kurukshetra 2026™
The Battle of Brains
An International Techno - Management Fest

K! HACKS 3.0

ONLINE SUBMISSION

TEAM NAME: HUSTLE SQUAD
COLLEGE NAME: KONGU ENGINEERING COLLEGE
PROBLEM TRACK: TRUST & PRIVACY

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PROBLEM STATEMENT

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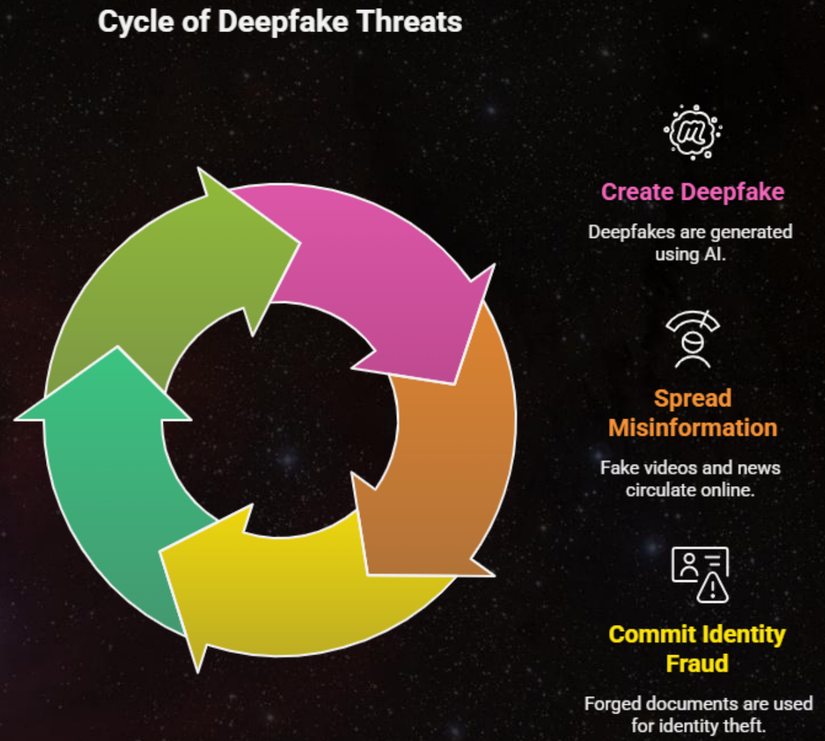
- RAPID RISE OF DEEPFAKES AND MANIPULATED DIGITAL CONTENT THREATENS TRUST IN ONLINE MEDIA.
- FAKE VIDEOS AND FORGED DOCUMENTS CAUSE MISINFORMATION, IDENTITY THEFT, AND FINANCIAL FRAUD.
- EXISTING DETECTION SYSTEMS LACK TRANSPARENCY, EXPLAINABILITY, AND VERIFIABLE PROOF.
- NO UNIFIED PLATFORM ENSURES ACCURATE DETECTION + CLEAR EXPLANATION + TAMPER-PROOF VERIFICATION.



