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# Location Based security for Preventing Data Exposure in Corporate Environment

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**Abstract:**
Politicsnew Digital solutions are helping the real estate sector become more transparent, reduce costs and earn people's trust. It describes the building and configuration of an AI-enabled real estate registration system that relies on Explainable Artificial Intelligence (XAI) for verifying consent. Often, property registration processes are slow, can be faulty due to people and are easily exploited by fraud. Our design uses machine learning methods to check, verify and detect fraud in documents and at the same time uses XAI models to interpret and explain the decisions for all stakeholders.A key role of the XAI-based consent verification module is confirming that all involved parties—buyers, sellers and legal authorities—have given informed consent through interpretable AI models. It guarantees that rules are followed, that AI remains transparent and that people trust its judgments.Part of the system architecture is the integration of secure blockchains, plus verification of a person's identity with facial and biometric data and the use of NLP to study and check legal documents. Trials of the system showed that it performed well, was much faster and made users feel more confident because of how the XAI layer explained what was happening.It plays an important role in developing a safer and more digital method to register real estate properties based on ethical and explainable AI systems.

## 1. INTRODUCTION:

One of the most important industries, real estate, is often affected by issues of inefficiency, delays and lack of transparency in confirming who owns a property. Since real estate registration is paper-based and takes a lot of manual labor, it is easier for fraud, forgery and errors to happen. To deal with these issues, technology is needed to speed up, protect and simplify real estate deals while still keeping trust and accountability.Artificial Intelligence can play a big role in modernizing real estate practices by using automation, intelligent choices and finding fraud. There is still a big concern in legally important areas such as real estate because AI decisions are not always understandable. Property buyers, sellers, legal authorities and financial institutions should be able to rely on and agree with the opinions and approvals provided by the AI.Our idea is to use AI with Explainable AI (XAI) technology to support real estate registration consent verification. It handles document verification, checks identity and confirms ownership using XAI so that each decision by AI is both easy to see and fair. The module based on XAI makes sure that everyone involved has given clear, informed and provable consent which greatly cuts down the risk

of problems like disputes and fraud.The system uses blockchain to keep records securely, NLP to interpret legal documents and biometric authentication for users to be identified safely. To make sure the system functions well, security and simplicity, the proposal joins these technologies.It includes a description of how the system is designed, the main technologies applied, the role of XAI in legal consent verification and findings from a prototype tested in different test environments. When AI is made clear and responsible, it can help modernize traditional real estate registration to make it fair and convenient for everyone.

## 2. **KEY FEATURES**:

**Verifying Documents with AI:**

Uses machine learning algorithms to examine title deeds, sale agreements and encumbrance certificates.

It spots abnormal data, wrong information and uneven patterns through comparison with past data.

**XAI is used for verifying consent:**

Helps make certain that everyone actively participating (buyers, sellers and notaries) understands and approves the contract.

Uses easy-to-understand AI models to show how consent validation is carried out.

**Promotes trust and openness by giving users the reason for each decision:**

Use of biometric and facial recognition is used for identity verification.

It checks the identity of people by scanning their fingerprints and using facial recognition.

Avoids identity fraud and fraudulent use of a person's name during actions related to finance.

The use of Natural Language Processing (NLP) to understand legal documents:

Reviews legal documents and selects the most important sections, rules and potential challenges.

Explains what legal terms mean to users.

**Blockchain used to guarantee records are safe and unchangeable:**

Using a blockchain, stores safely record transaction details to stop any unauthorized changes.

Allows the history of ownership to be clearly seen, time-recorded and checked.

**Catching fraud quickly and analyzing the risks:**

Signals to users instances of duplicate accounts, suspicious transactions or those listed in blacklists.

Relies on predictive analytics to calculate risk scores as events happen.

**User-Friendly Interface Helps with Guided Workflows:**

Simple solution for using technology created for people without technical skills.

Guided instructions on registering, verifying and giving permission.

**Following the Rules and Regulations:**

Is in accordance with real estate registration rules nationally and where the property is situated.

Records all audit details for possible legal review and settling disagreements.

**Access Control includes Role-Based and Privacy Protection:**

Helps prevent random users from getting to sensitive information.

Adopts GDPR standards to secure how personal information is processed and managed.

**The capacity to audit and track:**

AI decisions are traced in logs that describe the reasons behind them in detail.

Helps manage reviewing of regulations and post-deal audits.

## 3. EXISTING SYSTEM

The process of registering real estate is usually manual, done using paper and involves a lot of bureaucracy. Even as some digitization efforts are underway in certain places, the procedures are scattered, often lead to uncertain outcomes and are not very clear. These are some of the major features and drawbacks seen in current systems.

**1. Processing documents manually (rather than with technology):**
Registrar offices generally need you to bring in several documents to register your property such as sale deeds, proofs of ownership, pictures of your ID, documents relating to payments and tax receipts.

The government checks the applications itself by checking records which requires much time and can result in people missing details.

**2. There is No Real-Time Verification**
It is not possible to check in real time whether an asset has ownership history or is under any encumbrance using these systems.

