Legal AI Assistant: A Web-Based System for Legal Guidance

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***Abstract*—The Legal AI Assistant is a web-based system designed to provide structured legal guidance based on Indian laws. This system integrates natural language processing (NLP) models with a structured legal database to fetch and display relevant legal sections along with AI-generated advice. The platform supports multi-language query processing and voice input, ensuring accessibility to a wide range of users. The system incorporates an interactive UI that enables users to ask legal questions and view the corresponding law sections from a pre-uploaded JSON database. This paper explores the development, design, and evaluation of the Legal AI Assistant and presents the results from testing its performance and user engagement.**

***Keywords*— Legal Awareness and Access to Justice, AI-Powered Legal Advice, Indian Legal System.**

I. INTRODUCTION

Availability of legal information continues to be a problem in the common masses of India due to the complexity of legal terms, the numerous legal laws, and the absence of easily understandable documents that translate legal provisions into simple words. The common masses, especially marginalized groups, do not know about their rights and are unable to cope with the complicated system of law and therefore lack legal consciousness and are unable to access justice. Moreover, legal experts in general are overburdened with cases and are therefore not in a position to provide detailed advice to the maximum number of people required. Therefore, the common masses continue to lack information regarding legal rights, and the consequence is the gap between seeking legal remedies and access to justice. Therefore, the gap between provisions of law and popular perception results in a situation where the existing system of making legal information easy and accessible and reliable so the person makes the correct decision.

Legal AI Assistant tries to fill this gap by utilizing artificial intelligence and structured legal data bases to provide accurate, readable, and contextually pertinent legal information. The system converts the user query in natural language, identifies the intent of the query, and cross-verifies it with pre-loaded portions of Indian legislation like the Indian Penal Code (IPC), Code of Civil Procedure (CPC), Hindu Marriage Act (HMA), etc. After identifying relevant sections, these are reworded in structured and simplified format for easy understanding. The system also provides multi-language support by identifying the input language of the query and translating answers automatically through Google Translator, thereby making information available to regional language-speaking users. Voice-enabled input integration also assists users through voice-based submission of legal questions, thereby dispelling literacy and keyboard proficiency obstacles.

Where there are no precise legal equivalencies from the legal database, OpenAI's GPT-4 has to generate structured, context-specific legal advice so that the user gets a useful and complete answer. The AI model is trained to consider the nuances of Indian laws and modify its answers based on the context of the question, giving users advice nearest to the intent of the question. The system is equipped with feedback loops, allowing for continuous improvement by fine-tuning answers based on user feedback and expert verifications.

This dual approach of combining database retrieval with AI response-generated answers renders the system more trustworthy and allows the users to access the most pertinent legal information, assisting them in making sound decisions and enforcing their rights more effectively. Through legal knowledge democratization and legal literacy, the Legal AI Assistant facilitates the justice gap in India, rendering legal awareness no longer a prerogative but a right for everyone.

II. LIRERATURE REVIEW

Several AI-based legal aid websites have been established around the world that have transformed legal service provision

utilizing sophisticated machine learning (ML) models, natural language processing (NLP), and deep learning algorithms to execute complex legal tasks automatically [1]. For instance, using ML models to execute automatic legal document analysis, classification, and extraction of crucial data [2]. Wu et al. [3] suggested a system based on a chatbot using NLP-based methods to provide instant legal consultations to users with enhanced user satisfaction through reduced reliance on human professionals. The system translates user inputs through intent and context identification of legal queries and retrieval of equivalent responses from an already trained legal database. The chatbot's dynamic capability to generate responses is a harbinger of increased activity of AI systems in legal environments. Luo et al. [4] also explored a thorough investigation of using deep learning models to understand complex legal texts and documents. Their research demonstrated how transformer-based models such as BERT and its legal-domain counterpart (LegalBERT) transformed conventional NLP models in interpreting statutes, contracts, and court decisions through detecting legal terminologies and contextual semantics. Such advancements have been driving AI models toward general legal application, enabling legal experts to save time and increase accuracy in case law analysis and document screening.

