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Land Registration and Evidence Management System

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Abstract: ***The Land Registration and Evidence ManagementSystemisasecureweb-basedplatformthat digitizes and streamlines land record management and legal document verification. It replaces manual, paper-basedprocesseswithatransparent,efficient,andtamper- proof system. Users can register as buyers or sellers, upload land documents, and capture live photos for identityverification,whilelegalofficersreview,approve, orrejectdocumentswithdigitalsignaturesandfeedback. Administrators monitor all activities through a central dashboard. The system ensures real-time notifications, secure authentication, and encrypted data storage, improving accuracy, accountability, and efficiency in land registration and verification.***

Keywords: Land registration, digital signature, e- governance,secure authentication.

I. INTRODUCTION

TheLandRegistrationandEvidenceManagementSystemis an innovative digital solutiondeveloped to revolutionize the way landownershiprecordsand relatedlegaldocumentsare managed, stored, and verified. In many developing regions, traditional land registration processes still rely on manual paperwork, physical record keeping, and outdated administrative systems. These paper-based records are often vulnerable to damage, misplacement, or tampering, leading todisputesoverlandownership,fraudulenttransactions,and delays in verification. To overcome these persistent challenges, the proposed system aims to provide a secure, transparent,andefficientplatformwherealllandrecordscan be stored digitally, verified electronically, and accessed instantly by authorized stakeholders. By automating key functions and integrating digital verification, the system reduceshumanerror,speedsupregistration,andenhancesthe overall reliability of land management.

The system offers an end-to-end digital workflow for users, legalofficers,andadministrators,ensuringthateverystepof land registration is traceable and secure. Users, such as buyersandsellers,caneasilyregisterontheplatform,login, anduploadtheirlandownershipdocumentsandrelatedlegal files. To ensure authenticity, the system integrates a live photo capture feature, allowing users to verify their identity in real time. Once all documents are uploaded, they are submitted for review to a legal officer, who validates each document individually. Theofficer can approve orreject the documents, provide comments on any rejections, and digitally sign approved documents to certify their authenticity. These verified documents are then made available for the users to download, while any rejections prompt the user to re-upload corrected versions. This digital verification process not only saves time but also builds trust and accountability between citizens and the legal system.

The administrator's dashboard acts as the central control panel for monitoring and analytics. It allows real-time tracking of users, officers, requests, approvals, and system activities. The admin manages roles, ensures data integrity, and enforces security and transparency through role-based access, maintaining confidentiality and smooth system operations.

In conclusion, the Land Registration and Evidence Management System modernizes traditional land processes through a secure, transparent, and efficient digital platform. By enabling document digitization, real-time verification, and digital signatures, it enhances trust, reduces corruption, and supports e-governance—ensuring reliable land record management and improved public service delivery.

II. AIM & OBJECTIVES

A. Aim:

TheprimaryaimoftheLandRegistrationandEvidence ManagementSystem istodevelop a secure, transparent,and efficientdigitalplatformfortheregistration,verification,and management of land records and legal documents. The system seeks to replace traditional manual record-keeping with a modern computerized framework that ensures accuracy,accountability,andaccessibilityinlandownership verification and evidence management

B. Objectives

1) Todigitizetraditionalpaper-basedlandrecordsinto asecure,easilyretrievableformatandautomatethe entire land registration process, allowing users to submit, verify, and manage documents online efficiently while minimizing risks of loss, damage, or tampering.
2) To minimize corruption, fraud, and landownership disputesbymaintainingaclearandtraceabledigital record of all transactions and approvals.
3) Toimplementdifferentaccesslevelsforusers,legal officers, and administrators to ensure proper authentication, confidentiality, and role-specific functionalities.
4) Toallowlegalofficerstodigitallyreview,approve, or reject submitted documents with comments and digital signatures while keeping users informed throughreal-timenotificationsandstatusupdateson their document verification progress.
5) To incorporate live photo capture for identity verification, ensuring the authenticity of users and preventing impersonation.
6) To allow administrators to monitor overall system activities, manage users, and track requests, ensuring smooth and transparent system operation.
7) To protect sensitive land and legal information throughencryption,secureauthentication,andaudit trails, maintaining data accuracy and integrity.