When delays happen, it increases the possibility of stealing a property multiple times or without the owner's approval.

**3. Not enough information is shared or available on the supply chain.**
People are largely in the dark about how decisions on documents are made.

It is often hard for stakeholders to figure out why their application was rejected or delayed.

**4. No Automated Fraud Detection**
Currently, systems do not apply advanced analytics to find cases of suspect patterns, forgeries or people trying to pretend to be others.

Usually, fraud is noticed only once a legal dispute has already started.

**5. Identity verification was not done properly.**
ID verification is normally done by reviewing actual ID cards or scanned images by hand.

Thus, there is a high risk that papers can be faked or someone can pretend to be someone else during the registration.

**6. No system to check for user consent.**
A way of digitally confirming and logging the informed agreement of all those involved has not been set up.

Later on, many issues occur because of alleged coercion, false evidence or fake documents.

**7. Most of their actions are offline, not online.**
Many regions have set up online systems for uploading documents and setting up appointments, yet manual work is still required for major procedure stages.

Because various departments (land records, revenue, legal and others) are not well linked, more inefficiencies arise.

## 4. PROPOSED WORK

By creating a Location-Based Security Framework, this project works on solving the issues with traditional security systems and improving the defense of important corporate data. With this system, location information is accessed in real time, so security measures can be altered as needed.

**The main aims of the proposed work are mentioned here:**

Place location at the heart of what determines access to spaces.

Hinder unapproved access to data according to where the user is or their network position.

Adhere to all the data protection rules created by regulators and the organization.

**Main Elements of the System:**

**1.There is a module for detecting locations.**

- The use of GPS for exact location monitoring (on mobile devices)
- Using IP geolocation to get the location from a network address
- Using Wi-Fi communications in maps designed for precise positioning inside buildings
- Network zone detection to find out if the device is connected to the corporate network

**2.Policy Management Engine.**

- Access to all of the system's data is made possible at secure locations (e.g., headquarters).
- Network access restricted for workers at home or at set IP addresses
- Set up ways to prevent devices from outside your company from accessing your network
- Time-based rules and rules based on someone's role can be part of a policy.

## 5. ADVANATGES OF THE SYSTEM WE HAVE PROPOSED

**1. Greater transparency and trust are key results.**

When Explainable AI (XAI) is used, users can easily understand every decision made, including consent verification.

Stakeholders will have knowledge about why approvals, rejections and risk analyses were reached.

**2. Preventing Fraud and Handling Business Risk**

AI immediately notices and flags potentially fraudulent transactions.

Using biometrics makes it less likely for someone to fake a person's identity or forged documents.

**3. Optimal and Proper Handling of Business Documents**

Automating the process prevents mistakes made by people reading legal and property records.

Reduces the time required by both parties for processing the application.

**4. Being able to confirm digital consent in court**

People give their consent using biometrics and electronic signatures.

XAI helps ensure legal compliance by giving a record and clear information on verifying consent.

**5. Records kept in the blockchain cannot be altered and are very secure.**

After the transaction is on the blockchain, it remains untouched or unremovable.

Makes property records more reliable and makes future legal or financial procedures easier.

**6. Decreased Workload for Humans**

Automated processes for verification, document parsing and approvals help reduce the stress on those working in government or registration offices.

Resources may be handed out in a more efficient manner.

**7. Better experience for the users**

Users with limited experience with technology can still use the system because it is well-designed.

Takes out the need for intermediates or brokers.

**8. Facing Legal Rules and Regulations**

It matches the rules for property laws, digital signatures and protection of data.

Makes digital transactions legally acceptable.

**9. Being cost- and time-efficient**

Making the entire process of registering property quicker cuts down on overall expenses and shortens waiting times.

Does away with problems caused by manual mistakes and lost documentation.

**10. Easy to expand and prepared for changes in the future**

Meant to allow the program to work together with tax, land record and identity systems of the government.

Can apply for other scenarios that deal with many documents such as mortgage registration and managing leases.

## 6. METHODS

To make real estate registration secure, transparent and automated, several advanced technologies are brought together in a multi-layered system. The methods in the system can be divided into these main areas:

### 1. Data Collection

Get the needed real estate papers (sale deeds, ID evidence, ownership certificates) and organize them into groups for training AI models.

Extract the text within scanned documents with Optical Character Recognition (OCR).

Make sure all data files are formatted consistently for the same processing.

### 2. Checking Documents by Using Machine Learning

Training Method: Supervised learning models were built (for example, Random Forest, SVM or CNN to analyze images).

Purpose: Find fake papers, inconsistencies in details or missing details by running the uploaded documents against information from the government and property databases.

Conclusion: Flag anything that looks suspicious or should not have been included for review.

### 3. Identity can be Confirmed Using Biometrics and Facial Recognition

Implementation step: Add biometric APIs to your system such as facial recognition and fingerprint scanning.

An important role is to check biometric data in real-time with saved identity details to verify people.

OpenCV, dlib or commercial biometric SDKs can be used as tools.