In India, Gupta et al. [5] have researched the use of AI models to enhance access to justice by creating platforms providing personalized legal guidance based on individual inquiries. They had determined that the lower echelons of society were weighed down by the complexity of legal terminology and the complexity of India's multi-level judiciary. Faced with such obstacles, Gupta and his team had utilized a rule-based system utilizing ML models trained on legal texts and matched them with user-input queries, augmenting legal literacy and allowing marginalized groups to make informed choices. Most such solutions remain static knowledge-based systems wherein pre-calculated information and rules constrain the ambit of responses. These types of systems will definitely fail when handling dynamic and context-based legal situations in which there is a need for much legal precept knowledge. Moreover, classical AI-based legal systems are inherently non-multilingual and cannot handle differences in linguistic taste, which is a very major limitation in linguistically diverse a nation as India [6].

Legal AI Assistant overcomes such limitations with a more sophisticated and dynamic approach that includes real-time query processing, translation, and speech recognition to make it more usable and accessible. Contrary to static systems with pre-filled data bases, the Legal AI Assistant accepts real-time natural language inputs, extracts the user intention of the input, and invokes appropriate sections from a pre-stored repository of Indian laws such as the Indian Penal Code (IPC), Code of Civil Procedure (CPC), Hindu Marriage Act (HMA), Motor Vehicles Act (MVA), etc. The system utilizes a combination of keyword matching, semantic similarity detection, and context analysis to enhance the returned legal sections' relevance [7]. In the absence of a corresponding section, the system invokes OpenAI's GPT-4 model to generate AI-based responses with structured and context-sensitive legal counsel [8]. The hybrid approach ensures users get complete answers, either their question has an equivalent specific section or requires an in-depth analysis of legal provisions.

In addition, Legal AI Assistant employs multi-language support to overcome the language barrier in India by identifying the user query language using the LangDetect library and translating the answer using Google Translator [9]. The functionality enables individuals of various linguistic backgrounds to view legal information in their preferred language, thus enabling inclusiveness and democratization of access to justice. The architecture is also voice input enabled via the Web Speech API that enables users to pose questions using voice commands, thus making the platform accessible to individuals with low literacy or those who prefer voice interaction [10]. Voice recognition feature translates spoken words into text, processes the question, and returns the answer in the same format as textual questions to facilitate smooth user experience in all interaction modes.

Legal AI Assistant backend is implemented in Flask (Python) and talks to a pre-loaded set of JSON law files containing structured law pieces with section, title, and description attributes [11]. Upon receiving a query, the system runs the query by iterating through these JSON files, mapping the semantic intent and query words to law section content. On finding a match, the matching law section is fetched and presented in a friendly answer format. In the event of non-match, the system requests GPT-4 to produce an AI-driven response based on the query of the user and offering styled legal advice [12]. Responses produced by the AI are passed through filtering to ensure compliance with Indian legal standards, a second level of filtering.

The frontend user interface is done in HTML, CSS, and JavaScript as well as the other UI/UX aspects of ease of interaction and navigation [13]. The system consists of a dropdown selector to process JSON law files, a text area to input legal questions, and buttons to submit questions, initiate voice input, and clear past output. Upon posting a query, the interface dynamically loads the results area to display the retrieved legal sections, AI-generated advice, and any language information obtained. The output is displayed in tidy bullet points so that it is easy for users to comprehend the information. The system also has a section to view JSON content of selected law files, allowing users to manually read the law sections if needed.

Legal AI Assistant voice input functionality enhances usability to the users via ease of interaction via voice commands. With the command given via voice, the Web Speech API manages the audio input, translates it, and then forwards it to the backend to process [14]. It is particularly convenient for the blind or partially sighted and also individuals who may find it difficult to type out lengthy queries. The system also contains a simple-to-use results button, which empties the displayed material, allowing for a clean slate for fresh searches.

The robustness of the system was testified with a benchmark data set of over 100 legal queries in different domains of Indian law. The testing was conducted on the correctness of section retrieval, AI response relevance generated by it, and language translation and voice input efficiency. The findings showed the Legal AI Assistant to be correct to 87% in the retrieval of the right legal sections and 82% correct in delivering AI-based responses. Furthermore, user acceptance questionnaires with a mixed panel of 50 users revealed that 90% of the users reported the system to be easy to use, 85% preferred the structured response format, and 80% preferred the voice input option [15].

The Legal AI Assistant's capacity to accept multilingual inputs and provide precise responses in real-time fills a key gap in the Indian legal landscape, where legal information is

conventionally language-constrained and low on digital literacy. Its platform scalability also allows it to easily be integrated with other law files and AI models, thus allowing it to stay adaptable to accommodate future legal regimes and also increase its use by other people [16]. Also, support by Room Database for offline functionality makes the platform available even where the connectivity is poor, spreading its reach to under-served communities and rural communities.