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SOLUTION ABSTRACT

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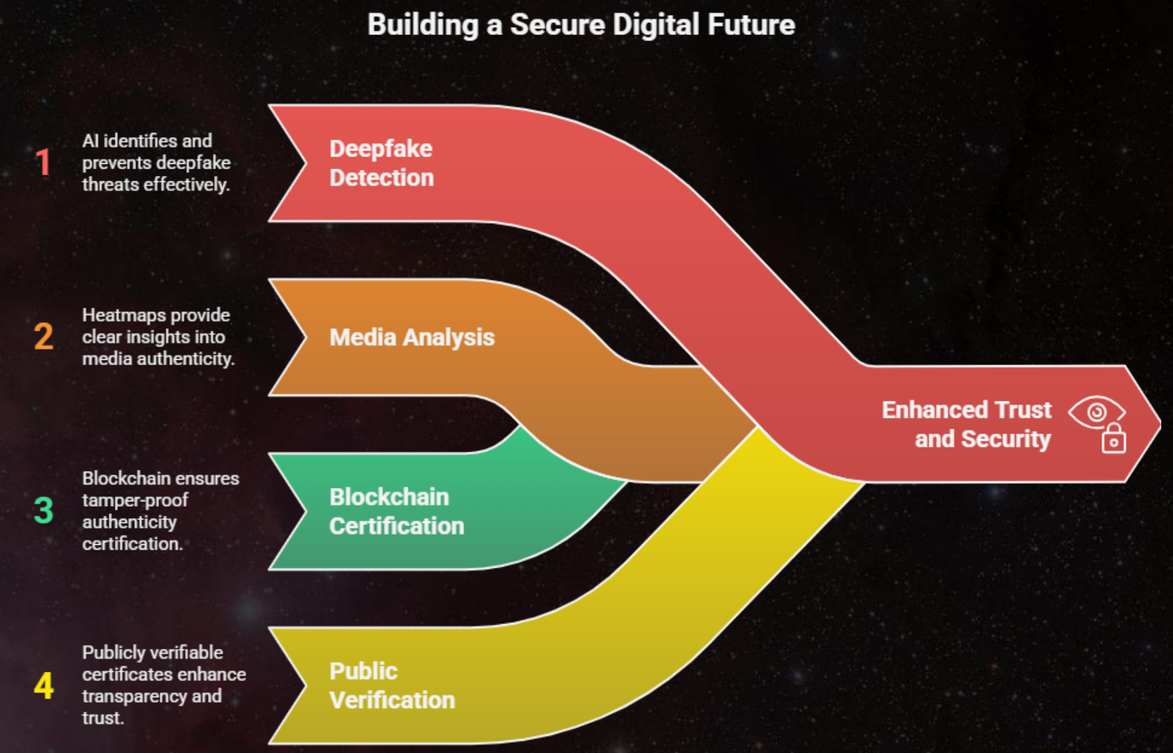
- AI-POWERED DETECTION SYSTEM IDENTIFIES DEEPFAKES AND DOCUMENT FRAUD WITH HIGH ACCURACY.
- EXPLAINABLE AI (HEATMAPS & SCORES) CLEARLY SHOWS WHY CONTENT IS MARKED SUSPICIOUS.
- BLOCKCHAIN-BASED CERTIFICATION STORES ANALYSIS RESULTS AS IMMUTABLE PROOF.
- PUBLIC VERIFICATION MECHANISM ALLOWS ANYONE TO VERIFY AUTHENTICITY SECURELY.



