



CodHer'25

Anna University, Chennai

Track: Gen AI for security

Problem Statement Title: DeFi Contract Security Suite

Team Name : TRIFI

College Name: B.S Abdur Rahman Crescent University

Dhanusri.T

Joshnavi.P

Keerthigha K.B

PROBLEM STATEMENT:

Decentralized Finance smart contracts handle billions of dollars but are vulnerable to security issues like Reentrancy attacks, Flash loan exploits, Logic flaws , Front runnings and Rug pulls. Current security audits are slow , manual and reactive. Once these smart contracts are active , fixing vulnerabilities is challenging and often requires user intervention



SOLUTION OVERVIEW

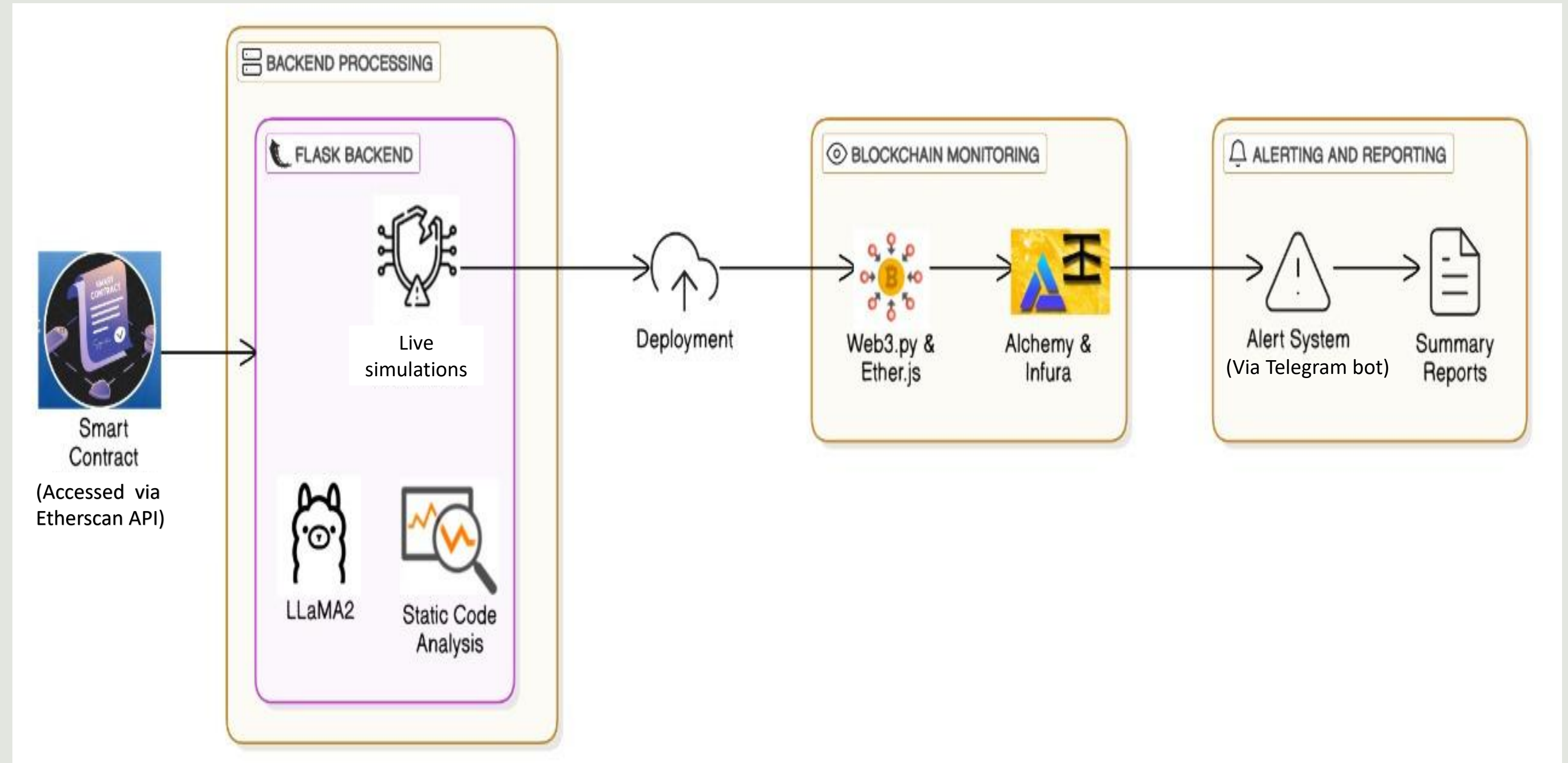
As security risks in DeFi grow, traditional smart contract audits often miss threats . Our Defi Contract security suite makes audits faster and more effective by automatically finding security issues .

The smart contracts are fetched from Ethereum blockchain platforms and analyzed using Slither and Mythril . These blockchain transactions are then monitored in real-time with Alchemy and Infura.

Our GEN AI powered analysis uses OLLAMA(LLaMa 2) to automatically detect risks and generate a detailed risk analysis report. If a transactional block is detected with high/critical level of risk , a Telegram alert mechanism is triggered.



ARCHITECTURE



TECH STACK

- **Backend** : FastAPI
- **SmartVulnerability Analysis** : Slither and Mythril
- **Blockchain Monitoring** : web3.py +Alchemy/Infura (API Access)
- **Gen AI Model:** Ollama + LLaMA 2
- **Alerts** : Telegram bot API



IMPLEMENTATION DETAILS

- **Real Time Transaction Monitoring** : Tracks Ethereum transactions using Web3.py and flags suspicious activity .
- **AI-Powered Risk Analysis** : Uses Ollama(LLaMA 2) to detect threat like reentrancy , flash loan exploits , Front runnings and logic flaws.
- **Automated security audits** : Integrates Slither and Mythril for smart contract analysis , identifying vulnerabilities .
- **Instant Telegram Alerts** : sends automated alerts via telegram bot when high or critical risk transactions are detected.
- **Interactive Dashboard Display** : Presents real time risk assessments, transaction data and audit results through dashboards for better decision making .



REFERENCE

1. **Title:** Artificial Intelligence-driven Decentralized Finance

Author: Mohamed El-dosuky

Published Date: September 2024

Site: <https://www.ijcaonline.org>

2. **Title:** Smart Contract and DeFi Security Tools

Published Date: 6 February 2024

Conference: IEEE/ACM 46th International Conference on Software Engineering

Official Publication Link: <https://dl.acm.org/doi/10.1145/3597503.3623302>

