

# CareSync: A Dual-Sided Mobile Application for Home Nurse Booking and Remote Elderly Care Monitoring

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## Abstract

*As Information Technology is emerging in today's world, we utilise many mobile technologies daily that ease our tasks in different sectors. One of them is in the home healthcare sector. The current problem is that families struggle to find professional homecare nurses for elderly care, while qualified nurses seek flexible alternatives to the rigid hospital schedules. This is the primary reason for developing a platform that facilitates flexible, yet professional home care. Based on this, it is necessary to create a system for providing verified professionals and transparent remote monitoring. This article introduces CareSync, a dual-sided mobile application that connects families with verified nurses through a centralised administrative system. CareSync connects families seeking home care for the elderly with verified nurses preferring flexible working hours. It also allows families to monitor their loved ones remotely, ensuring a secure, transparent, and professional home care ecosystem.*

**Keywords:** Remote Patient Monitoring, Elderly Care, Nurse Booking System, Care Coordination, Mobile Health (mHealth), Digital Health Platforms

## Literature Review

The development of a Home Nurse Booking and Monitoring System requires a deep understanding of the challenges in home healthcare. Research over the last ten years highlights that emotional issues must be considered, administrative exhaustion must be alleviated, and the integration of care professionals is to be done in an ethical way for the system to be effective.

Care technology for the elderly should not be based on superficial medical assumptions but rather take into consideration the emotional and social aspects of patient relations with their families [1]. Care is not just a simple logistic operation, but rather it is loaded with a heavy emotional burden. Due to this, families often struggle with lingering guilt and feel that they cannot provide proper care and support while managing their regular day-to-day life. Therefore, the system should not only be functional tools, but at the same time, they must also serve as tools to alleviate this emotional distress [2].

While families are willing to accept such technologies, they still have to face issues regarding trust and transparency. Due to this, they feel disconnected from their loved ones. To overcome this challenge, technologies must ensure that patient privacy is respected while providing updated information on the health status of the patient [3]. Moreover, successful adoption is not automatic; it depends on the system's flexibility to integrate seamlessly into the users' shifting daily routines [4].

One of the major issues is the administrative burden on home nurses. When caregivers are stuck doing manual tasks like scheduling, billing, and updates, they lose valuable time that should be spent looking after the patient [5]. This issue is often made worse by unorganised technologies. If a digital tool is so complex that the home nurse has to choose between looking at the screen or looking at the patient, the system is flawed. To accommodate usefulness, these interfaces must be simplified, so they support care rather than getting in the way [6].

In this digital era, it has been observed that mobile health apps are too fragmented. Most of them work as standalone tools that fail to connect families with medical professionals [7]. Also, the increasing "gig economy" platform for caregiving raises serious ethical concerns. Systems must be designed carefully to ensure that they are not vulnerable to exploiting caregivers' empathy. A platform should not rely on a home nurse's "work ethic of care" to compensate for poor support and bad scheduling [8].

## Introduction

The number of senior citizens is rising, and that has created a huge need for care service at home. Families who take care of the elderly at home must hire professional caregivers to manage medications, personal hygiene, and health checks. Nevertheless, because of the absence of remote surveillance and questions about caregiver credibility, families are frequently in the dark as to whether the care given is of good quality.

At the same time, many certified nurses are choosing to provide care independently and flexibly outside hospitals because they are tired of long shifts, physical exhaustion, and a lack of work-life balance in the clinic. Even though the demand is huge on both sides, there is still no good way to link families with verified nurses. Families often lack transparency about whether the work is being carried out or not.

Thus, this paper introduces CareSync, a platform that consists of a client application for families, a provider application for nurses, and a mandatory digital reporting framework that enables real-time logging of vital signs, medication administration, daily activities, and incidents. Existing mHealth solutions for caregivers are insufficiently integrated to support coordinated care planning across caregivers, patients, and health professionals, highlighting the need for comprehensive applications that include monitoring and communication features like those proposed in CareSync [8].