III. LITERATURE SURVEY

The paper [6] presents the development of an efficient Electronic Land Registration (ELR) system aimed at modernizing the traditional hardcopy-based processes still used for land registration. In the digital era, technology and Internet-based methods offer significant advantages in improvingcommunication,efficiency,anddatamanagement across government sectors. The proposed ELR system, designed for the Duhok Land Directorate and its sub- directorates, addresses the limitations of manual record- keeping by reducing time consumption, minimizing paper usage, and facilitating integration with the broader E- Government framework. By enabling seamless interaction between land registration staff and administrative as well as financial departments, the system enhances operational efficiency and transparency. The ELR includes multiple modules—Employee Registration, Estate Registration, Operation Type, Estate Owners, Estate Status, View Information,andLoginEmployee—developedusingHTML, CSS,PHP,MySQL,JavaScript,jQuery,Ajax,andBootstrap to ensure a user-friendly, secure, and reliable web-based platform.

The paper [4] presents a comprehensive review of existing literature on land registry systems, focusing on identity management challenges and the potential role of blockchain technology in addressing them. Based on three research questions, the study evaluates 48 primary articles selected from 477 sources, analyzing various models and approaches to improve land ownership verification. It examines the limitations of traditional and blockchain-based land registry models, emphasizing identity-related issues and exploring different blockchain types and their applicability. The paper concludes with a comparative analysis of potential identity models to identify the most effective solution for enhancing the security and reliability of land registry systems.

The paper [8] proposes a blockchain-based land registration system aimed at addressing the inefficiencies and risks associated with traditional land and revenue record management.Whilelandrecordmanagementhasevolved over time, the current system remains slow, complex, and vulnerabletofraudanddatasecurityissuesduetocentralized storage and multiple intermediaries. By leveraging blockchain technology, the proposed system enhances transparency,security,andefficiencyinlandtransactions.As land is a critical asset, integrating blockchain can significantlyimproverecordaccuracy,streamlineprocesses, and establish a reliable, tamper-proof, and seamless framework for land management in the modern era.

The paper [7] presents a blockchain-based land registration system designed toenhancethesecurityandtransparencyof land ownership in developingcountries. Traditional systems oftensufferfrominefficiency,fraud,andcorruption,causing disputes over property rights.The proposed system employs a permissioned blockchain network integrated with smart contractsanddigitalidentitiestosecurelyrecordandmanage land ownership and transaction history. Smart contracts automate transactions, ensuring secure and efficient exchanges between parties, while a user-friendly interface enables easy interaction and management of ownership records. By leveraging blockchain technology, the system establishes a tamper-proof, transparent, and efficient framework that reduces ownership disputes and fosters economic development.

IV. METHODOLOGY

The Land Registration and Evidence Management System follow a structured and modular methodology to ensure secure handling, verification, and management of land ownership and legal documents.

It adopts a role-based approach for different users—citizens, legal officers, and administrators—integrating web technologies, database management, authentication, and automated notifications to create an efficient and transparent digital platform.

The system architecture is designed using a client-server model with three main modules: User, Legal Officer, and Admin. Each module operates independently based on user roles while remaining interconnected for smooth workflow. Thefront-endprovidesanintuitiveinterfaceforusers, while the back-end manages authentication, data verification, and secure storage in a centralized database, ensuring reliability and seamless interaction throughout the process.

1) User Module:

Inthismodule,citizenscansecurelyregisterorloginthrough a"CreateAccount"pageorGoogleSign-Inforquickaccess. After logging in, they are guided through the platform via a dashboard and select their role as either a buyer or seller. Users upload essential documents such as land ownership papers, identification proofs, and sale deeds—one at a time for better organization. A live photo capture feature ensures real-time identity verification, enhancing security and authenticity.

Once the documents are uploaded, the system automatically sends a verification request to the legal officer's dashboard. Users can view, edit, download, or replace their documents through the "View Documents" page. The Settings page allows interface customization, while the Notification page provides real-time updates on document approval or rejection, ensuring a transparent and user-friendlyexperience.