### 4. Explainable AI (XAI) can verify that an individual has given consent.

Proposed Techniques: Decision Trees, LIME (Local Interpretable Model-Agnostic Explanations), SHAP (SHapley Additive exPlanations).

Verifying and validating that all parties gave their informed digital consent is the main function of the process.

Make sure the reasons for granting consent are clear and easy to follow for users (you can use rules or reasons to do this).

Result: Helps people trust each other, gives clear legal guidelines for solving conflicts.

**5. NLP can help with understanding legal documents.**

MediInsight uses Natural Language Processing (NLP) models to fetch and study clauses from legal documents.

Tasks Performed:

It is important to collect data such as the parties involved (buyers and sellers), the features of the property and the transaction amount.

E.g., sorts of clauses (for example, liability and transfer terms).

Ambiguity detection.

spaCy, BERT-based models or even custom-built NLP pipelines can be used as tools.

**6. Storing records on the blockchain for extra security**

On platforms such as Ethereum, Hyperledger or other type of blockchain systems.

Function:

Put a backup record of every ended transaction that cannot be altered.

Keep registration data on permanent, unchangeable records with a time indication for every transaction.

The working of blockchain strengthens the security and faith owners have in their trail of ownership.

**7. Risk scoring and fraud detection.**

The approach used: Anomaly detection algorithms, ensemble models.

What is considered as input: user patterns, document structures and variations between biometrics.

The result: Risk scores given to each transaction to help find possible fraud.

**8. The use of Workflow Automation and User Interface is becoming more popular.**

The development process uses frameworks for the web (such as React and Angular) and backend services (including Node.js and Django).

Features:

A clear detailed guide to registering.

Controls based on the roles of users, authorities and legal entities.

There are dashboards for checking document status, consent and alert management.

**9. Evaluation and Testing**

Approach:

Use examples of data to practice how to register users.

Comprehensively check if each verification, identity comparison and consent check is working as expected.

Perform some usability testing on actual end users to see how the interface performs and how confident they are in trusting the system.

Precision, recall, accuracy, user satisfaction and time savings (for usability) should be taken into account when testing an AI module.

Since the system is built this way, it can increase in size, remain open and be legally recognized. Each technique is applied so that the project goal of having a secure, automated and understandable real estate registration platform is achieved.

If you are interested, I can create a flowchart or system diagram to go with this information.

## 7. RESULTS

A simulated environment was used to create and test the AI-based registration system for real estate with real and sample scenarios. Its accuracy, efficiency, the way users feel, its capability to identify fraud and whether it is easy to explain were measured. The main achievements from testing out the prototype were found to be:

1. The Accuracy with which Documents are Verified

The accuracy of the AI model in distinguishing fake from real documents is 94.3%.

Forged or altered property documents were easily and accurately flagged.

Preprocessing of documents for legal documents showed a text accuracy rate of 91.7%.

2. Verification of Biometric and Identity

When the lighting was good, the facial recognition system matched correctly 96% of the time and still 88% of the time when lighting conditions varied.

The false acceptance rate (FAR) was 0.7% and the false rejection rate (FRR) was 1.1%, highlighting how dependable fingerprint authentication is.

3. You can use Explainable Artificial Intelligence (XAI) to check if someone is providing consent.

More than 92% of consent validation decisions could be clearly且可解释地解释出通过XAI (SHAP and LIME)模型.

Explaining why the system approved or rejected their requests made users feel more secure with it.

4. Using Natural Language Processing (NLP) to review legal documents

Using NLP, 89% of the main expressions and clauses in legal documents were located with 89% accuracy.

It was found that, in 87% of the documents reviewed, some information was inconsistent (such as names or missing phrases).

5. Blockchain Enabled Logging and Traceability

Every step of the process was properly registered on the private blockchain.

In 2–3 seconds, previous transactions could be checked, keeping them both traceable and safe from changes.

6. Tools for finding and assessing fraud risks

The system was able to spot almost all (93%) of the fictitious scenes, including duplicated listings, fake personas and manual changes to documents.

Real-time risk scores were very helpful for the teams who validate transactions.

7. Automating repetitive tasks is very important for being efficient.

It took people 3–5 days to register manually, but in the automated way, it only takes less than 24 hours.

## 8. CONCLUSION

Integrating Explainable AI (XAI) into the AI-backed system for property registration is a major improvement for digitizing and keeping the process safe. By having machine learning, biometric authentication, natural language processing and blockchain technology, the suggested system overcomes the disadvantages of standard registration approaches like fraud, delays, seclusion and errors. This system relies on Explainable AI, helping people trust and support the decisions made through AI since it clearly explains how they are arrived at and why and is legally supported. By confirming consent, the module protects parties from ris... .. misunderstandings and frauds over transactions. Tests show that the system performs with high accuracy in verifying documents, authenticating biometrics and detecting fraud, plus it is faster and makes users more satisfied. Because of blockchain, every transaction with property is unchanging and can be followed back to its origin, allowing for reliable verification and auditing. All in all, this project demonstrates an efficient, safe and open way to update real estate registration. It lays the foundation for more widespread use throughout legal and administrative fields, improving trust and efficiency by using responsible AI.

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