LEGAL EAGLE

(AI ASSISTANT FOR LEGAL DOCUMENT SIMPLIFICATION)

A MINI-PROJECT REPORT

Submitted by

SAKTHI MAHESWARI C 221701048

SHEEBA SHARON A 221701053

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RAJALAKSHMI ENGINEERING COLLEGE
CHENNAI – 602105

BONAFIDE CERTIFICATE

Certified that this project report **"LEGAL EAGLE (AI ASSISTANT FOR LEGAL DOCUMENT SIMPLIFICATION)"** is the bonafide work of **SAKTHI MAHESWARI C (221701048)**, **SHEEBA SHARON A (221701053)** who carried out the project work for the subject CD19651 – Mini Project under my supervision.

SIGNATURE

Prof. Uma Maheshwar Rao
Head of the Department
Professor and Head
Computer Science and Design
Rajalakshmi Engineering College
Chennai - 602105

SIGNATURE

Mr. S. Pradeep Kumar
Supervisor
Assistant Professor
Computer Science and Design
Rajalakshmi Engineering College
Chennai - 602105

Submitted to Project and Viva Voce Examination for the subject CD19651 – Mini Project held on_____.

Internal Examiner

External Examiner

ABSTRACT

Legal documents are often complex and difficult for the general public to comprehend, creating barriers to legal awareness and accessibility. *Legal Eagle* is an AI-powered platform designed to simplify legal information, enhance accessibility, and provide instant legal assistance. The system consists of four key modules: text extraction and simplification, voice recognition and translation, Tamil document digitization, and a women safety chatbot. It enables users to extract and summarize legal content into easy-to-understand bullet points, translate documents into multiple languages, and convert spoken legal content into text and audio for improved accessibility. Additionally, it preserves and digitizes old Tamil legal documents, making them searchable and accessible for research. The women safety chatbot offers instant legal advice, safety tips, and guidance, reducing the need for physical court visits. This project enhances public access to legal resources by integrating technology with legal assistance, making legal information more user-friendly and widely available.

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SAKTHI MAHESWARI C 221701048

SHEEBA SHARON A 221701053

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CHAPTER 1

INTRODUCTION

Legal documents are often lengthy, complex, and difficult for the general public to understand, making legal information less accessible to those who need it the most. Legal Eagle is an AI-driven platform designed to bridge this gap by simplifying legal documents, improving accessibility, and providing instant legal assistance. The platform addresses key challenges in legal comprehension through four specialized modules: text extraction and simplification, voice recognition and translation, Tamil document digitization, and a women safety chatbot.

Despite the increasing digitization of legal resources, many individuals struggle to interpret legal jargon, access historical legal records, or seek immediate legal guidance. This project aims to tackle these challenges by offering an intuitive system that extracts and summarizes legal content into simple bullet points, translates documents and speech into multiple languages, digitizes old and damaged Tamil legal texts, and provides instant legal and safety advice through an interactive chatbot.

By employing a user-focused approach, this study analyzes the existing barriers to legal accessibility and introduces AI-driven solutions to enhance comprehension, usability, and engagement. This paper outlines the methodologies used in the development of Legal Eagle, highlighting the impact of AI and NLP technologies in making legal information more approachable and widely available.

CHAPTER 2

LITERATURE REVIEW

I. Automated Legal Document Summarization: A Comparative Study of NLP Techniques (Published in: 2020 IEEE International Conference on Artificial Intelligence and Law) – This study explores various NLP-based techniques for legal document summarization, comparing extractive and abstractive methods. It highlights the effectiveness of deep learning models in simplifying complex legal texts while maintaining accuracy and context.

II. Speech-to-Text and Multilingual Translation for Legal Proceedings (Published in: 2019 International Conference on Computational Linguistics and AI) – This research examines the role of automatic speech recognition (ASR) and translation systems in legal settings, focusing on improving accessibility for non-native speakers. It evaluates different models for real-time transcription and translation of spoken legal content.