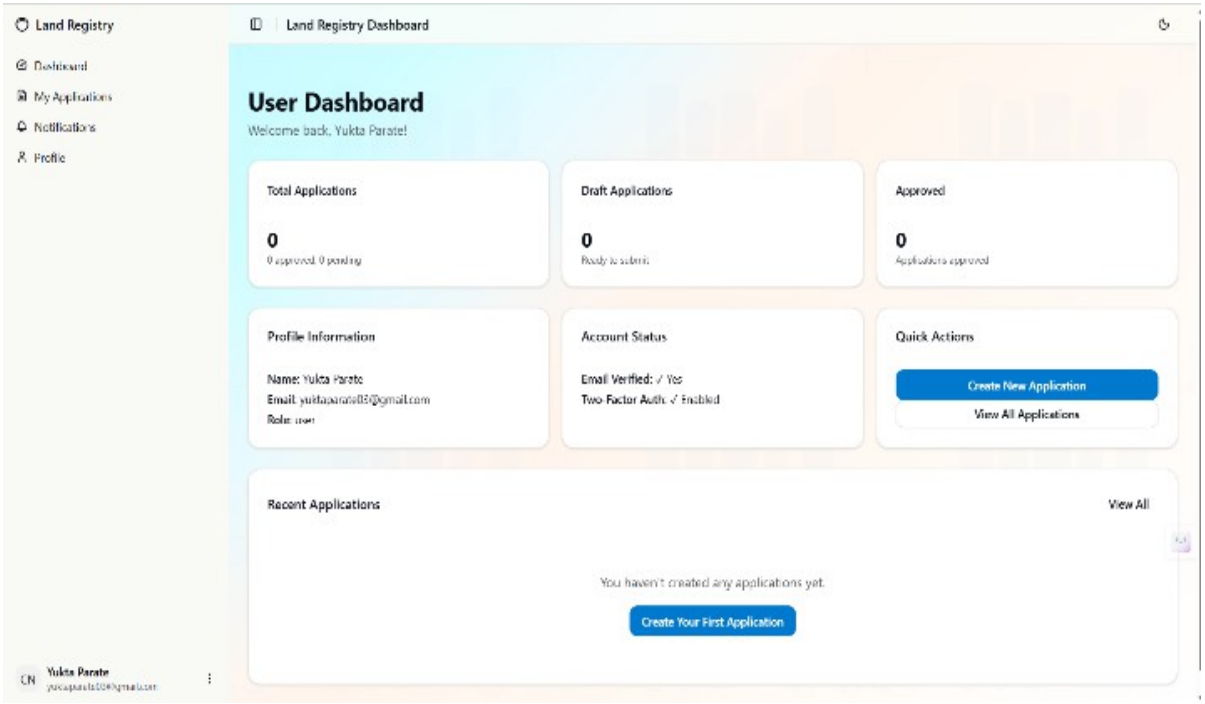

Figure1:UserDashboard

2) LegalOfficerModule:

This module focuses on the verification and validation of user-submitted documents. Legal officers log in using predefined credentials to access their dashboard, which displaysallpendingrequests.Eachrequestappearsasacard showing the applicant's details, allowing officers to quickly identifyandbegintheverificationprocess.Byclickingthe "Start"button,officersaredirectedtothe"WorkplacePage," where they can review documents in detail and decide to approve or reject each one.

Ifadocumentisrejected,officersprovideareasonthrougha comment box, while approved documents receive an automatic digital signature for authenticity. After reviewing all documents, officers finalize the process by clicking "Done,"triggeringreal-timenotificationstousersabouttheir application status. This transparent process allows users to track approvals and rejections easily. The module also includes a Settings page where officers can adjust interface preferences and manage personal information.

