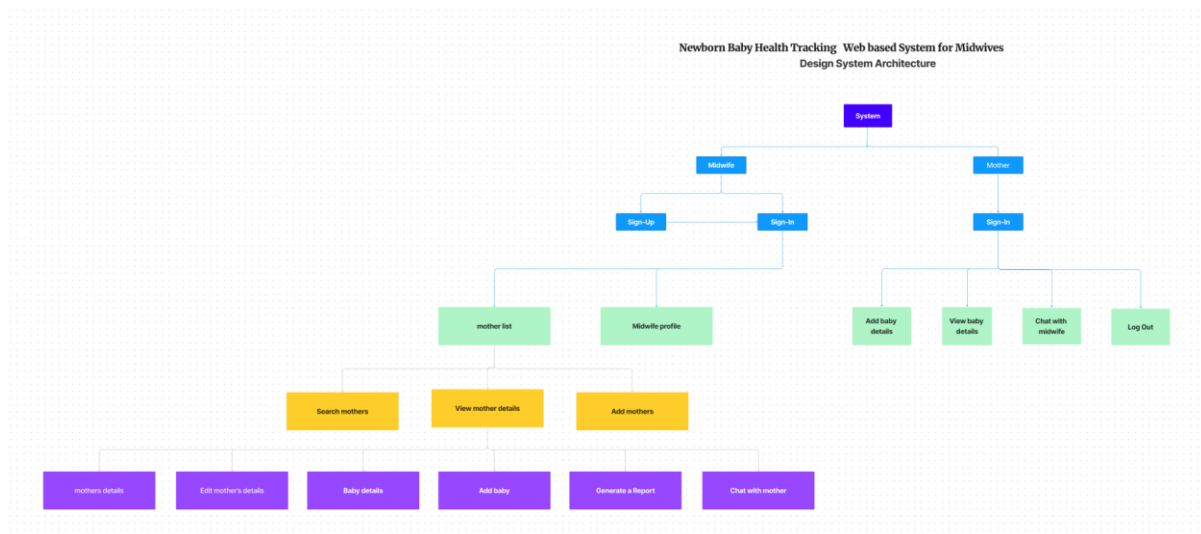4. The system displays the baby's growth chart.

2.3.3   ER Diagrams

- Entity: "Baby"

- Entity: "User" (linked with a "one-to-many" relationship, as one mother can have many babies)

- Entity: "Midwife" (connected to "Baby" through providing care)

2.3.4 Other

1. **User Interface (UI) Mock-ups:** Separate and intuitive UI layouts designed for each user type (midwife, mother) to ensure a user-friendly experience.

2. **Authorization Levels:** Clear definition of data access permissions for each user role, ensuring data privacy and security.

3. **Testing   Strategy:** Comprehensive   testing   plan   to   guarantee   the   system's functionality, performance, and security before deployment.

3.System Design

3.1 System design architecture

https://www.figma.com/file/kiih4hlWGthnRamYjNRZIK/System-Design?type=whiteboard&node-id=0%3A1&t=WRERqhjqSPZfdJH7-1