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ARCHITECTURE

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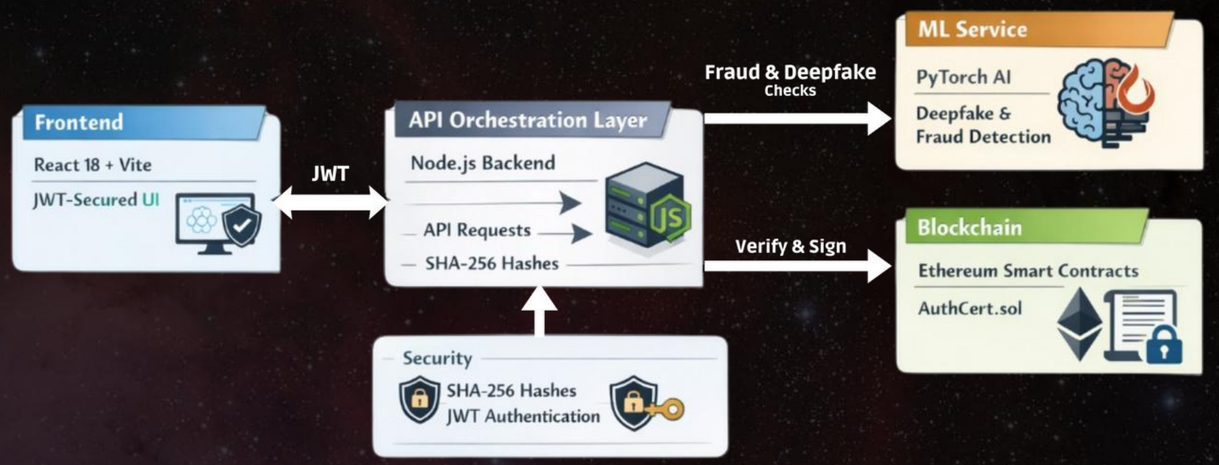
- USER UPLOADS MEDIA/DOCUMENT VIA FRONTEND.
- BACKEND VALIDATES AND HASHES THE CONTENT
- AI SERVICE ANALYZES AUTHENTICITY AND GENERATES EXPLANATIONS
- HASH IS STORED ON BLOCKCHAIN VIA SMART CONTRACT
- RESULTS AND VERIFICATION CERTIFICATE ARE RETURNED TO THE USER
- PUBLIC VERIFICATION IS ENABLED USING TRANSACTION HASH



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SYSTEM DESIGN

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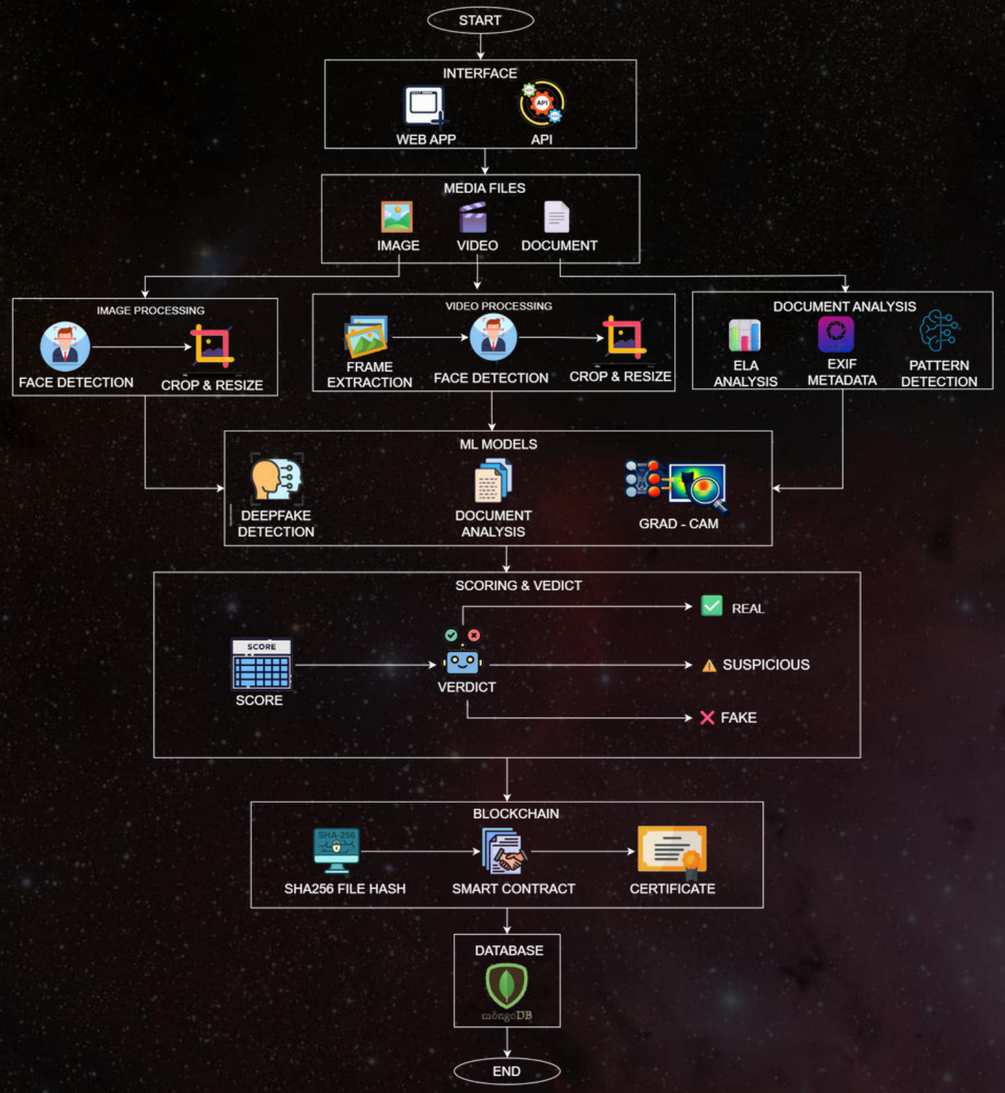