III. Optical Character Recognition (OCR) for Preserving Historical Tamil Manuscripts

(Published in: 2021 Journal of Digital Archiving and Linguistic Preservation) – This paper discusses the challenges and advancements in digitizing old Tamil texts using OCR technology. It highlights the need for specialized models to handle complex

Tamil scripts and degraded manuscripts, ensuring accurate text recognition.

IV. AI-Powered Chatbots for Legal Assistance: Enhancing Access to Justice

(Published in: 2022 International Conference on Legal Informatics and Technology) – This study investigates the implementation of AI-driven chatbots in legal consultation. It analyzes how chatbots can provide instant legal advice and safety guidance, reducing the dependency on in-person legal consultations and improving accessibility for marginalized groups.

CHAPTER 3

SOFTWARE USED

Legal Eagle is built with React.js and CSS for a dynamic frontend implemented in Visual Studio Code and Flask for backend processing. It features AI-powered document simplification, multilingual voice translation, a women safety chatbot for legal assistance, and Tamil document digitization for preserving old texts. This ensures an efficient, accessible, and user-friendly legal support system.

Here is an overview in detail about all the tools, models and softwares used in building legal eagle:

I. Tools Selection

For Legal Eagle, we carefully selected technologies to ensure efficiency and seamless AI integration. React.js was used for the frontend due to its dynamic UI capabilities, while Flask (Python) powered the backend for flexibility and smooth model integration. BART CNN handled document simplification, Helsinki-NLP and Facebook M2M enabled multilingual voice translation, and DialoGPT powered the women safety chatbot for real-time assistance. Tamil OCR and Tesseract were chosen for digitizing old Tamil documents, aiding legal research. This tool selection ensured a fast, accessible, and AI-driven legal assistance system.

II. Design Implementation

The design of Legal Eagle was implemented using React.js and CSS, ensuring a

responsive, intuitive, and visually appealing interface. A component-based structure was adopted to maintain consistency across different modules, enhancing usability and scalability. CSS styling and animations improved user engagement, while a

well-structured layout ensured smooth navigation. The design prioritized clarity and accessibility, making legal assistance seamless for users across various devices.

III. Prototyping and Feedback

An essential part of the Legal Eagle development process was prototyping and continuous feedback integration. Using React.js and CSS, we created interactive prototypes that allowed us to simulate real-world usage and test various features, such as document simplification and voice translation. Stakeholders and users could interact with the prototypes, providing immediate feedback, which was then quickly incorporated into the design. This iterative process allowed us to refine user interface elements, improve functionality, and ensure a smooth and efficient user journey, enhancing overall user satisfaction.

IV. Outcome and Impact

The development of Legal Eagle resulted in a highly effective, AI-powered legal assistance platform that significantly enhanced user accessibility and engagement. Post-launch feedback and analytics indicated improved user satisfaction, particularly in the ease of document simplification, multilingual support, and quick legal guidance. The project successfully met its objectives of creating a user-friendly, scalable system and is designed to evolve with future technological advancements and user needs, ensuring continued efficiency and accessibility in legal services.

CHAPTER 4

PRESENT TECHNOLOGY

The current landscape of technology in legal assistance and related domains is powered by several advanced tools and software, commonly used to enhance functionality, user engagement, and overall service quality. These existing solutions integrate machine learning, natural language processing (NLP), and advanced cloud services to address various user needs effectively.

Existing Solutions

I. Google Translate

Google Translate is one of the most widely adopted solutions for translating legal documents and other text in real-time, making it an indispensable tool for global users seeking legal help in their preferred language. A powerful translation tool that supports over 100 languages, Google Translate is often used in legal technology to help users understand legal content in their native languages.

II. ChatBots

AI-powered chatbots like ChatGPT and Dialogflow are used in various sectors, including legal services, to provide real-time advice and guidance.ChatGPT has proven effective in offering real-time responses, empowering users with immediate legal information and advice. Another popular tool, Dialogflow, is used for building conversational interfaces that understand and process natural language

III. OCR for Document Digitization

Optical Character Recognition (OCR) technology plays a pivotal role in digitizing printed or handwritten legal documents. Tesseract and other specialized OCR tools are used to scan and convert legal documents into machine-readable formats, allowing users to search, edit, and store legal content more efficiently.

