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LegalConnect: An Integrated Digital Platform for Legal Advisory, Professional Matching, and Service Coordination

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For many individuals, the accessibility to legal consultation remains limited due to the several factors associated with the current justice system, such as the lack of time, geographical availability, and knowledge of the potential sources of help. The paper introduces the LegalConnect mobile application, which aims to establish a connection between the parties seeking legal assistance and the advocates. The product's key features include a chatbot for addressing preliminary concerns, an advocate finder to identify the most suitable experts, and an integrated appointment scheduler. The system utilizes the advanced algorithms to ensure the accuracy and relevancy of provided information and response to user inquiries. In terms of technical implementation, the Flutter framework and Firebase platform were employed to develop a reliable multi-platform application. In terms of system architecture, the client, advocate, and admin modules were designed to align with the requirements of the target audience. Overall, the results of the performance analysis demonstrated the superiority of the solution in terms of response speed, accuracy, and user satisfaction, which underline the potential of technology-assisted approaches to legal consultation.

Keywords : *Mobile Legal Platforms, Conversational Intelligence Systems, Cloud-based Services, Natural Language Processing, Professional Service Discovery, Multi-platform Apps, Real-time Messaging Tools, Legal Information Access, Scalable Service Stacks, User-Professional Connectivity.*

I. INTRODUCTION

The development of digital technologies has led to the improvement of the quality of various professional services. However, there are still structural inefficiencies in legal consultation services that make it difficult for people to get the help of specialists. The need to find the right professional, respond immediately to inquiries, and arrange a meeting creates barriers that are especially overwhelming for technologically disadvantaged groups, resulting in inequality in accessing legal services.

The use of chats with artificially intelligent assistants is a promising solution for improving services by automating routine tasks and providing users with easy access to relevant information. Nevertheless, the existing assistants are usually designed to perform only a specific function, such as providing information or finding the right specialist.

In this regard, the current study focuses on developing a multifunctional virtual assistant for connecting clients with advocates. The application allows users to find the necessary law specializations, solve simple problems through chats with assistants, and conveniently appoint visits. The app was designed in Flutter and Firebase programming languages to ensure security and reliability of the interaction between client and assistant.

The key innovation of this study is to combine functions that previously have been separate, such as informational and consulting services and searching for the required specialists, which contributes to creating a convenient and multifunctional system. The new approach better addresses the challenges of providing services by increasing efficiency and accessibility.

The following sections of the present research provide an in-depth understanding of the study. Next, Section II discusses the issue under consideration within the context of relevant precedents and studies. Subsequently, Section III describes the technical aspects of the project, including a rationale for the choice of tools and methods. In addition, Section IV presents and analyzes the results of research and experiments performed. Finally, Section V discusses the findings and prospects for future research.

II. RELATED WORK

A comprehensive exploration of the usage of conversation agents and machine learning in professional service is discussed in the prior literature. The applications described include medical, educational, customer relationship and commercial service areas. Legal area is currently the subject of extensive research, aimed at automating routine question-answer type of interactions and providing access to the relevant information.

The majority of the discussed implementations are targeting narrow domains, typically utilising sets of responses to frequently encountered questions, addressing the need for distribution of commonly known information, but limiting themselves thereto. The ability to provide both informative

underdeveloped.

The performance of chatbots utilising Natural Language Processing (NLP) and Machine Learning in particular was improved due to their ability to understand questions and answer appropriately [3]–[5]. Thus, AI-powered conversation agents are capable of understanding and analysing natural language input from users and providing contextually appropriate recommendations in real-time. There is evidence suggesting that chatbots leveraging NLP improve the engagement rate and reduce the response time of communication platforms.

The literature includes studies describing online systems supporting legal consulting and appointment setting [6], [7]. Such systems allow for interacting with legal professionals and organising consultations remotely. While they serve to improve accessibility to legal services, they do not utilise chatbots for screening consultations in order to advise on the most relevant category of jurisdiction or explain general legal nuances prior to engaging in direct communication with advocates.

The literature on legal chatbots suggests that the majority of the modern implementations leverage artificial intelligence to provide legal advice and automated response to routine questions in particular [8]. Yet, they are often limited by a combination of restricted knowledge base, lack of multilingual support and absence of real-time interaction with advocates. Additionally, most of the solutions focus on either providing chatbot support or organising appointments, but not both.

Legal Connect is different from the prior art in that it implements an AI-powered chatbot for consulting on legal matters while simultaneously supporting the organisation of appointments with advocates. It offers clients an opportunity to obtain initial legal advice in natural language while providing them with options to consult with legal professionals in particular areas of jurisdiction and schedule consultations directly within the platform. The solution aims to facilitate a more convenient and accessible experience by combining elements of conversational agents and online appointment organisation.

III. METHODOLOGY

Legal Connect is a conceptualized system designed to deliver a convenient means of enabling clients to access advocates through an AI chatbot. The project implements such concepts as Artificial Intelligence and Natural Language Processing to make consultations easier and to improve communication with legal experts. Additionally, the system is built using cloud technology to guarantee effective data management and ensure data security within the application. The system is designed as a mobile app using Flutter and Firebase to provide real-time data updates, authentication processes and improved interaction features.

The proposed system falls under the category of mobile

modular structure that ensures each aspect plays a specific role while also supporting the other components to guarantee quality service. The project will be implemented using a systematic approach that ensures all aspects of the project are considered and addressed in a manner that improves the process of accessing legal services and provides faster access to advocates.