- USER UPLOADS MEDIA VIA WEB APP OR API
- FILES ARE PREPROCESSED FACES, FRAMES, METADATA
- ML MODELS ANALYZE AUTHENTICITY
- GRAD-CAM EXPLAINS PREDICTIONS
- SYSTEM GENERATES TRUST SCORE
- VERDICT: REAL, SUSPICIOUS, OR FAKE
- RESULT STORED ON BLOCKCHAIN AND DATABASE

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FEASIBILITY AND UNIQUE SELLING POINTS

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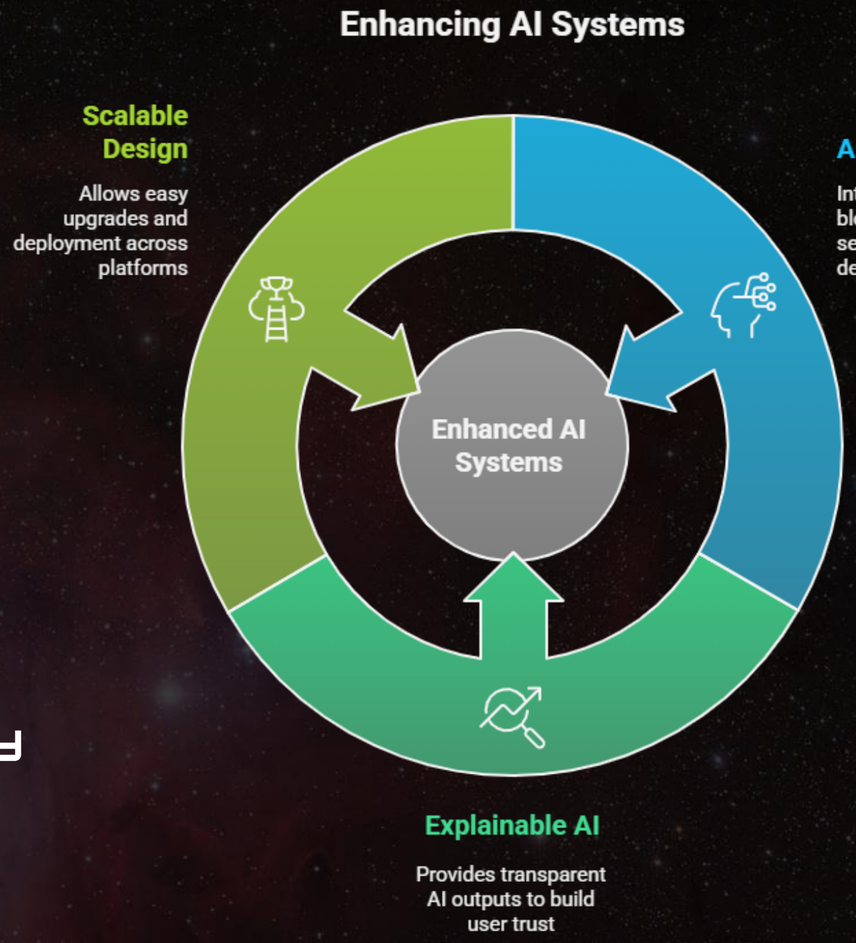
- TECHNICALLY FEASIBLE USING PROVEN TECHNOLOGIES LIKE AI MODELS, REST APIS, AND BLOCKCHAIN NETWORKS.
- AI + BLOCKCHAIN INTEGRATION ENSURES ACCURATE DETECTION WITH TAMPER-PROOF CERTIFICATION.
- EXPLAINABLE AI OUTPUT (SCORES & HEATMAPS) BUILDS USER TRUST AND TRANSPARENCY.
- SCALABLE & MODULAR DESIGN ALLOWS EASY UPGRADES AND MULTI-PLATFORM DEPLOYMENT.