IV. Google Cloud Translate

Google Cloud Speech-to-Text and Microsoft Azure Speech are popular tools that convert spoken language into text, facilitating voice commands for accessing legal advice or translating legal documents.

4.1 LIMITATIONS

I. ChatGPT has limits for uploading pdfs

ChatGPT has a restriction on the number of PDFs that can be uploaded, allowing only up to three PDFs at a time. This limitation makes it challenging for users who need to process multiple documents simultaneously, especially in research, legal, or business settings.

II. Google Translate might cause loss of meaning while translating

Google Translate is widely used for multilingual text translation, but it comes with significant limitations, particularly in legal and technical contexts. One major issue is the loss of meaning when translating complex legal documents, as the tool may not accurately interpret legal terminology.

III. Google Cloud Translate is a Paid Service

Google Cloud Translate is a more advanced version of Google Translate, designed for

businesses and developers, but it still has limitations. One major drawback is the cost—unlike the free version of Google Translate, Cloud Translate is a paid service, which can be expensive for large-scale translation needs

While ChatGPT, Google Translate, Google Cloud Translate, and OCR offer advanced AI-powered solutions, they each have limitations in terms of accuracy, contextual understanding, and handling of legal and technical content. These tools should be used cautiously, particularly in critical applications such as legal document processing, where human verification is essential to ensure reliability and correctness.

CHAPTER 5

PROPOSED SOLUTION

Legal Eagle aims to revolutionize legal assistance by integrating AI-powered solutions to simplify legal document processing, enhance accessibility, and improve multilingual support. Unlike existing solutions, which often struggle with accuracy, real-time interaction, and document complexity, Legal Eagle provides a comprehensive, user-friendly platform that addresses these shortcomings effectively.

A major enhancement is the document simplification module, which extracts key points from complex legal texts and presents them in an easy-to-understand format. This feature overcomes the limitations of tools like Google Translate and ChatGPT, which often fail to capture the contextual meaning of legal jargon.

The women safety chatbot provides instant legal guidance and emergency assistance. Unlike general-purpose chatbots, Legal Eagle's AI is trained specifically on legal frameworks and women’s safety laws, ensuring more relevant and reliable responses.

For Tamil document digitization, Legal Eagle employs advanced OCR technology optimized for complex Tamil scripts, addressing the inaccuracies and low recognition rates found in existing OCR solutions like Google Cloud Vision.

The platform also integrates multilingual support to make legal assistance more inclusive for non-English speakers. Notifications for updates, case status, and important legal deadlines ensure that users stay informed without having to repeatedly check manually.

By addressing the limitations of existing solutions with AI-driven improvements, Legal Eagle provides a more accurate, accessible, and user-friendly legal assistance.

platform, ensuring a seamless experience for users navigating legal complexities.