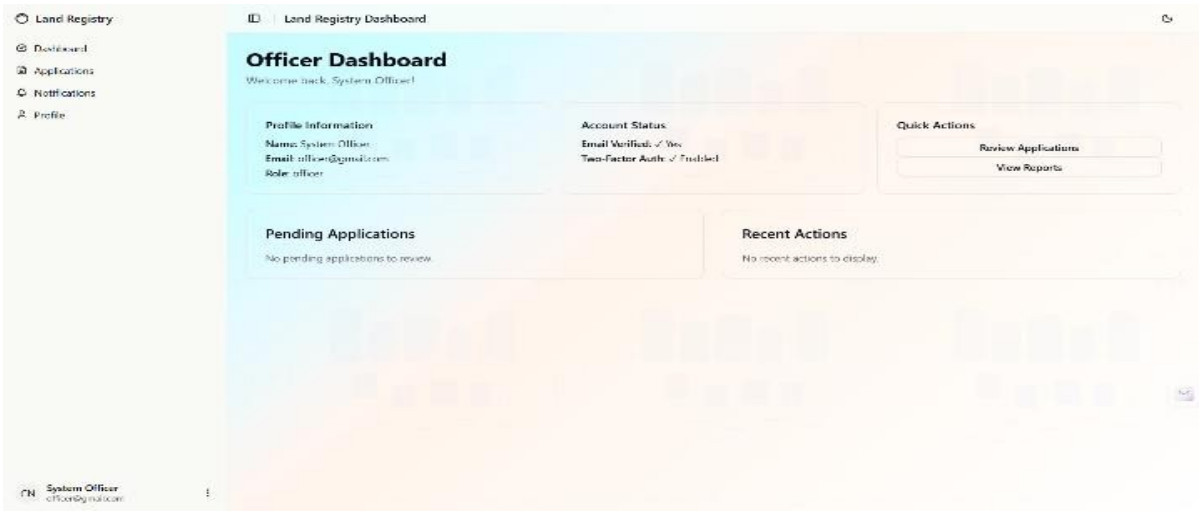

Figure2:OfficerDashboard

3) AdminModule:

The admin panel acts as the system's central control unit, givingtheadministratorcompleteaccesstomonitoruserand officer activities. Through the Admin Dashboard, the admin can view analytics on users, requests, and system performancewhilemanagingroles,handlingcomplaints,and maintainingsecurity.Asecuredatabasemanagementsystem stores all user data, documents, and verification details in encrypted form, using role-based access control, multi-level authentication, and digital signatures to ensure confidentiality and prevent unauthorized access.

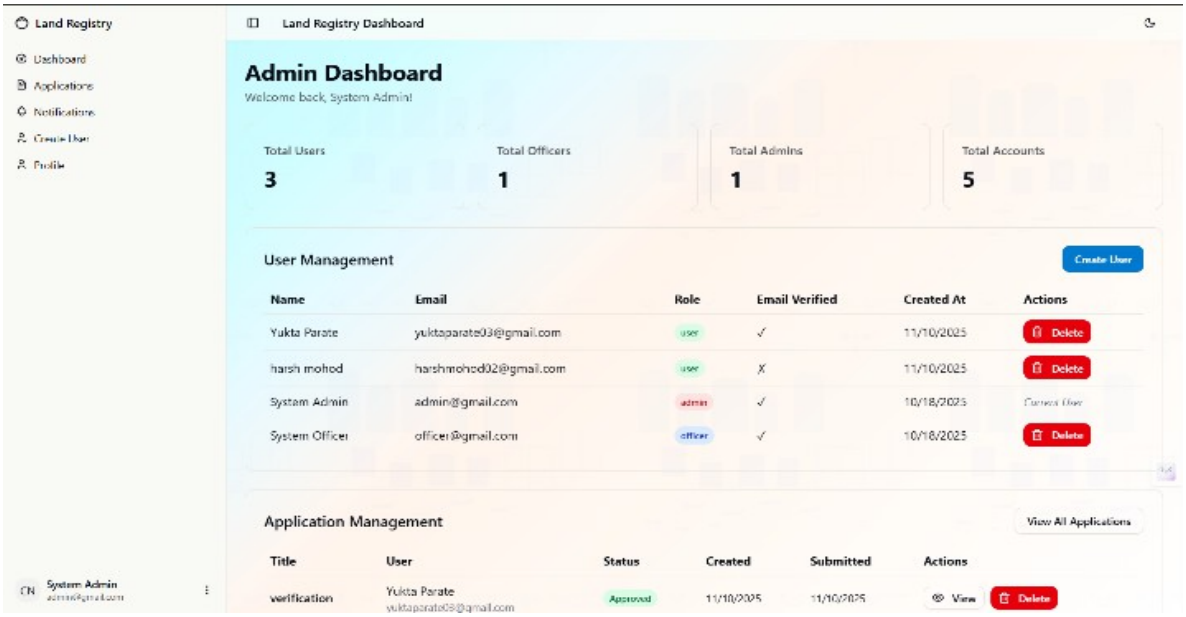

Figure3:AdminDashboard

Workflow automation and notifications enhance efficiency byautomaticallyupdatingusersandofficersateverystageof theprocess,fromsubmissiontoapproval.Theresponsiveand user-friendly interface ensures smooth navigation across all devices. Before deployment, functional and security testing verify accuracy, reliability, and protection of data. Overall, the system integrates automation, authentication, and document verification to deliver a transparent, secure, and efficient digital platform for land registration and evidence management.