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MARKET STUDY AND BUSINESS MODEL

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- HIGH MARKET DEMAND DUE TO RISING DEEPFAKE THREATS, DIGITAL FRAUD, AND ONLINE IDENTITY MISUSE.
- TARGET CUSTOMERS INCLUDE ENTERPRISES, MEDIA HOUSES, BANKS, GOVERNMENT AGENCIES, AND LEGAL FIRMS.
- SUBSCRIPTION-BASED MODEL OFFERING TIERED PLANS (BASIC, PRO, ENTERPRISE).
- REVENUE STREAMS FROM API ACCESS, ENTERPRISE LICENSING, AND BLOCKCHAIN VERIFICATION SERVICES.

Comprehensive Business Overview

Market Demand

Driven by rising deepfake threats and digital fraud

Target Customers

Includes enterprises, media houses, banks, government agencies, and legal firms

Subscription-Based Model

Offers tiered plans (Basic, Pro, Enterprise)

Revenue Streams

Generated from API access, enterprise licensing, and blockchain verification services

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IMPLEMENTATION

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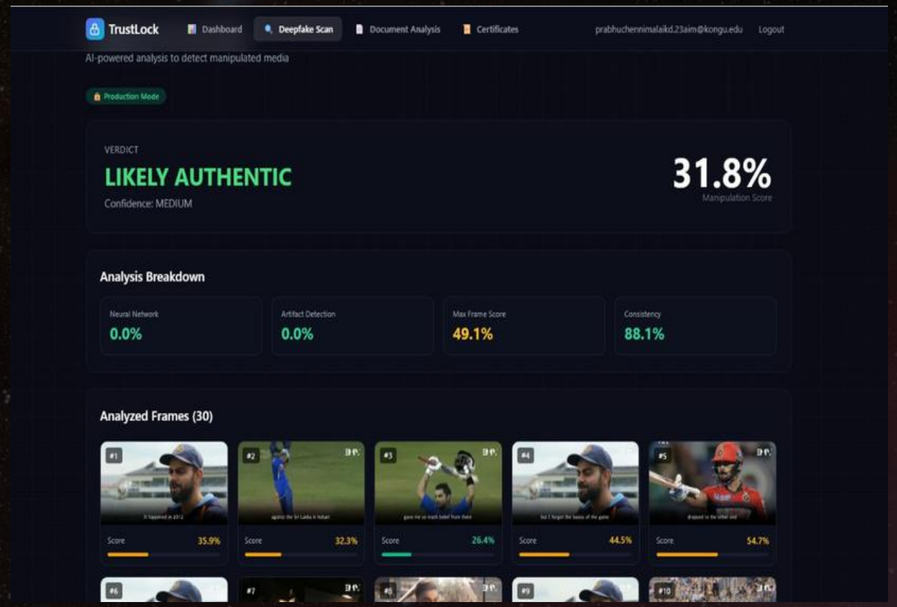
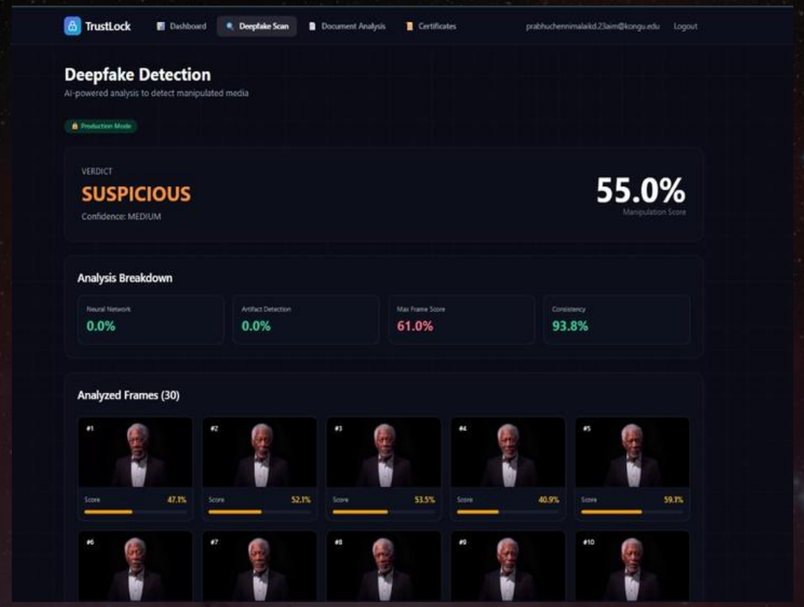
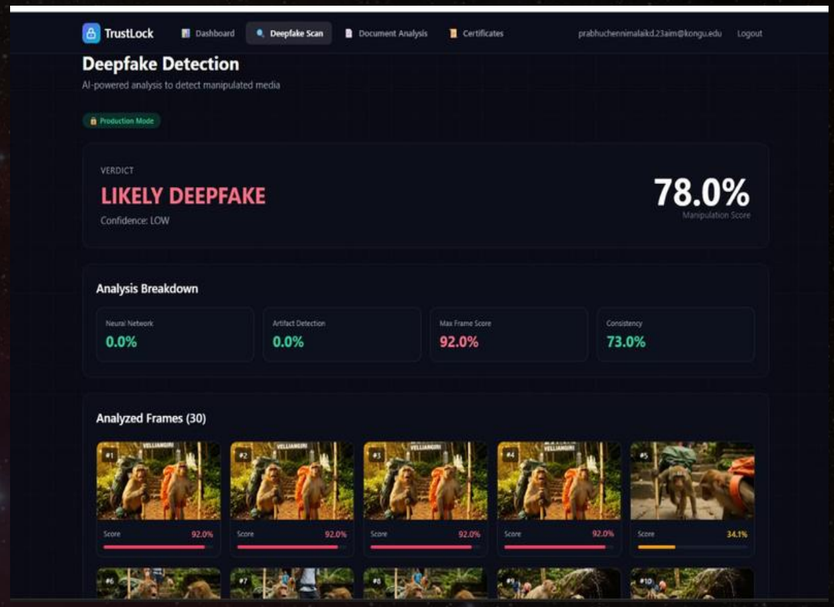
DEEPFAKE ANALYSIS