## Existing System

### Maitys

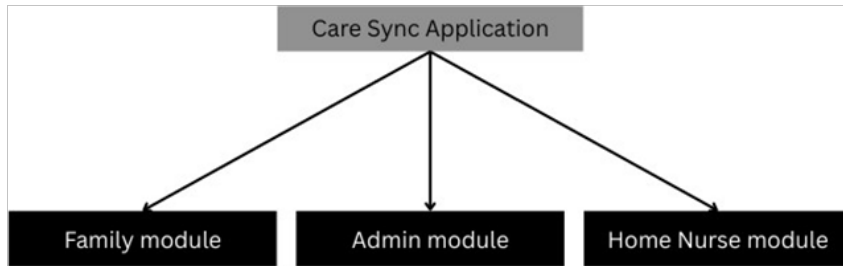
MAITYS is a tech-enabled elder care platform that provides real-time service booking, a wide range of services (trained caregiver, doctor visit at home, physiotherapy, etc.) and affordable elder care. However, the platform lacks publicly documented information regarding standardised nurse verification, specialisation filtering, and structured digital health reporting, which may restrict complete remote monitoring and customisation of care.

### Portea

Portea is a home healthcare service provider that delivers at-home medical and non-medical care services including nursing care, physiotherapy, and elderly assistance. Although it aims at a wider range of services, its platform lacks transparent in-app nurse verification workflows, which leads to multiple user reviews reporting poor customer service, delays in service delivery, and inconsistent caregiver performance. Also, Portea does not provide structured real-time remote monitoring, creating a communication gap between the family and the caregiver or home nurse that leads to issues with coordination.

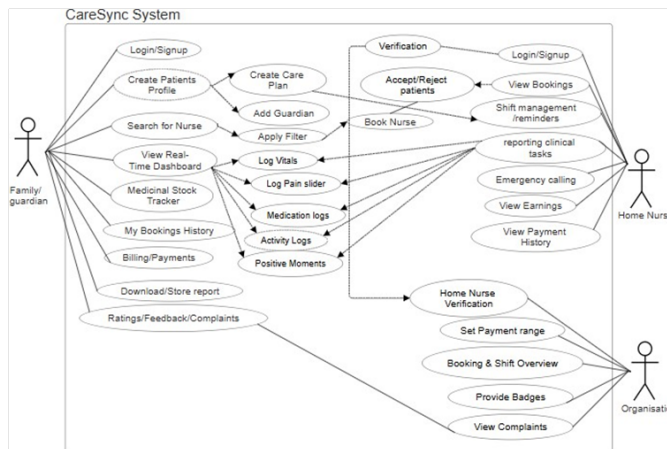
**System Overview**

The CareSync system proposed in this research seeks to create a clear, reliable, and effective way to connect families needing home-based elderly care with verified certified nurses looking for flexible job opportunities. Unlike informal gig-economy platforms that often lack standard verification and clear role descriptions [8], CareSync is built as a specialised healthcare management system that focuses on patient safety, data continuity, and emotional well-being. The platform uses a secure client-server application for families (clients), a mobile app for nurses (providers), and a centralised administrative dashboard.



**Figure 1 Modules of CareSync**

The platform follows a centralised client-server architecture, ensuring secure data exchange, policy enforcement, and regulatory oversight.



**Figure 2 Usecase Diagram of CareSync System**

**Table 1 System Process Specifications**

No.	Process in System	Description
1	Register the Account	The process where families and nurses register for the account.
2	Process of Verifying Home Nurses	This is mandatory for Home Nurses. The nurse uploads her credentials (license ID, certificates). The admin reviews and approves before the nurse can interact with the application’s next step.
3	Profile Management	Families add patient details; Home Nurses manage their professional profile and experience.