5.1 USER FLOW DIAGRAM

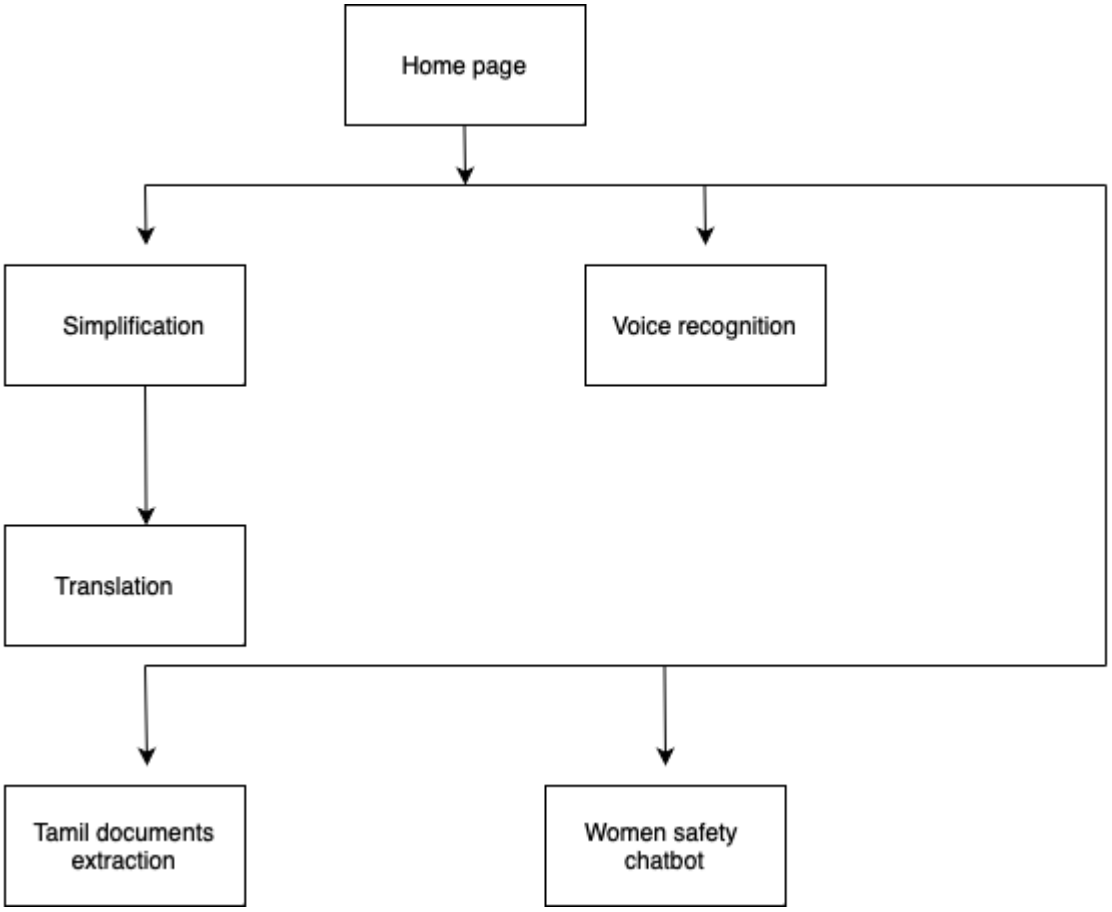

Fig 1: Use Flow Diagram

5.2 ADVANTAGES

Advantages of Building Legal Eagle

I. Simplifies Complex Legal Information

Legal documents are often difficult to understand due to their technical jargon and

dense wording. Legal Eagle simplifies these documents by extracting key points and presenting them in an easy-to-read format, ensuring accessibility for everyone.

II. Multilingual Support

Many existing legal platforms are limited to English or a few regional languages. Legal Eagle overcomes this limitation by providing multilingual text extraction, translation, and voice output, making legal assistance available to a diverse audience.

III. Real-Time Assistance

Unlike traditional legal research, which can be time-consuming, Legal Eagle provides instant responses through its AI-powered chatbot. It offers immediate legal advice, safety tips, and emergency guidance, especially for women's safety concerns.

IV.Scalability and Future Enhancements

Since Legal Eagle is built with scalable technologies like React and Flask, it can easily accommodate future improvements, such as AI-driven legal predictions, deeper case law analysis, and integration with online legal filing systems.

V.User-Friendly and Modern Interface

Compared to outdated government legal websites, Legal Eagle provides a clean, intuitive, and modern interface that enhances user engagement and usability.

CHAPTER 6

OUTPUT

Project Link Github:

https://github.com/C-Sakthi-Maheswari/Legal-Eagle.git

Legal Eagle consists of four modules: the Text Extraction & Simplification module, which uses AI to extract and simplify legal documents into bullet points and multiple languages; the Voice Recognition & Translation module, which converts speech to text, translates it, and reads it aloud; the Tamil Document Digitization module, which applies OCR to digitize old and damaged Tamil documents; and the Women Safety Chatbot, which offers legal advice, safety tips, and resources for women's safety.