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IMPLEMENTATION

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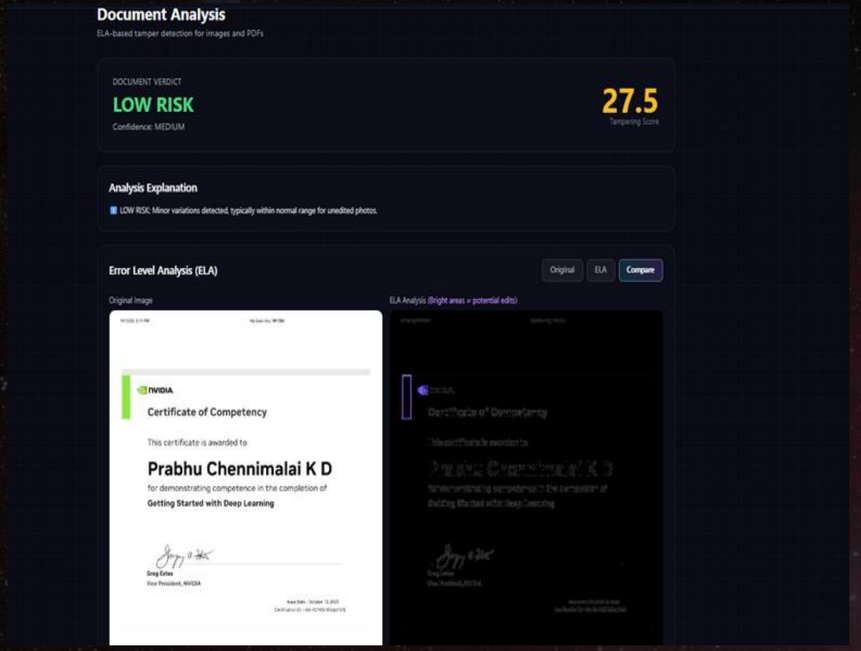
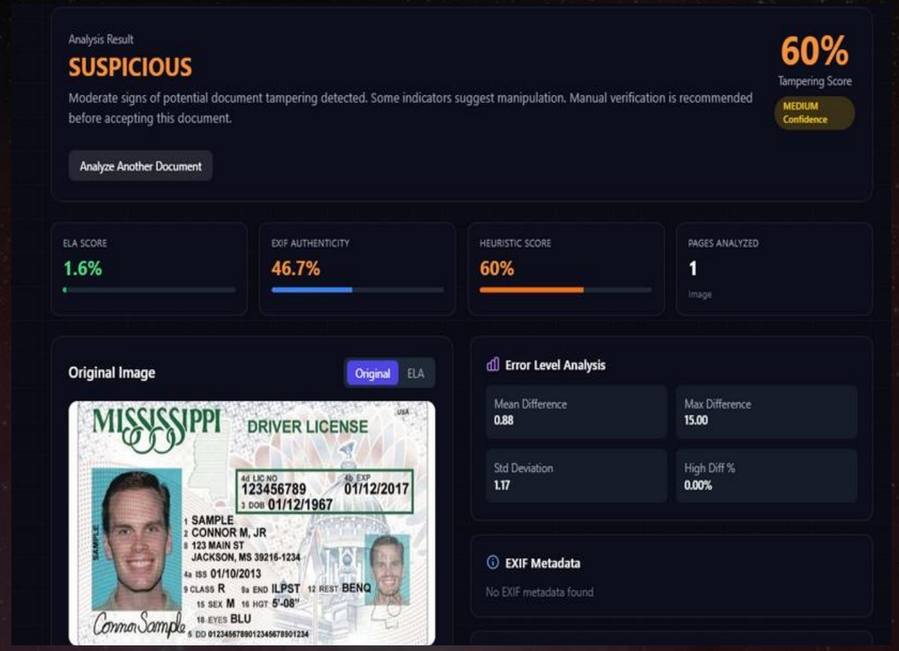
DOCUMENT ANALYSIS & SHA-256 HASH






```
PS D:\Trust-privacy-main\blockchain> npm run deploy:local
Deploying with account: 0xf39Fd6e51aad88F6F4ce6aB8827279cfffFb92266
Account balance: 10000.0 ETH/MATIC

✅ AuthCert deployed to: 0x5FbDB2315678afecb367f032d93F642f64180aa3
Network: localhost (Chain ID: 31337 )

📄 Deployment info saved to: D:\Trust-privacy-main\blockchain\deployments\localhost.json
📄 ABI saved to: D:\Trust-privacy-main\blockchain\deployments\AuthCert.abi.json
📄 Contract config copied to backend

✅ Deployment complete!
PS D:\Trust-privacy-main\blockchain>
```

```
PS D:\Trust-privacy-main\blockchain> npx hardhat node
WARNING: These accounts, and their private keys, are publicly known.
Any funds sent to them on Mainnet or any other live network WILL BE LOST.

eth_accounts
hardhat_metadata (20)
eth_getBalance
eth_accounts
hardhat_metadata (20)
eth_blockNumber
eth_getBlockByNumber
eth_feeHistory
eth_maxPriorityFeePerGas
eth_sendTransaction
  Contract deployment: AuthCert
  Contract address:    0x5fbdb2315678afecb367f032d93f642f64180aa3
  Transaction:         0x5433e1e5075f6d9596a6088d8ad869048bded0dcd0f1f32843dd0f5b68fd6a4a
  From:                0xf39fd6e51aad88f6f4ce6ab8827279cfffb92266
  Value:               0 ETH
  Gas used:            1682488 of 30000000
  Block #1:            0x5e9e256e5b72451552eb850e360adb5736a20af8d43c6fd96c88bfcaf81b112f

eth_getTransactionByHash
eth_getTransactionReceipt
eth_chainId
eth_blockNumber
```

