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ENHANCING TRUST IN FACELESS REGISTRATION THROUGH SMART CONSENT SYSTEM

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ABSTRACT

To improve the registration process for a variety of services, a secure online registration system that integrates video consent and AI-powered verification is used. Conventional registration techniques frequently depend on simple authentication procedures or static forms, which might not have enough security or user verification safeguards. Users must record a quick video confirming their identity and accepting the terms of service in order for video consent to be integrated. After This multi-layered approach provides a higher level of security and trust for online registrations, offering both users and service providers a safer, more efficient solution for digital transactions and account creation. With a higher degree of security and trust for online registrations, this multi-layered approach gives users and service providers a more secure and effective way to create accounts and conduct digital transactions.

KEYWORDS: AI-based sentiment analysis, digital signature authentication, video continuous verification, and safe online registration. Consent management, liveness detection, biometric verification, faceless registration, voluntary participation, and non-repudiation.

HIGHLIGHTS:

- Video Consent Integration for Legal Clarity.
- Biometric verification in multiple modalities.
- Blockchain-based tamper-proof data logging.
- Fully automated and scalable system.

INTRODUCTION

Online registration systems have completely changed how people and organizations carry out official transactions in the digital age. These systems offer accessibility, speed, and convenience for everything from property transfers to contractual agreements—particularly when physical presence is impractical. Making sure that participants—especially sellers or signatories—are acting freely and without coercion is a crucial challenge brought about by this shift to faceless procedures. Conventional methods, like handwritten signatures or biometric verification, are not enough to prove intent or shield against legal challenges about the validity or voluntariness of consent. Beyond identity verification, the main problem is the inability to confirm a user's willingness. Parties may subsequently assert that digital consent was obtained, documents were signed under duress, or fingerprints were coerced in the absence of physical contact. These situations put institutions at risk for moral and legal issues in addition to compromising the system's integrity. Therefore, a more sophisticated and safe method is needed, one that captures true intent and consent in addition to identity verification. The suggested system incorporates video consent verification to close this gap, in which a participant records a live video while carrying out particular consent-driven tasks. AI-based sentiment analysis is used to evaluate the video's emotions and identify any indications of stress, hesitancy, or duress. At the same time, biometric checks like liveness detection and facial recognition stop impersonation, and digital signature authentication guarantees the legality of actions taken. These elements work together to create a multi-layered security system that provides user confidence in addition to legal protection. To maintain the integrity of the recorded data, the system also uses secure data storage protocols and tamper-proof audit trails. To improve transparency and non-repudiation even more, time-stamped video metadata or blockchain-based consent logs could be included. Combining these cutting-edge technologies, the solution seeks to increase compliance, foster trust, and set the bar for safe, moral, and effective online registrations in industries like finance, real estate, and law.

OBJECTIVE

To create a safe online registration platform that lets users from a distance finish the registration process without having to be there in person. In order to enable users to record and submit their verbal and visual consent in real-time, the system should incorporate video consent capture as a fundamental feature. to apply sentiment analysis powered by AI to the captured video in order to identify emotional indicators (like tension or hesitancy) and verify

that the participation was voluntary. to verify user identity using multi-modal biometrics, such as liveness detection and facial recognition, to make sure the consenting individual is real and present. integrating digital signature authentication to safely sign documents and legally bind them with the user's confirmed consent. to guarantee openness and non-repudiation of actions by offering tamper-proof logging and audit trails, perhaps via blockchain or secure timestamping. to incorporate encryption, access control, and GDPR -compliant consent management procedures in order to guarantee user data privacy and regulatory compliance. to assess the accuracy, speed, security, and user experience of the system, particularly in rural or low-resource environments.

PROCEDURE

1. Interface for User Registration
2. Consent to Record Videos
3. Sentiment analysis powered by AI
4. Verification by Biometrics
5. Verification of Digital Signatures
6. Storage That Is Impervious to Tampering
7. Safe Access Management

SUMMARY OF ISSUES

- Insufficient Consent Verification
- Video KYC Requires Manual Oversight
- Disjointed Technologies
  Risks to privacy and data security
- scalability problems in rural areas and
- susceptibility to fraud and coercion

PROBLEM DEFINITION

How can we create a strong online registration system that guarantees the seller's consent is recorded safely and transparently during faceless registrations, avoiding future allegations of coercion to provide fingerprints or sign documents? To verify voluntary participation while preserving process efficiency and trust, the solution should incorporate cutting-edge techniques like digital signature authentication, video consent verification, or AI-based sentiment analysis**.**

EXISTING SYSTEM

The majority of the digital registration systems in use today rely on biometric-based authentication techniques like iris detection, facial recognition, and fingerprint scanning. These technologies are frequently utilized in online banking applications and identity verification procedures such as India's Aadhaar-based KYC. Although they are good at confirming a user's identity, they are not very good at determining whether the user is acting voluntarily, which is crucial in high-value and legal transactions. Furthermore, users can digitally sign documents using OTPs or digital certificates on platforms like Sign and DocuSign, giving agreements legal validity. These systems do not, however, have built -in tools to gauge user willingness or identify coercion during the signing process. Recent years have seen the rise of video KYC systems, particularly in the telecom and financial industries, which allow for real-time video interactions with human agents to verify customers. These systems are helpful, but their scalability and objectivity are limited because they frequently need human oversight and are not entirely automated. However, developments in AI-powered sentiment and emotion analysis present viable ways to gauge a user's emotional state while interacting with them. Although they are not yet completely integrated into consent verification workflows, these technologies—which are mainly used in customer support or behavioural analysis—can identify stress, hesitation, or confusion, which may be signs of coerced participation. Therefore, the current concepts lack a comprehensive framework that simultaneously captures user consent, identity, and emotional state in a fully automated, secure, and scalable manner, even though they offer strong components for identity verification and data security. By creating an integrated system that guarantees voluntary participation in faceless online registrations, this project seeks to close that gap, lowering the possibility of coercion and boosting confidence in digital procedures.