Fig 2: The Loading Page of Legal Eagle

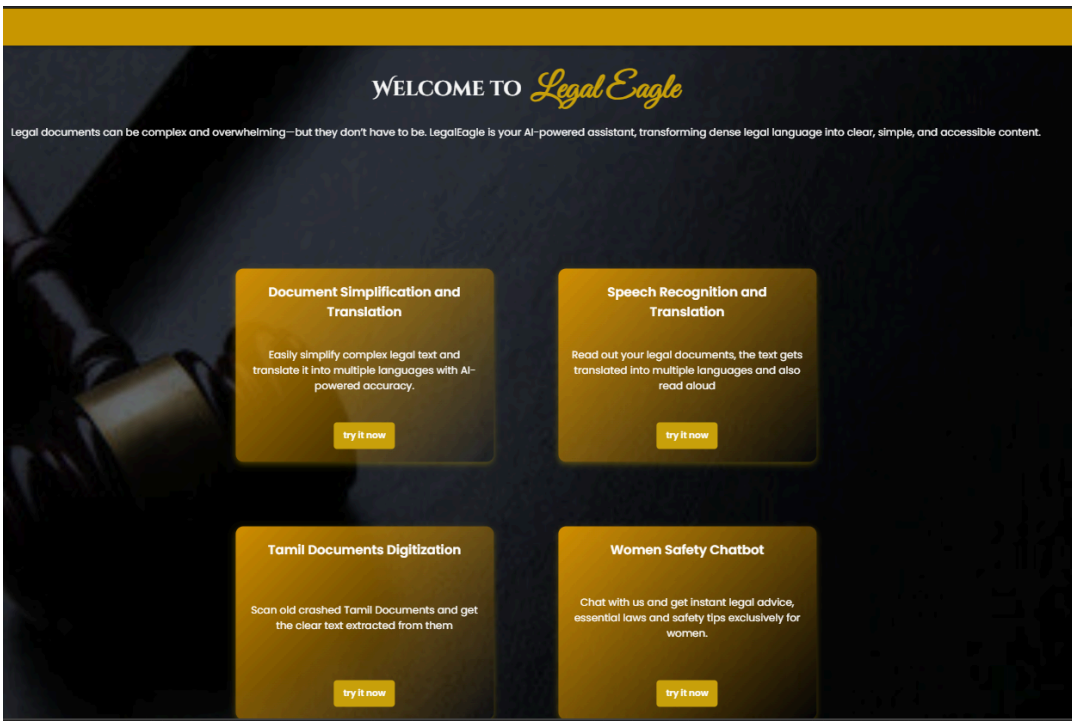

Fig 3: The HomePage of Legal Eagle

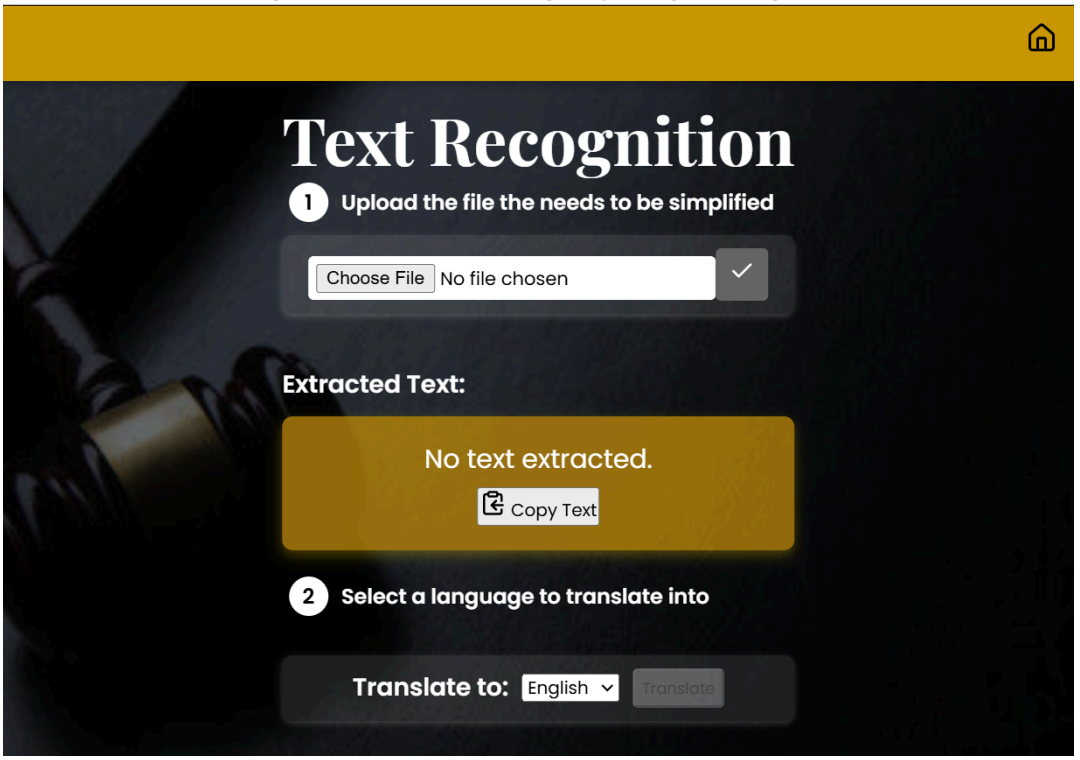

Fig 4: Text Recognition, Simplification and Translation Page

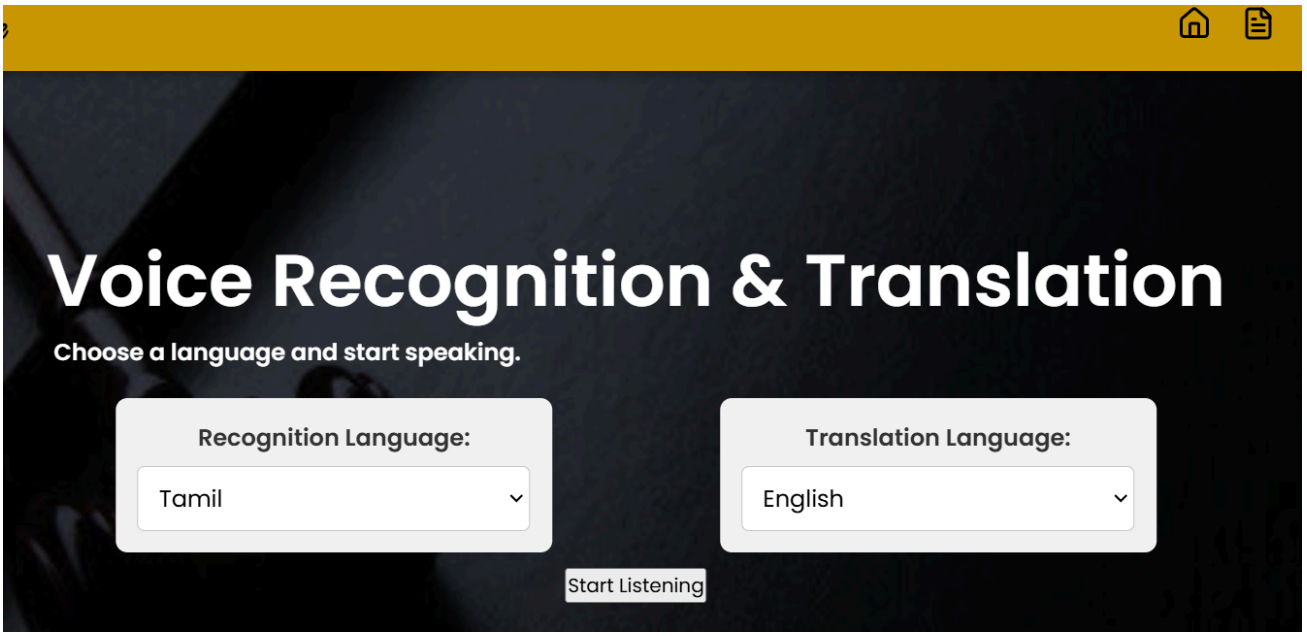

Fig 5: Voice Recognition and Translation Page

Fig 6: Tamil Document Digitization Page

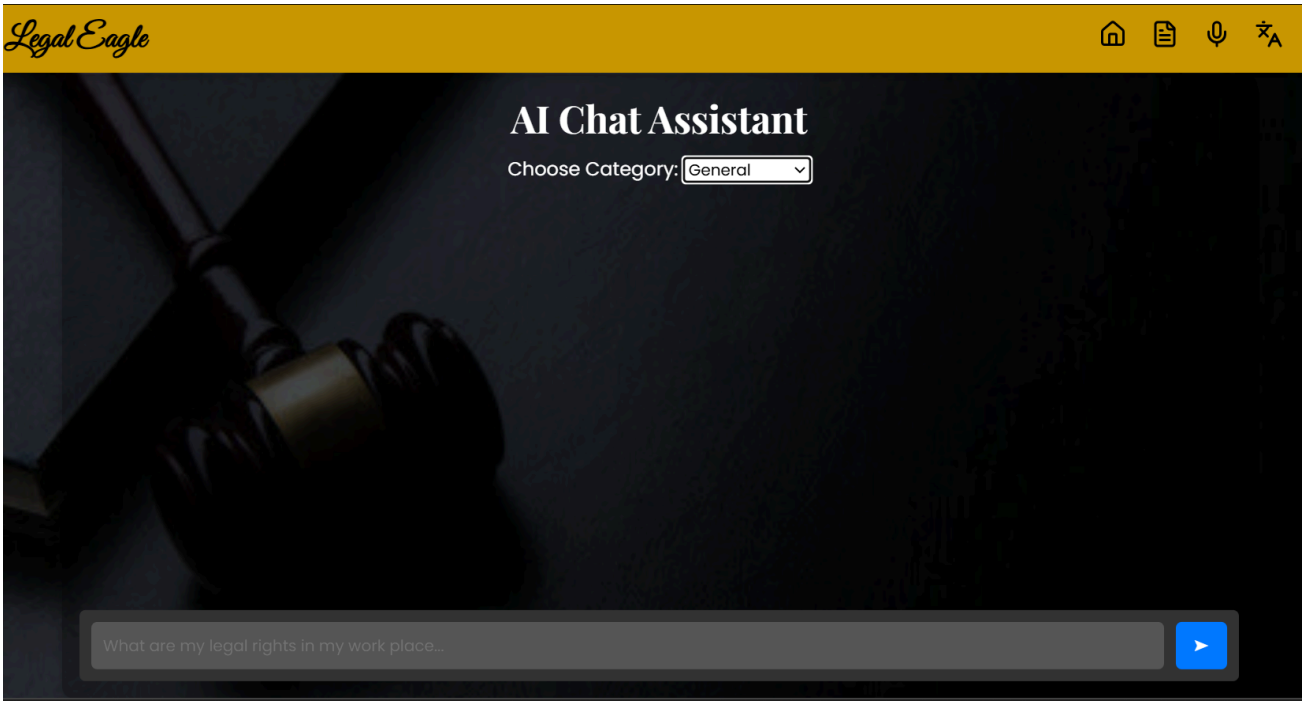

Fig 7: Women Safety Chatbot Page

CHAPTER 7

CONCLUSION

In conclusion, the Legal Eagle project represents a significant leap forward in transforming how legal services and information are accessed and understood. By integrating cutting-edge technologies like AI-driven text extraction, voice recognition, and OCR, the platform addresses key challenges faced by legal professionals and the public in understanding complex legal documents. The system's ability to simplify legal language, provide instant legal advice, and enhance safety measures for women ensures that it caters to the diverse needs of users.

With its focus on user-centric design, efficiency, and security, Legal Eagle is poised to revolutionize the way legal information is processed and delivered. As it continues to evolve, it will not only foster better legal literacy but also contribute to a more inclusive and accessible legal system for all. This project positions Legal Eagle as an indispensable tool for individuals and professionals navigating the complex world of law, ensuring that the benefits of legal technology are within everyone's reach.

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