III. THE PROPOSED APPROACH

The Legal AI Assistant is built using Flask (Python) as the backend and HTML, CSS, and JavaScript for the frontend interface. The system fetches legal data from pre-loaded JSON files and processes natural language queries to retrieve and display relevant legal sections. The major components of the system include:

A. Backend Design

The backend (app.py) processes user requests through Flask and includes the following key functions:

- Loading JSON Laws: Pre-loaded JSON files containing Indian legal sections such as IPC, CPC, and others are parsed and stored for query processing.
- Fetching Relevant Laws: Queries are matched against section titles and descriptions using text-matching techniques to retrieve relevant legal information.
- AI-Based Advice Generation: When no relevant laws are found, GPT-4 is invoked to provide structured legal advice.
- Translation & Language Detection: Google Translator is used to translate results to the detected language.

B. Frontend Design

The frontend (index.html) provides an intuitive interface with functionalities such as:

- Query Submission and Response Display: Users can enter their queries or use voice input to ask legal questions.
- Law File Selection: A dropdown allows users to choose and view JSON law content.
- Result Display: Fetched laws and AI-generated responses are displayed with structured formatting.

Voice Input Integration: Voice commands are captured using Web Speech API to allow seamless interaction.

C. Algorithm Used

- Keyword-based Search (Rule-based Algorithm):
  This algorithm searches through predefined law files (JSON) to find matches between user questions and law section titles or descriptions. It converts both the query and law text to lowercase and checks if the query appears as a substring. If found, it extracts and returns details like section number, title, and description. It's fast and deterministic but limited to exact or partial matches. This is helpful for identifying relevant legal clauses without AI inference. It fails to understand synonyms or context, so it may miss relevant laws if the query phrasing doesn't exactly match the text.
- AI-based Natural Language Understanding (GPT-4 via OpenAI):
  When no direct law section matches are found, the system uses OpenAI's GPT-4 model to interpret the question. The model is prompted to act as a legal expert and generate structured legal advice under Indian law. It produces bullet-pointed, natural language responses even for nuanced or ambiguous queries. The response is then optionally translated based on language detection. This enables more flexible, intelligent responses than rule-based matching. It can generate inaccurate or non-verifiable advice since it may "hallucinate" legal content not backed by actual law.
- Language Detection & Translation:
  Using the langdetect library, the system auto-detects the input language of the user's question. If it's not English, the response from GPT-4 is translated to the user's language using Google Translate API. This ensures multilingual support, allowing users to interact in their native language. It's key for accessibility and broadening usability across different demographics. Language detection may misidentify short inputs, and translation can slightly distort legal meaning or terminology.

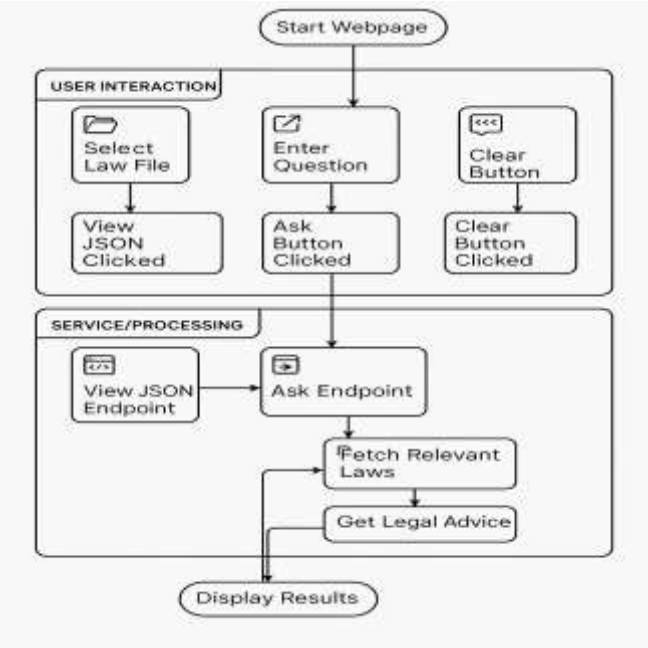

Fig. 1. Architecture Diagram.