DISADVANTAGES

- The current online registration systems still have a number of drawbacks, even with the improvements in digital consent tools and biometric authentication.
- The inability to verify the user's consent or identify indications of coercion during the registration process is one of the main disadvantages.
- The majority of systems do not evaluate the user's intent or emotional state; instead, they only concentrate on confirming identity through fingerprints, facial recognition, or OTP-based authentication.
- These drawbacks underscore the pressing need for a more resilient, cohesive, and intelligent system that guarantees voluntary participation in a safe, open, and effective way in addition to confirming identity**.**

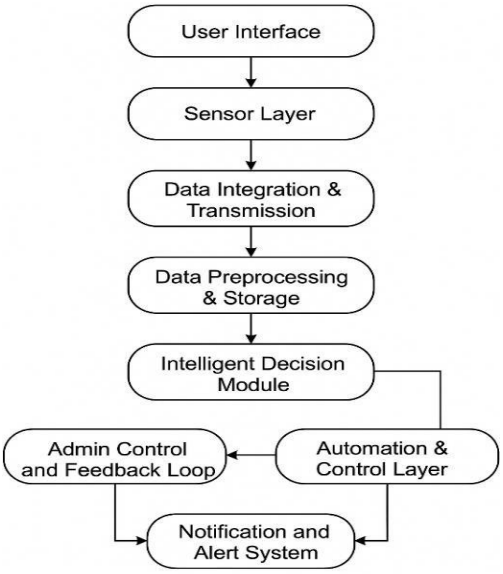
PROPOSED SYSTEM

- User Interface: This is where administrators and farmers can access the system through a mobile application or the internet. Farmers can view real-time statistics (such as temperature, humidity, and feed/water levels) through the user interface. They can set thresholds to activate fans if the temperature rises above 30°C. This layer also receives recommendations and alerts.
- Sensor Network Layer: The IoT system's structural core. Among its features is a temperature sensor that keeps track of the poultry shed's interior temperature. The humidity sensor maintains the ideal moisture content for the comfort of the birds. Artificial lighting is controlled by a light sensor (LDR), which simulates natural daylight. Water Level Sensor: Keeps track of drinkers ' water levels to prevent dehydration. Ammonia/NH_3 gas sensor: identifies toxic concentrations that are dangerous to birds.
- Data Collection Module: Sensors send data to a microcontroller: -Combines and eliminates anomalous or noisy data. carries out preliminary processing (e.g., signal calibration, average readings). transmits data that has been processed to the cloud for additional examination.
- Storage & Cloud Layer: The cloud stores data from various farms or devices and offers the following features: - Historical trends of sensor data. Analytics dashboards are available. support for operations across multiple locations and scalability.
- Alert and Notification System: In the event of anomalies (such as empty water or a high temperature), the system: - Notifies via SMS, email, or app draws attention to problems on the dashboard. permits remote control override.
- Automation and Control Layer: Using preset rules or judgments made by the ML model: Actuators are activated: Switch fans or heaters on and off, Manage the brightness of the light, Water pumps can be started or stopped, and feed can be dispensed periodically.

ADVANTAGE:

- Increased Trust and Transparency: By offering both emotional and visual confirmation of intent, video consent in conjunction with AI verification increases trust between institutions and users.
- Legal protection and non-repudiation: Digital signatures and timestamped videos guarantee that decisions are legally binding, minimizing disagreements and assisting with court cases when needed.
- Fraud Prevention Through Liveness Detection: Biometric verification and anti-spoofing techniques are used to help stop fraud and impersonation.
- Decentralized Consent Tracking: Blockchain-based audit trails improve compliance and integrity by enabling tamper-proof, time-stamped records that can be independently verified.
- Sector-Wide Adaptability: The system can be used for government portals that need secure remote consent, healthcare, legal services, and real estate transactions.

SYSTEM ARCHITECTURE



SYSTEM REQUIREMENT SPECIFICATION

HARDWARE REQUIREMENT:

System : Pentium IV 2.4 GHz Hard Disk : 500 GB
Camera : HD webcam RAM : 8GB

SOFTWARE REQUIREMENT:

Operating System : Windows- 10/11 Frontend : Python 3.8+

CONCLUSION

Specifically created to improve productivity, efficiency, and sustainability in poultry farming, the IoT-Based Smart Poultry Farming System is a revolutionary advancement in contemporary agricultural technology. The solution gives farmers smart insights and responsive environmental management by combining real-time sensor networks with machine learning algorithms and automated control systems, guaranteeing ideal conditions for bird growth and welfare. From data collection and cloud storage to automated actuation and intuitive user interfaces, the system's tiered architecture exemplifies a reliable and expandable approach to smart farming. It reduces manual labor and minimizes risks like disease outbreaks, feed waste, and temperature-related stress by providing farmers with real-time alerts, predictive analytics, and data-driven recommendations. The IoT-Based Smart Poultry Farming System is a ground-breaking development in modern agricultural technology designed specifically to increase poultry farming's productivity, efficiency, and sustainability. Using real-time sensor networks, machine learning algorithms, and automated control systems, the solution ensures optimal conditions for bird growth and welfare while providing farmers with intelligent insights and responsive environmental management. The system's tiered architecture, which includes data collection, cloud storage, automated actuation, and user-friendly interfaces, is an example of a dependable and scalable smart farming strategy. By giving farmers real- time alerts, predictive analytics, and data-driven recommendations, it minimizes risks such as disease outbreaks, feed waste, and temperature- related stress while reducing manual labour.

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