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CareConnect AI: An AI-Powered Multi-Service Home Care and Domestic Assistance Platform

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***Abstract*—Finding reliable home-care and domestic service providers is often difficult because services are distributed across personal contacts, local agencies, advertisements, social media, and different online platforms. This review paper presents CareConnect AI, a proposed web-based multi-service platform designed to bring Maid Service, Nanny Service, Elderly Care, Patient/Home Healthcare, and Cook/Meal Service into a single system. The platform allows users to submit service requirements including service type, skills, experience, location, date, and time, and uses an intelligent matching mechanism to identify suitable providers. Provider profiles include experience, skills, ratings, availability, and verification status, supporting informed selection. The system also provides registration and authentication, provider availability management, booking and scheduling, worker request acceptance or rejection, ratings and reviews, complaint management, and an automated service completion reminder when ten minutes remain before the scheduled end time. The proposed implementation uses React.js for the frontend, Node.js and Express.js for backend services, and MongoDB for data storage. This paper reviews relevant research on digital domestic-service platforms, childcare platforms, elderly-care systems, home-healthcare matching, and digital meal-service platforms, and relates those findings to the CareConnect AI design. The paper also discusses system modules, matching methodology, limitations, and future directions such as advanced machine-learning recommendation, maps integration, mobile applications, multilingual support, notifications, and stronger verification.**

***Index Terms*—home-care services, domestic assistance, intelligent matching, service platform, elderly care, childcare, MongoDB, React.js, Node.js, service booking, recommendation system.**

I. INTRODUCTION

Home-care and domestic assistance services form an important part of everyday life for households that require support with domestic work, childcare, elderly assistance, patient care, or meal preparation. In practice, users may search for service providers through personal contacts, friends

and relatives, local agencies, newspaper advertisements, social media, and different websites or applications. Such fragmented discovery makes it difficult to compare provider experience, skills, availability, ratings, and verification status in a consistent manner.

CareConnect AI is proposed as a single web platform for discovering, comparing, booking, and managing multiple home-care and domestic services. The platform defines three principal user roles: Service User, Service Provider/Worker, and Administrator. The Service User searches for a service and submits requirements; the Service Provider maintains a profile, skills, experience, availability, and booking requests; and the Administrator manages users, providers, verification, services, bookings, complaints, reports, and system data.

The central concept of CareConnect AI is an intelligent matching mechanism. Rather than displaying providers only as a general list, the system compares user requirements with provider information. The proposed academic implementation uses a weighted matching approach based on service type, skills, experience, location, availability, rating, and verification. A matching score can then be used to present recommended providers. The synopsis specifies that more advanced machine-learning models may be introduced as future work; therefore, the current review does not claim that a trained machine-learning model has already been evaluated.

Another distinctive feature is the automated Service Completion Reminder. The system checks active bookings and calculates remaining time. When exactly ten minutes remain before the scheduled service ends, a reminder is sent or displayed to the user and service provider. This supports better awareness of service completion and complements the booking and scheduling workflow.

II. RELATED WORK

Research on digital care and domestic-service platforms shows that matching users with appropriate service providers is a significant design problem. Hung, Du, and Chen proposed a homecare matching mechanism based on patient and caregiver criteria, combining a matching algorithm, preference menu, and mobile application to improve the selection of suitable caregivers [1]. This work supports the basic idea that provider selection can be treated as a structured matching problem rather than simple service discovery.

Lin, Ma, and Ying studied daily home-healthcare demand and supply matching in service-sharing platforms [2]. Their work considers factors such as flexible service duration, break requirements, temporal dependencies, and different matching strategies. These considerations are relevant to CareConnect AI because service availability, date, and time are included in the proposed matching and booking workflow.

For elderly care, Menghi, Papetti, and Germani proposed a product-service platform that combines technology, caregivers, and services to support elderly people living at home [3]. Their work emphasizes user needs and the aggregation of services and resources. CareConnect AI similarly treats elderly care as one service category within a broader multi-service platform.

Lam et al. presented an AIoT-based domestic care service matching system for elderly-oriented

appointment services [4]. Their study integrated IoT and AI into service matching and reported improvements in service-related outcomes in a case study. CareConnect AI does not currently claim an IoT-based implementation; instead, the study is relevant as evidence that intelligent and data-driven matching can support domestic-care service delivery.

Digital childcare platforms have also been examined from the perspective of worker visibility and professional presentation. Arcidiacono, Bonifacio, and Pais studied childcare service platforms and showed how platform mechanisms can standardize the presentation of informal care work while leaving broader employment conditions unresolved [5]. This is relevant to CareConnect AI's Nanny Service because provider profiles, skills, experience, and professional information are important for user decision-making.

The literature also provides context for meal-related digital services. Babar, Adeli, and Greenwood examined the impact of online food-delivery platforms on domestic food preparation and reported changes in time spent preparing meals [6].

CareConnect AI Service	Relevant Research	Relevance
Maid Service	Household platforms as transactional infrastructures: the case of Urban Company	Digital platforms connecting customers with domestic/home-service providers.
Nanny Service	Transparent informality: the ma(s)king of professionals in childcare service platforms	Childcare profiles, skills, and professional information.
Elderly Care	Product Service Platform to improve care systems for elderly living at home	Technology-enabled caregiver and elderly home-care support.
Patient/Home Healthcare	Matching daily home health-care demands with supply in service-sharing platforms	Matching home-healthcare demand with available providers considering time and service requirements.
Cook/Meal Service	Cooking or Clicking: The Impact of Online Food Delivery Platforms on	Digital platforms and household meal-preparation context.