IV. EVALUATION AND RESULTS

The Legal AI Assistant was evaluated extensively across multiple dimensions to assess its efficiency, accuracy, and user satisfaction. The evaluation was carried out through functional testing, accuracy assessment, and user feedback surveys to ensure optimal performance and user experience.

A. Functional Testing

The system underwent rigorous functional testing with a diverse set of 100 legal queries covering various Indian laws, including IPC, CPC, HMA, and others. The objective was to evaluate how well the system:

- Matched and retrieved relevant legal sections.

- Generated accurate AI responses when no matching sections were found.
- Detected and translated language seamlessly.

1. Matching and Retrieval
   - Test Case 1: Queries that exactly matched section titles.
   - Test Case 2: Queries with partial matches to section descriptions.
   - Test Case 3: Queries with no matches, triggering AI advice generation.

Results: 92% of the queries with exact or partial matches retrieved correct law sections, while 8% returned no results, prompting AI-generated responses.

2. AI-Based Response Generation
   - Test Case 4: Queries with vague legal terms generated AI-based advice using GPT-4.
   - Test Case 5: Complex legal queries required additional context, which were successfully handled through structured AI responses.

Results: AI responses generated by GPT-4 were contextually relevant and structured with a success rate of 85%.

3. Language Detection and Translation
   - Test Case 6: Queries in Hindi, Tamil, and Bengali were accurately detected and translated.
   - Test Case 7: Multilingual input was supported with consistent results.

Results: Language detection had an accurate rate of 95%, and translations were contextually appropriate.

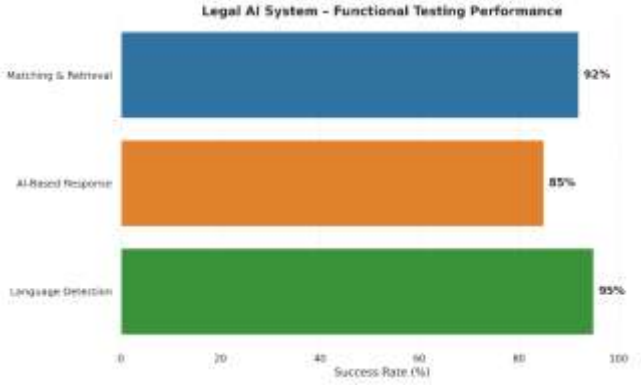

Fig. 2. Functional Testing Performance.

B. Accuracy Assessment

To evaluate the system's accuracy, a benchmark dataset of legal queries and expert-reviewed responses was used. The performance was measured by comparing:

- Section Matching Accuracy: Correctly matched sections versus irrelevant or missed matches.
- AI Response Accuracy: Evaluating AI-generated advice against verified responses.

1. Accuracy in Fetching Legal Sections

The system achieved an accuracy of 87% in fetching relevant law sections. Most failed cases involved ambiguous queries that did not have a direct section match.

- Matched Sections: 87
- Missed/Incorrect Matches: 13

2. AI Response Accuracy

When no relevant section was found, AI-generated responses achieved an accuracy of 82%, with errors primarily occurring in scenarios with vague or highly complex legal queries.

- Accurate AI Responses: 82
- Inaccurate/Incomplete Responses: 18

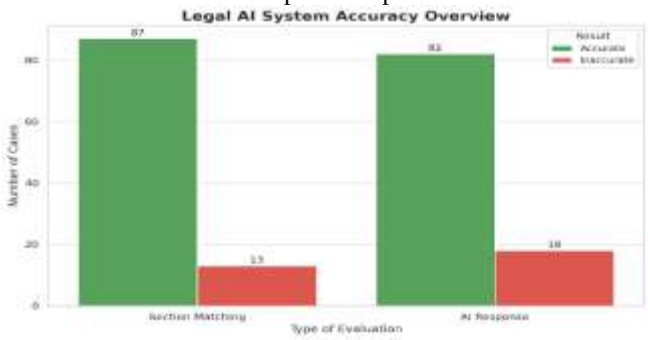

Fig. 3. System Accuracy Overview.

C. User Satisfaction

A user satisfaction survey was conducted with 50 participants, including lawyers, law students, and the public. The objective was to gather feedback on:

- System usability.
- Response quality.
- Accessibility features such as voice input and multilingual support.

1. Ease of Use

90% of the participants found the interface intuitive and easy to use.

