



# AI DRIVEN LEGAL APP

न्याय मित्र

Ajina A (11)  
Devakrishna A S (70)  
Arshak Muhammed P K (72)  
Sayooj V (76)

# INTRODUCTION

## BACKGROUND

- The legal domain is intricate, involving voluminous data, and often inaccessible to non-specialists.
- Current challenges include legal jargon, difficulty accessing case laws, and identifying relevant statutes

## PURPOSE

- Highlight the problem of legal information accessibility.
- Present an AI-powered solution that simplifies legal research and referencing.



# CURRENT SCENARIO

- Law enforcement officers and legal professionals often rely on manual processes to find relevant legal sections and judgments.
- This leads to delays, inaccuracies, and inefficiencies in handling cases.

# PROBLEM DESCRIPTION

- The lack of an intelligent, automated system for mapping incident details to legal provisions.
- Difficulty in accessing landmark judgments and case laws quickly.
- Impacts the overall efficiency and effectiveness of the justice system.

# PROBLEM STATEMENT

# WHY THIS PROBLEM?

- Legal processes can be complex, and delays can lead to injustice.
- Quick and accurate legal referencing is essential for fair proceedings.
- The lack of accessible tools affects law enforcement officers, lawyers, and citizens.

# IMPACT OF SOLVING

- Accelerated decision-making in legal contexts.
- Improved accuracy in legal document preparation and incident reporting.
- Enhanced access to justice for all stakeholders.

# MOTIVATION AND NEED

# EXISTING APPROACHES

- AI systems like Legal Navigator Portal simplify legal research but lack real-time contextual analysis.
- NLP models in legal domains have improved document summarization but face challenges in integrating domain-specific datasets.

# GAP ANALYSIS

- Existing tools do not provide seamless integration of legal databases, real-time analysis, and contextual recommendations tailored for law enforcement.
- Limited focus on incorporating user feedback for continuous learning.

# LITERATURE REVIEW

## SUMMARY OF PAPERS

<p><b>1. Natural Language Processing In The Legal Domain, Domain, Daniel Martin Katz, Dirk Hartung, Lauritz Gerlach, Abhik Jana, Michael J. Bommarito, 2023</b></p>					
Contribution	Work done	Simulation/Hardware	Performance Metrics	Achievements	Future Enhancement / Limitations
Comprehensive review of Legal NLP, highlighting its growth, trends, and alignment with general NLP.	Analysis of over 600 NLP & Law-related papers, focusing on methodologies, data sharing, and open-source practices.	Identification of trends in legal datasets, computational resources, and real-world applications	Identification of trends in legal datasets, computational resources, and real-world applications	Demonstrated the rising complexity and utility of models, increasing relevance to industry players.	Calls for integrating generative models into literature and refining engineering aspects.
<p><b>2. Role of AI in Legal Aid and Access to Criminal Justice, Karan Singh Chouhan, 2019</b></p>					
2. Discussed AI systems like Legal Navigator Portal for accessible legal aid and research efficiency.	Developed AI-driven systems to simplify legal jargon and enhance legal research	Developed AI-driven systems to simplify legal jargon and enhance legal research	Efficiency in identifying relevant laws and statutes, enhanced accessibility to legal resources.	Improved accessibility to legal aid, efficiency in legal research for laypeople and professionals.	Potential for broader AI application in legal systems to bridge gaps in legal aid.
<p><b>3. Russian Court Decisions Data Analysis Using Distributed Computing and Machine Learning, Oleg Metsker , 2019</b></p>					
3. Analyzed administrative court decisions using NLP for law enforcement insights.	Processed over 50,000 court decisions with NLP techniques for pattern analysis.	Processed over 50,000 court decisions with NLP techniques for pattern analysis.	Insights into socio-economic influences on law enforcement	Revealed trends in administrative penalties and law enforcement disparities.	Development of simulation models for analyzing legal documents with broader socio-economic factors.

			and regional disparities.		
<b>4. Leveraging Natural Language Processing for Legal Research: Trends and Future Directions, Hiral Modi, 2020</b>					
4. AI integration, particularly through NLP, is revolutionizing legal research, document analysis, and case outcome predictions.	Introduced AI tools capable of automating legal document summarization, information extraction, case classification, and predictive analytics.	Introduced AI tools capable of automating legal document summarization, information extraction, case classification, and predictive analytics.	Enhanced efficiency in legal research, reduced time and cost in legal aid services, and improved access to justice for underserved communities.	Democratized legal knowledge through advanced AI tools. Enabled smaller legal aid organizations and individual clients to access advanced analytics. Offered accessible entry points into justice systems through AI-powered chatbots and virtual assistants.	Ethical considerations like data privacy and algorithmic biases need to be addressed. Ensure accessibility and scalability of AI tools for non-profit organizations serving marginalized populations.

# OBJECTIVES

## PRIMARY OBJECTIVE

- Develop an AI-powered application that suggests relevant legal sections, acts, and judgments based on incident descriptions.

## SUB OBJECTIVES

- Implement NLP models for understanding legal language and contexts.
- Create a secure database for legal acts, sections, and judgments.
- Enable voice-to-text and image-to-text functionality for easy input.

## DELIVERABLES

- AI-based legal reference app prototype with text ,image and voice input features.
- Database containing legal sections and landmark judgments.

# APPROACH TO PROBLEM IDENTIFICATION

- Conducted a needs analysis with law enforcement officers and legal professionals.
- Reviewed existing AI models in the legal domain.

## Tools or Techniques Used:

- Google Speech-to-Text API for voice input.
- OpenAI API and fine-tuned BERT models for NLP.
- Firebase Database for storing legal information.

# KEY FINDINGS

- Significant delays in accessing legal references during real-time incidents.
- Need for user-friendly interfaces and cross-platform accessibility.
- Efficient NLP models and database designs can improve legal research dramatically.

# METHODOLOGY

# KEY CONSTRAINTS

- Dependence on comprehensive and up-to-date legal datasets.
- Balancing accuracy and system performance
- Limited access to domain-specific datasets for training AI models

# CHALLENGES

- Maintaining data privacy and security.
- Addressing potential biases in AI predictions.

# CONSTRAINTS AND CHALLENGES

# OUTCOMES

## SHORT TERM OUTCOMES

- Functional prototype of the app with core features.
- Improved accessibility to legal information for law enforcement officers.

## LONG TERM OUTCOMES

- Reduced delays in legal processes.
- Scalable solution for broader application in legal aid services.
- Continuous improvement through feedback and AI model refinement.



# CONCLUSION

- This project aims to address the inefficiencies in legal referencing through an AI-powered app.
- By leveraging NLP and secure databases, we propose a solution to enhance legal research and accessibility

## Next Steps:

- Complete the app prototype with integrated features.
- Pilot testing with selected users to gather feedback.
- Optimize AI models based on user feedback and expand dataset coverage.

# THANK YOU