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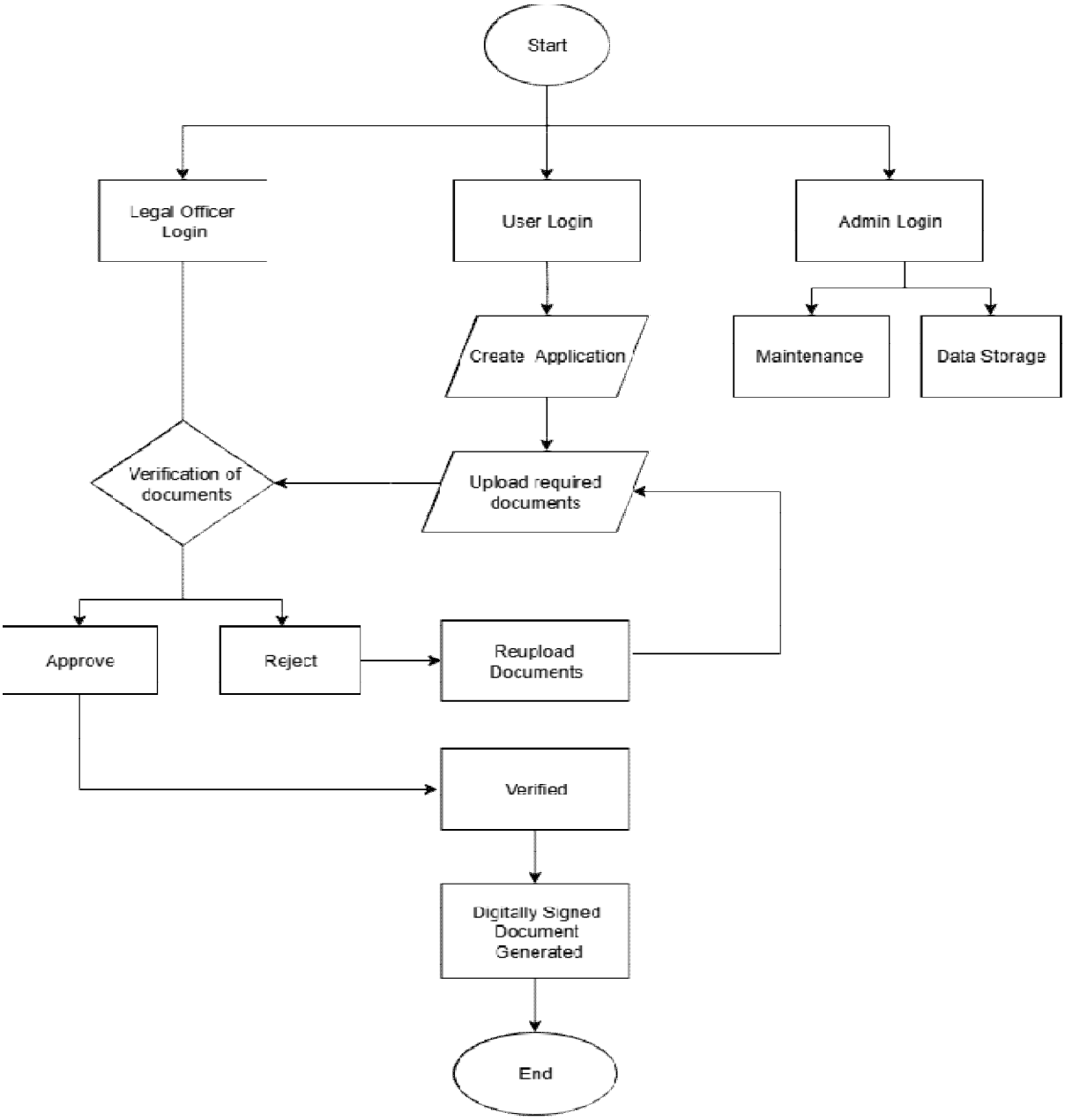

Figure4:FlowchartofLandRegistrationand Evidence Management System

V. RESULTS

The implementation of the Land Registration and Evidence Management System significantly improved efficiency, transparency, and security in the land registration process. It provided a seamless digital platform for users to register, upload, and verify documents, reducing manual paperwork and office visits. Features like live photo verification and automated notifications enhanced identity validation and real-time communication. Legal officers could efficiently review, approve, or reject submissions with digital signatures, while the admin dashboard enabled centralized monitoring and control. With secure data storage and role- based access, the system ensured confidentiality and integrity, transforming the traditional process into a faster, more reliable, and user-friendly digital workflow.