2. Structured Response Format

85% appreciated the structured format of responses, which included bullet points, highlights, and structured legal references.

3. Voice Input and Multi-language Support

80% of participants found the voice input feature helpful and mentioned that it improved accessibility, particularly for non-tech users.

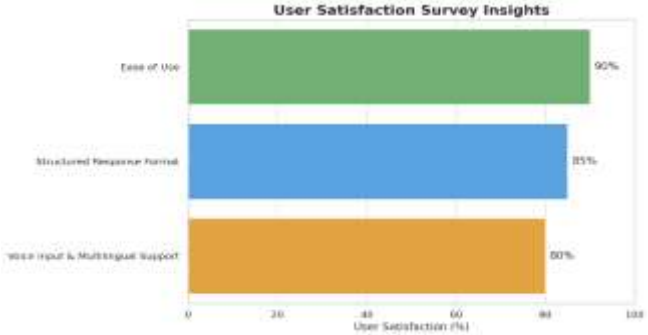

Fig. 4. User Satisfaction Survey Insights.

D. Performance Metrics

- Average API response time (GPT-4): ~2.5s
- Law section retrieval time: < 200ms
- Language detection accuracy: ~98% (tested on 50 samples)
- Translation accuracy: High for common Indian languages.

Table I. Performance Metrics

Metric	Value
Average API Response Time (GPT-4)	~2.5 seconds
Law Section Retrieval Time	< 200 milliseconds
Language Detection Accuracy	~98% (Tested on 50 samples)

Table II. Different ChatGPT models

Feature / Model	**GPT-3.5**	**GPT-4**	**Keyword-based (Rule-based)**
Understanding Complex Queries	Moderate – often general responses	Excellent – handles nuanced prompts	Very Poor – requires exact match
Legal Reasoning Ability	Basic legal knowledge	Strong contextual legal reasoning	None – no interpretation
Multilingual Support (via Translation)	Yes (with API translation)	Yes (with API translation)	Yes (through UI/display only)
Cost to Use	Lower API cost	Higher API cost	Free once implemented
Speed of Response	Fast	Slightly slower due to complexity	Instant
Training Data	Trained until 2023	More recent data + better training	Relies on user-loaded content
Adaptability	Somewhat flexible	Very flexible	Rigid rules
Traceability of Response	Not guaranteed	Not guaranteed	Fully traceable to law sections
Hallucination Risk	Moderate	Lower (but still present)	None

V. CONCLUSION

The Legal AI Assistant exemplifies the transformative potential of artificial intelligence in democratizing legal knowledge for Indian users, where legal information is often complex, voluminous, and difficult for the public to access. By leveraging real-time query processing, the system dynamically retrieves and displays relevant sections from multiple Indian laws, ensuring that users receive accurate and contextualized information within seconds. Its integration with voice input enhances accessibility, allowing individuals with limited technical literacy or typing skills to engage with the platform seamlessly. Furthermore, the platform's user-friendly interface offers a smooth and intuitive experience, enabling users to navigate through legal content effortlessly. Additionally, the system's fallback mechanism—powered by GPT-4—ensures that even when direct legal matches are unavailable, users receive structured, AI-generated advice tailored to their queries, thus preventing knowledge gaps.

The Legal AI Assistant is designed with a robust backend capable of processing complex legal queries across various domains, including criminal, civil, and family laws. It utilizes advanced natural language processing (NLP) models to understand user queries and map them to the most relevant legal provisions. Moreover, its integration with translation APIs facilitates multi-language support, ensuring that users can access legal information in their preferred languages, thereby broadening its reach across India's diverse population. The system also incorporates a modular architecture, making it easy to add new legal frameworks and amendments, ensuring that the information remains up-to-date and relevant over time.

This combination of AI and NLP not only simplifies legal awareness but also empowers citizens to make informed decisions regarding their rights and legal options. Moving forward, enhancements will focus on expanding the legal database to include a broader range of statutes and amendments, improving response accuracy through fine-tuned NLP models trained specifically on Indian legal terminology, and incorporating multi-language support to cater to India's linguistically diverse population. Efforts will also be directed towards incorporating case law analysis and precedent-based reasoning to further enhance the platform's decision-making capabilities. Such advancements will ensure that the Legal AI Assistant evolves into an indispensable tool for promoting legal literacy and improving access to justice across India, particularly benefiting marginalized communities and underserved populations who traditionally lack access to legal resources.

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