4	Home Nurse Search and Discovery	Families search for Home Nurses using filters like location, specialty, and availability.
5	The Process of Booking	The families book the Home Nurses, with a defined shift type and patient profile.
6	Booking Acceptance	The Home Nurse views the family care request and then chooses to Accept or Reject the booking.
7	Secure Payment Process	Funds are processed upon booking confirmation to ensure the booking and commitment.
8	Daily Vitals and Task Logging	The care routine stated in the Patient care plan is completed and marked simultaneously by the Home Nurse.
9	Medicine Administration and Inventory	The Home Nurse marks the medications “given”, and the system automatically deducts the quantity from the stock which was entered by the Family.
10	Patient Well-being Tracking Slider	A visual interactive slider for the Home Nurse to record the patient’s health by adjusting it on the “Pain Level” (0–10) scale from poor to excellent.
11	Moment Sharing	This process occurs during the shift. The Home Nurse captures and uploads photos and short videos for visual assurance.
12	Real-Time Family Monitoring	The family accesses the “monitoring” section to view live data of Vitals, Medicine logs, slider data, and moments.
13	Service Completion and Rating	The process where the family reviews the Home Nurse on completion of the booking duration. This is reflected on the Home Nurse’s Profile.

**Empowering Families: Mitigating Anxiety through Transparency**

The Family Module aims to transform remote caregiving situations, which are emotionally draining and filled with caregiver guilt, by providing a solution that allows direct care through the family even if they are far away [2]. In the case of informal home care, families sometimes do not know what goes on in the daily routine of their elderly relatives and are not aware of their health status, hence the creation of what is termed an information black box [3][8].

With the app using transparency and trust as its focus, it is hoped that people will be less doubtful. The Live Care Monitoring and Reporting module allows direct viewing of essential health changes like blood pressure and oxygen saturation level. Previous studies have pointed out that remote monitoring technologies can lead to more trust being built by caregivers [4][7].

The app developers understand medical needs are not the only things that count in care; thus the Moments Module was created where people may safely share pictures to maintain and even strengthen the emotional connection. This is in line with research which shows that mediated visual presence can be a very useful tool to keep emotional bonds and to diminish the feeling of distance between older adults and their families [1].

In addition, the Report and Document Storage Module serves as a central hub for medical histories and care documentation. This reflects research findings that family caregivers who are well informed can be active partners in care coordination rather than just being passively involved [7].

**Professionalizing the Caregiver Experience**

The Nurse Module is a tool that reduces the mess created by paper-based or informal care documentation. By means of a compulsory digital reporting system, nurses are obligated to record vital signs and mandatory medication logs, thus creating verifiable records of care delivery. Older studies reveal that structured digital documentation enhances accountability and provides caregivers with a protective shield against disputes arising from verification of task completion [6].

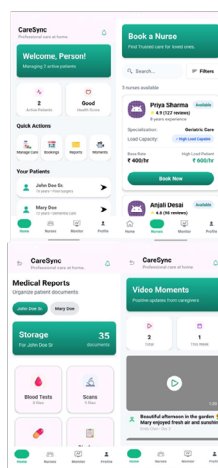
Formalised care is the direct response to problems faced by home nurses in informal care, which lacks transparency and clarity resulting in confusion and mismatched expectations [8]. Also, the app helps in reducing home nurses' stress as it consists of flexible features like selecting the shift according to their availability and load management, so that nurses are not fatigued due to overworking. Studies on similar digital tools state that they help prevent nurse burnout so that nurses can focus more on patient care as they do not have to worry about administrative burden [9].