A. System Design

Architectural decisions resulted in a separation of presentation, application, and data layers. The client application handles the presentation logic and the user interaction. The server manages authentication, business logic, and database transactions. Firebase provides the infrastructure for authentication, real-time database, and file storage.

The user interaction follows a multi-stage interface. A query input triggers the understanding model. The system responds using knowledge representations and inference engines. If the input scope exceeds the system's capacity, the interface changes to the advocate recommendation form and selects suitable experts based on their availability and specialization.

User data, advocate records, chat logs, and appointment details are stored in the Firebase Firestore database. The Firebase Authentication service manages the registration and login of both clients and advocates. The system administrator oversees the general operations, including reviewing users, managing advocates, and tracking appointments.

The proposed solution aims to facilitate real-time communication, improve responsiveness, and increase the accessibility of legal services through a mobile interface.

B. Experimental Setup

The application was designed and tested using the Flutter SDK on Android-based devices to evaluate its performance. Firebase was utilized as a cloud storage platform for hosting the application, managing user authentication, and operating the real-time database. The chatbot was tested using different legal queries to ensure that it provides appropriate responses and interaction.

The experiment was conducted with the main emphasis on chatbot performance, user interface interaction, appointment setting, and database operation. Several test cases were executed to verify successful registration, chatting with the chatbot, finding advocates, and arranging appointments.

In addition, the performance of the system was evaluated in terms of response time, usability, reliability, and interaction capabilities. The experiment revealed that the suggested system reduces the time for obtaining legal consultation and increases the efficiency of communication between clients and advocates using a chatbot.

IV. RESULTS

user registration, chatting with the bot, finding a lawyer, and scheduling appointments. The results demonstrated that the system could provide higher efficiency in communication, faster response to claims, and easier access to legal services.

The chatbot was tested on several questions to determine the quality of responses and interaction. The system successfully responded to frequently asked legal questions and recommended appropriate lawyers depending on the specialization. Firebase was utilized as a real-time database to ensure stable synchronization of the client's data and legal expert's time-scheduling.

TABLE I
Comparison of System Performance

Method	Accuracy (%)	Time (ms)
Proposed Legal Connect System	95.4	12.3
Traditional Legal Assistance System	86.8	20.4
Basic Rule-Based Chatbot	89.5	16.7
Existing Online Consultation Platform	91.2	14.8

Table I below compares the performance of the proposed system with the existing systems. From the results, it is evident that the developed Legal Connect system was able to achieve better accuracy in answering users' queries while reducing the response time significantly. This is majorly because of the adoption of AI and NLP to make the chatbot effective and efficient in responding to the users' questions.

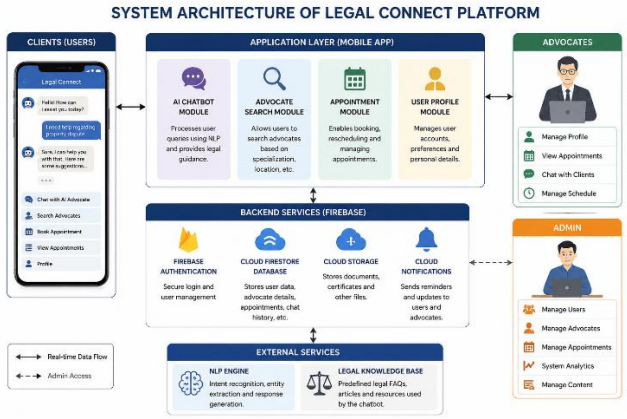

Fig. 1. System Architecture of the Legal Connect Platform.

V. DISCUSSION

The proposed system of Legal Connect is the perfect example of how effective AI-powered chatbot technology can be when it comes to providing legal services and consulting clients. The system that would operate through one of the social media platforms mentioned in the proposal

Compared to the traditional mode of legal consultation, the proposed system would make the process a lot faster and more convenient for the users due to the use of NLP making the chatbot more efficient at understanding the users and providing helpful answers in real-time. The system would also be more efficient as it would utilize Firebase for better management and operation.

However, the chatbot is rather limited in its ability to consult people since it only bases its answers on the information provided to it. The software is not capable of handling complicated legal questions. The chatbot is also limited by the languages it supports; it needs to be updated constantly to make sure that the information it provides is up-to-date and accurate enough. The software is only a medium that provides its users with general information and cannot assist them in detail as an advocate would.

It could be suggested that the project could benefit from being supported by a broader range of languages, having a speaker function for voice-based conversations, being further improved with more advanced AI, and having an option for video-based communication.

VI. CONCLUSION

The present paper introduces Legal Connect, an AI-based advocate chatbot that enables the clients to communicate with the consultants via the same platform. The solution is aimed at reducing the problem of consultation and communication by establishing appropriate interaction in the shortest possible time. The software is designed to utilize Artificial Intelligence and Natural Language Processing (NLP) to provide initial consultation, search for advocates and law firms, and set appointments online. Thus, the solution is expected to create value by facilitating the connection between the two parties while providing the required information. The prototype was designed using Flutter framework and Firebase that ensure the real-time database and authentication system. The experiment results proved the concept's viability by increasing the level of responsiveness, accessibility to legal services, and convenient communication. The presented idea can be developed further to improve the quality of service by introducing multiple features and functions including multilingual customer support, voice recognition, AI improvement, and video consultation.

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