RESEARCH

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DEEPFAKE DETECTION RESEARCH USING CNNS AND EFFICIENTNET TRAINED ON FACEFORENSICS++ DATASET.

EXPLAINABLE AI TECHNIQUES SUCH AS GRAD-CAM REFERENCED FROM RECENT AI INTERPRETABILITY STUDIES.

DOCUMENT FORENSICS METHODS INCLUDING ERROR LEVEL ANALYSIS (ELA) AND EXIF METADATA RESEARCH.

BLOCKCHAIN SECURITY MODELS BASED ON ETHEREUM SMART CONTRACTS FOR IMMUTABLE DATA VERIFICATION.

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REFERENCE

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- FACEFORENSICS++ - RÖSSLER ET AL., ICCV 2019
  HTTPS://GITHUB.COM/ONDYARI/FACEFORENSICS
  (DEEPFAKE DETECTION BENCHMARK DATASET

- EFFICIENTNET - TAN & LE, ICML 2019
  HTTPS://ARXIV.ORG/ABS/1905.11946
  (EFFICIENT CNN ARCHITECTURE

- GRAD-CAM - SELVARAJU ET AL., ICCV 2017
  HTTPS://ARXIV.ORG/ABS/1610.02391
  (EXPLAINABLE AI VISUALIZATION

- DIGITAL IMAGE FORENSICS - HANY FARID, MIT PRESS
  HTTPS://FARID.BERKELEY.EDU/DOWNLOADS/PUBLICATIONS/BOOK/DIGITALIMAGEFORENSICS.PDF
  (ELA & METADATA-BASED FORGERY DETECTION

- ETHEREUM SMART CONTRACTS DOCUMENTATION - ETHEREUM FOUNDATION
  HTTPS://ETHEREUM.ORG/EN/DEVELOPERS/DOCS/SMART-CONTRACTS/
  (BLOCKCHAIN-BASED IMMUTABLE VERIFICATION

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TEAM DETAILS

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ROLE	NAME	STREAM/ DEPT	YEAR	COLLEGE
TEAM LEAD	PRABHU CHENNIMALAI K D	AIML	3rd YEAR	Kongu Enginerering College
TEAM MEMBER	SARAVANA M	AIML	3rd YEAR	Kongu Engineering College
TEAM MEMBER	SHANMUGA PATEL KANI C	AIML	3rd YEAR	Kongu Engineering College
TEAM MEMBER	SUDHARSAN V	AIML	3rd YEAR	Kongu Engineering College

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THANK YOU

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