**Administrative Governance: Enhancing Efficiency and Allocation**

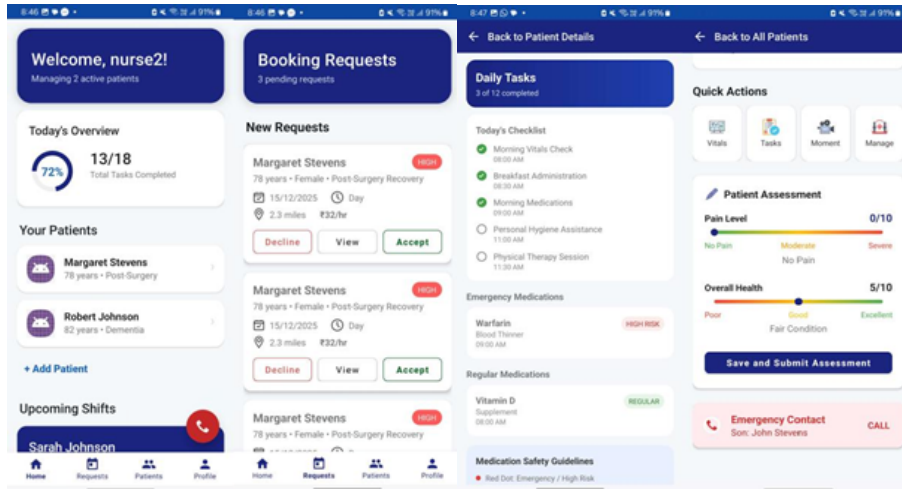
An administrative Dashboard is a part of the Admin web application that helps in system governance and provides an overview of all users. Admin verifies professional nurses by requiring them to upload digital proof of their certificates and licenses, helping to solve a major issue in healthcare—credential fraud, where people use stolen license numbers or fake documents to obtain nursing jobs. Admin also has an interface which provides an overview of nurse activities, tracking shift logs and task tracking in real time to provide clarity in the event of any dispute between families and home nurses [10]. The system also enables administrators to issue specialised badges for expertise (like dementia care) that ensure hidden high-quality skills are recognised. To further professionalise the service, the system implements a dynamic payment logic where the Admin sets wage ranges based on three key parameters: Patient Load, Shift Duration, and Verified Experience, which ensures fair market rates and financial transparency.

**Implementation**

The proposed system (CareSync) is implemented using Android Studio with Java for Android application development. Firebase is used as the backend platform to handle authentication and real-time data storage, allowing secure access to users and instant data storage of care-related records such as vitals, medication logs, and daily activity reports.



**Figure 3 CareSync (Family and Guardian Module)**



**Figure 4. NurseSync (Home nurses Module)**

### Advantages of the Proposed System

An important feature of digital technologies in home healthcare is their capacity for efficiency improvement and care coordination enhancement. Simplified coordination has been found to decrease the administrative work that accompanies home-based services, thus giving care providers more freedom of time and resources for direct patient care [5]. Research also indicates that digital documentation systems for home health aides are less prone to errors and more organised than traditional paper-based methods, facilitating proper tracking and secure storage of patient data [6].

The centralised Admin dashboard acts as a precaution against credential fraud through proper verification and helps implement payment scales for administrators according to patient load, shift duration, and experience [10]. Far from mere administrative improvements, digital technologies are indispensable in communication and care planning among different care networks. Family caregivers get consolidated platforms through which they can manage tasks and view and share information via mobile health applications, facilitating care planning and coordination [7].

Such transparency is necessary for families who are away from home. Health tech makes remote caregiving possible by providing family members with monitoring tools and detailed care logs of their loved ones [3]. This shows the increase in use of technology in home care, helping connect families with professional healthcare services [8].

Besides, the use of caregiving technologies may bring about a great number of psychosocial advantages to both elderly people and caregivers. Technological assistance becomes a main factor in the process of “aging in place,” helping older adults keep their independence and live in their own homes for a longer period of time [4].

From the perspective of a caregiver, digital tools may relieve the pressures that come with their workload and at the same time offer an essential support system which most of the time brings about stress and burnout reduction [9].

Moreover, the implementation of technological devices which appreciate and confirm the efforts of caregiving may be instrumental in dealing with the emotional challenges that come with caregiving, such as the feeling of guilt [2]. If technology is designed with a view to the complicated social relationships in the elderly period, it can also help tighten the emotional ties between seniors and caregivers as it encourages communication which is not only functional but also emotionally valuable [1].

## Conclusion

This study presented CareSync, a dual-sided mobile application for remote elderly care management designed to solve the common challenges observed in different existing platforms and research. Existing solutions of caregiving do not provide a way to verify home nurses and also lack transparent live remote monitoring, which can lead to distress to families. With the help of CareSync, these limitations are addressed.

By adopting a dual architecture for family and home nurses, supported by centralised administration, CareSync promotes transparency, accountability, and continuity of care. The Nurse Module standardises caregiving workflow through structured reporting and role clarity. Furthermore, it increases the trust of the family as the nurses are verified through administrative layers.

The system also emphasises patient care and psychological well-being, supporting aging in place while reducing emotional and administrative burden on the family.

Overall, CareSync contributes to the evolving landscape of digital home healthcare by filling a gap between professional caregiving and family involvement.

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