III. SYSTEM ARCHITECTURE

The proposed implementation follows a web application architecture in which the React.js frontend provides the user interface, Node.js and Express.js provide backend services, and MongoDB provides persistent storage. The architecture is aligned with the project synopsis and does not introduce a separate backend framework or relational database.

- PROPOSED TECHNOLOGY STACK

Layer	Technology	Purpose
Frontend	React.js, HTML, CSS, JavaScript	Web interface and user dashboards
Backend	Node.js, Express.js	Registration, login, provider data, matching, booking, reviews, reminders
Database	MongoDB / MongoDB Atlas	Users, providers, services, bookings, reviews, availability, complaints
Development	Visual Studio Code	Application development
Version control	Git/GitHub (optional)	Source-code management

A. Data Management

MongoDB is proposed to store users, providers, services, bookings, reviews, availability, and complaints. The database supports the platform's requirement to maintain organized records for user and provider management, booking status, feedback, and administrative operations.

B. Intelligent Matching Method

For the initial academic implementation, the matching module can be implemented as a weighted matching algorithm. The user's requirements are compared with provider attributes in the following sequence: service and skills, experience and location, availability and rating, followed by verification. A matching score is then calculated and used to rank or recommend providers. The synopsis identifies advanced machine-learning recommendation as future scope; therefore, the present design treats the weighted algorithm as the baseline implementation.

A conceptual matching score can be represented as a weighted combination of normalized criteria:

$M = w_1S + w_2K + w_3E + w_4L + w_5A + w_6R + w_7V$

where S denotes service-type compatibility, K skills compatibility, E experience compatibility, L location compatibility, A availability compatibility, R rating-related suitability, V verification status, and $w_1 \ldots w_7$ represent chosen weights. The exact weights should be defined and tested during implementation rather than assumed as fixed research results.

C. Service Completion Reminder

The backend checks active bookings and calculates the remaining time using the stored end time. When the remaining time reaches ten minutes, the system sends or displays a reminder. For example, if a service ends at 2:00 PM and the current time is 1:50 PM, the remaining duration is ten minutes and the reminder is triggered.

IV. DATA PROCESSING METHODOLOGY

The methodology consists of requirement analysis, system design, frontend development, backend

development, database design, intelligent matching, reminder implementation, testing, and deployment. Requirement analysis identifies user, worker, and administrator needs. System design defines the interface, database, architecture, and modules. Frontend pages include Home, Login, Register, User Dashboard, Service Requirement, Matching Results, Worker Profile, Booking Confirmation, Worker Dashboard, and Admin Dashboard.

The backend handles registration, login, provider information, service requests, matching, bookings, reviews, and reminders. MongoDB stores users, providers, services, bookings, reviews, availability, and complaints. Testing covers registration, login, matching, booking, worker acceptance, reminders, ratings, and administrative functions.

V. DISCUSSION AND SYSTEM ANALYSIS

- The reviewed literature indicates that service-provider matching is a recurring issue across homecare, elderly care, and digital service platforms. CareConnect AI brings this idea into a broader multi-service setting by combining domestic and care-oriented services within one web platform. Its matching mechanism considers multiple attributes, while provider profiles and verification status help users inspect information before booking.
- The multi-service design is useful because users may require different types of support without wanting to search multiple independent sources. Centralized booking, availability management, ratings, reviews, and administration further organize the service lifecycle. The ten-minute completion reminder is a specific operational feature that addresses the transition from an active booking to service completion.
- However, the quality of recommendations depends on the correctness and completeness of provider information. If skills, experience, availability, location, ratings, or verification data are inaccurate or outdated, the matching score may not represent actual suitability. Real-time location functionality may require an external maps/location API, and real identity or background verification may require external verification services. The college prototype may also use sample provider data. Real online payments would require a payment gateway.
- The Patient/Home Healthcare module requires particular scope discipline. The platform is intended for finding and booking care providers and is not a diagnosis or treatment system. Internet connectivity is also required for the web-based platform. These limitations should be stated clearly in demonstrations and publication material.

VI. ADVANTAGES AND LIMITATIONS

Advantages include multiple core services in one platform, an easy-to-use interface, requirement-based matching, reduced search time, provider comparison, provider information, verification status, online booking, availability management, ratings and reviews, an automatic completion reminder, and centralized administration.

The limitations identified in the synopsis are that matching depends on the accuracy of provider

information; real-time location may require a location/maps API; real identity or background verification may require external services; the college prototype may use sample provider data; real online payments require a payment gateway; the healthcare module is limited to finding and booking care providers and does not provide diagnosis or treatment; and an internet connection is required.

VII. CONCLUSION AND FUTURE WORK

CareConnect AI presents a unified approach to home-care and domestic assistance by combining multiple service categories, provider profiles, requirement-based matching, booking, availability management, verification, ratings and reviews, and an automated service completion reminder. The literature reviewed in this paper demonstrates that matching demand with appropriate care providers is an established research problem across homecare and elderly-care settings, while digital platforms also influence how domestic and childcare services are organized.

Within this context, CareConnect AI contributes a practical academic platform concept that extends multi-criteria matching to a broader set of household services. Its proposed React.js, Node.js, Express.js, and MongoDB architecture supports modular development of user, worker, matching, booking, review, verification, reminder, and administration functions. The current design should be understood as an academic implementation baseline rather than a validated large-scale production system. Future work can strengthen the platform through advanced machine learning, maps, mobile applications, notifications, multilingual interfaces, stronger verification, payments, and analytics.

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