VI. CONCLUSION

In conclusion, the Land Registration and Evidence Management System marks a major advancement in digitizing land administration and legal documentation. By replacingmanual,paper-basedmethodswithasecuredigital platform, it ensures transparent verification, reliable data storage, and efficient retrieval of land records. Features like live identity checks, digital signatures, and automated notifications enhance authenticity and trust. The role-based design promotes accountability and data security while minimizing fraud and administrative delays. Overall, the systemoffersascalable,citizen-centricsolutionthatsupports e-governancegoalsandprovidesafast,secure,andpaperless approach to land registration and evidence management.

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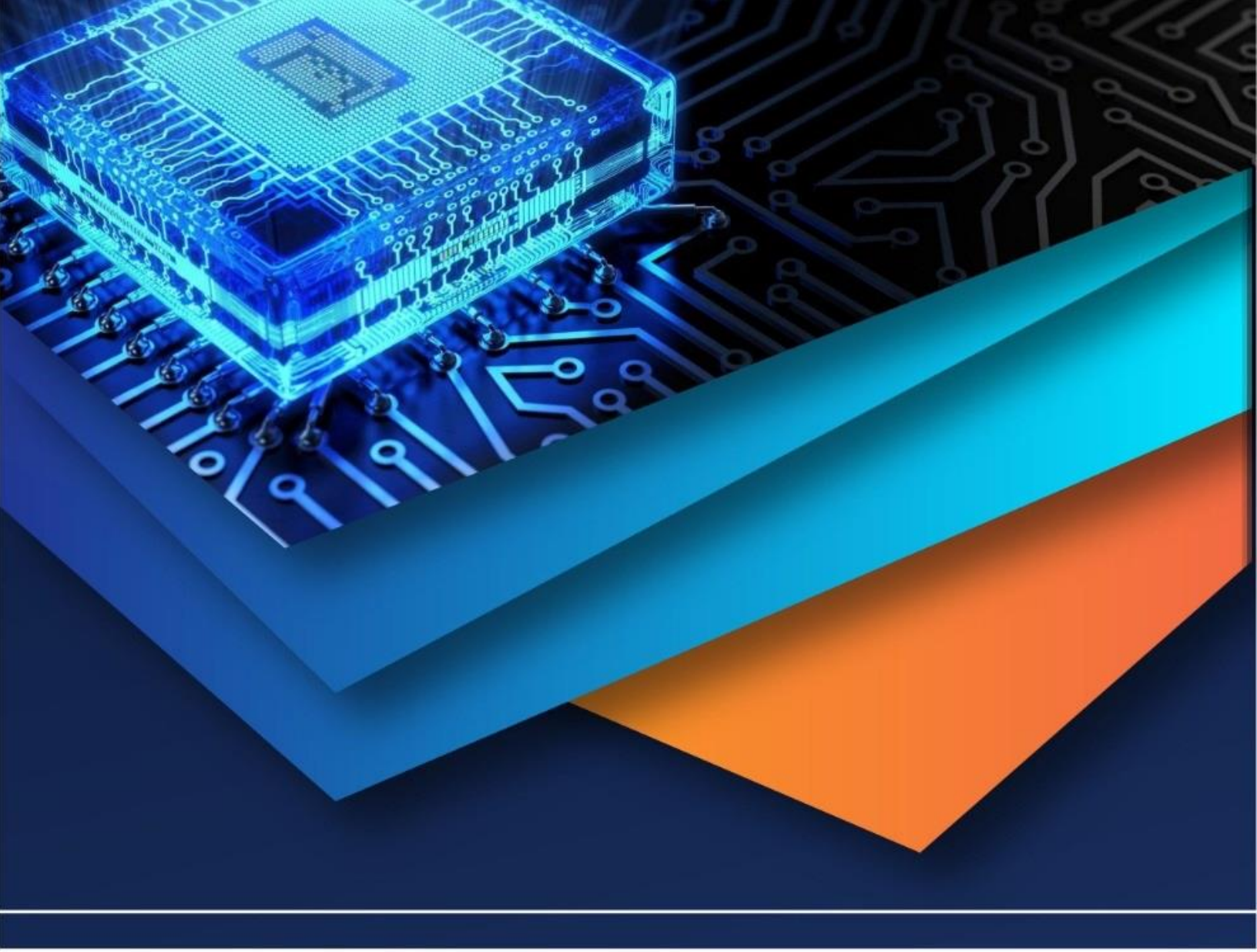

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