TED UNIVERSITY

CMPE_491

PROJECT SPECIFICATIONS REPORT

Name of the Project: JustiWise

Web Page URL: https://finalprojectjustiwise.github.io/CMPE_491/

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1. Introduction

1.1 Description

This project aims to facilitate access to legal services, increase the efficiency of lawyers, and contribute to the professional development of individuals studying in the field of law. This web-based platform will reduce the workload of lawyers by providing legal consultancy services to clients, while also providing a virtual training environment for law students and professionals.
The system focuses on two main functions:

Automated Legal Consultation and Support:
Clients will interact with an AI-driven avatar to describe their cases. The avatar will analyze clients' statements and translate them into legal terminology, which will then be presented to the lawyer. This will allow lawyers to save time on routine tasks, enabling them to focus more on complex cases and expedite processes.

Simulation and Training Modules:
The platform will offer educational tools for lawyers and law students to gain experience in a virtual environment. Through simulations based on previously solved cases, users will be able to participate in virtual trials and test their knowledge and skills. Additionally, real-life mediation processes and training scenarios will be simulated by AI-supported robots, providing users with a flexible and accessible learning environment.

1.2 Constraints

1. **Economic Constraints**

- **Licensing and Legal Costs:** The platform must comply with Turkish legal requirements and data protection laws like KVKK, which may incur licensing fees and legal consulting costs.
- **User Pricing:** Access costs for the platform must remain at a reasonable level. High pricing could restrict access for small law firms and individual users.
- **Model Fine-Tuning Costs:** Fine-tuning may be necessary to make the model more suitable for legal texts. This process requires extensive data and computing power, which could lead to additional expenses.

2. **Environmental Constraints**

- **Energy Consumption:** AI-based systems have high energy demands, which can increase the carbon footprint. It is essential to operate data centers with sustainable energy sources.
- **Green Computing Initiatives:** For environmental sustainability, the platform is expected to use efficient data management methods and support energy savings.

3. **Social Constraints**

- **Technological Adoption and Compatibility:** Lawyers and the legal sector may adhere to traditional methods, potentially causing resistance to technological innovations, which could slow down the adoption of the system.
- **Digital Access Inequality:** Access to digital infrastructure may vary in different regions. Low technology access could limit platform usage.
- **Training and Competence:** Adapting users to the new system may require time and mentorship. Lawyers should be familiar with this platform while guiding clients.

4. **Political and Legal Constraints**

- **Data Privacy Regulations:** The platform must comply with KVKK in Turkey and GDPR standards for transactions requiring alignment with the European Union. Non-compliance with Turkish privacy regulations may result in severe sanctions.
- **Artificial Intelligence Regulations:** The use of AI in the legal field must adhere to Turkish legal regulations and ensure ethical use.
- **Professional Compliance and Bar Approval:** The platform must not violate the boundaries of the legal profession and must work in harmony with Turkish bar associations and professional organizations.

5. **Health Constraints**

- **Ergonomics and Mental Health:** Extended use of the platform may negatively affect users' physical and mental health. Long sessions may cause eye strain and stress.
- **User Fatigue:** Intense use of virtual trials and mediation simulations may lead to mental fatigue among users.

6. **Security Constraints**

- **Data Security:** Sensitive client data must be protected against cyberattacks. Security breaches could lead to serious consequences.

7. **Manufacturability Constraints**

- **Compatibility:** The platform must work seamlessly on different devices and operating systems.
- **Technical Support and Maintenance:** Continuous technical support must be provided to ensure the smooth operation of the platform. Additionally, any issues encountered in the system should be resolved quickly.

8. **Sustainability Constraints**

- **Compatibility with Technological Developments:** AI technologies are rapidly advancing. The platform must be updated to stay in line with these advancements.
- **Long-Term Use:** To ensure that the platform is permanently adopted by the legal sector, continuous updates and improvements are essential.
- **Preventing Dependence:** To avoid users becoming overly dependent on the platform, human interaction should be encouraged in training processes.

1.3 Professional and Ethical Issues

1. **Privacy and Confidentiality:**

Processing the information provided by clients via the AI avatar requires the protection of personal and sensitive data. Following ACM's privacy principle, this data should only be used for the relevant purposes

and protected against unauthorized access. Anonymity and data minimization techniques should be prioritized to ensure privacy within the system.

2. **Justice and Non-Discrimination:**

AI-based platforms must operate impartially. In this project, AI models should be trained to eliminate discriminatory biases. Ensuring fair access encourages individuals from various socio-economic and cultural backgrounds to use the platform equally.

3. **Accuracy and Reliability:**

The flow of information between clients and lawyers must be accurate and reliable. Following ACM's principles of honesty and reliability, the AI avatar should transparently disclose if it cannot handle certain situations. Providing incorrect or misleading information could have serious consequences in the legal system.

4. **Social Responsibility and Public Benefit:**

This project aims to alleviate the workload of lawyers, increase their efficiency, and provide an advanced educational environment for law students. In line with ACM's principle of serving the public interest, such technological developments are expected to benefit society as a whole.

5. **Legal Responsibilities and Professional Ethics:**

While providing legal consultancy, the platform must not exceed legal boundaries. The AI should support rather than replace lawyers' work processes. Considering ACM's principle of "working only in areas of competence," the system should prevent misleading guidance.

6. **Data Security and Safety Measures:**

Client and user data should be protected against cyberattacks. In line with ACM's security principle, any security vulnerabilities should be quickly addressed, and relevant parties should be informed.

7. **Bias and Transparency:**

The AI's decision-making processes should be transparent, and users should understand these processes. By ACM's ethical guidelines, potential biases should be regularly reviewed, and users should be informed about the system's limitations.

2. Requirements

2.1 Functional Requirements

- **User Management:** Role-based access control with separate user profiles should be available for clients, lawyers, and students.
- **User Registration and Identity Verification:** Users should be able to create accounts with personal information. To ensure privacy and data integrity, users' identities must be securely verified.
- **Case Management:** Lawyers should have access to case management tools to track case progress, manage documents, and plan tasks.
- **Automated Legal Services:** Clients should explain their legal cases to an AI-supported avatar, and these descriptions should be translated into legal terminology and presented to lawyers.
- **Legal Document Processing:** The platform should provide AI-supported document analysis and features such as legal document generation, summarization, and verification.
- **Simulation and Training Modules:** The system should offer modules for lawyers and law students, simulating virtual trials and mediation scenarios for training.
- **AI-Powered Avatar**: The system must provide an interactive AI avatar capable of understanding client cases, converting them into legal language, and forwarding them to the respective lawyers.

2.2 Non-Functional Requirements

- **Security:** The application should implement security measures such as end-to-end encryption, database encryption, and hashing to protect user data and privacy. User authentication and authorization processes should be handled securely to prevent unauthorized access.
- **Performance:** The system should complete client inquiries and document processing tasks within an acceptable response time, and simulations should operate in real-time with minimal latency; performance criteria will be determined in prototype testing.
- **Scalability:** The platform should support multiple users (clients, lawyers, law students) simultaneously.
- **Usability:** A user-friendly interface should be provided, and the platform should be easy to use. Guidance and training materials should be offered to users.
- **Compliance:** The AI system should operate in compliance with ethical and professional standards, particularly regarding legal regulations such as data privacy and non-discrimination.

3. References

[1] ACM Code of Ethics and Professional Conduct

[2] IEEE Code of Ethics

[3] https://gdpr-info.eu/

[4] KVKK