CYBERSENTINAL - AI - POWERED PHISHING AND FRAUD DETECTION SYSTEM

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PROJECT DESCRIPTION

Project Name:	CyberSentinel
Team:	Tech Titans
Project Description:	CyberSentinel is an AI-powered cybersecurity platform that helps individuals and businesses detect phishing emails, fraudulent transactions, and scam websites using AI-driven risk analysis.
For	businesses and individuals
Who	need to protect their sensitive data from cyber threats
The	CyberSentinel platform
Is a	real-time fraud detection and prevention system
That	scans emails, transactions, and web links using machine learning and AI to identify phishing and fraud attempts
Unlike	traditional security filters and manual verification
Our application	provides real-time AI-driven alerts and a proactive security layer to prevent cyber fraud before it happens

BENEFIT OUTCOMES

- Reduced financial loss due to fraud and phishing.

- Real-time alerts and proactive security measures.

- Enhanced protection for businesses and individuals against cyber threats.

- AI-driven accuracy improves over time with machine learning.

Name: Alex Johnson
Age: 32
Occupation: Software Developer

PERSONA

Alex works at a mid-sized tech company and is well-versed in various technologies. Spends considerable time online, both professionally and personally. Aware of cybersecurity threats but seeks advanced tools to enhance personal security.

Goals:

- Protect personal and professional data from phishing and other cyber threats.

- Stay informed about the latest cybersecurity practices.

- Utilize AI-driven solutions for proactive threat detection.

Challenges:

- Balancing convenience with robust security measures.

- Identifying trustworthy cybersecurity tools amidst numerous options.

Name: Maria Thompson
Age: 40
Occupation: Project Manager

PERSONA

Manages a team remotely for a marketing firm. Juggles professional responsibilities with parenting two teenagers. Uses multiple devices for work and personal tasks.

Goals:

- Ensure the security of sensitive work-related information.

- Protect family members, especially children, from online threats.

- Maintain a secure digital environment across all devices.

Challenges:

- Limited time to manage and monitor cybersecurity measures.

- Keeping up with evolving cyber threats and ensuring family compliance with best practices.

PERSONA

Name: David Kim
Age: 45
Occupation:
Owner of a local
retail store

Runs an online storefront in addition to the physical store. Handles customer data, including payment information. Has basic knowledge of cybersecurity but lacks specialized expertise.

Goals:

- Protect customer data to maintain trust and comply with regulations.

- Prevent financial losses due to cyber attacks.

- Implement cost-effective security solutions without extensive technical knowledge.

Challenges:

- Limited budget for cybersecurity investments.

- Difficulty in assessing which security measures are necessary and effective.

OVERVIEW

CyberSentinel is a cybersecurity platform designed to detect:

- Phishing emails
- Fraudulent transactions
- Scam websites

Uses **AI-driven risk analysis** for real-time detection.

Protects individuals and businesses from cyber threats.

PROBLEM STATEMENT

Phishing & Fraud are Growing Threats:

Email scams steal personal & financial data.

Fake websites deceive users into entering sensitive information.

Fraudulent transactions cause financial losses.

Existing Security Measures are Limited:

Traditional filters fail against sophisticated attacks.

Need for **AI-powered real-time detection**.

HOW CYBERSENTINAL WORKS?

AI & Machine Learning: Detects phishing patterns in emails, transactions, and websites.

NLP for Email Analysis: Identifies suspicious language and phishing attempts.

Computer Vision: Detects fake websites and fraudulent UI elements.

Real-time Monitoring: Flags and prevents fraud attempts before they cause harm.

TECH STACK

Frontend: React.js (Web), React Native (Mobile)

Backend: Fast API (AI detection), Node.js (API management)

Database: DynamoDB (fraud data), MongoDB (user logs)

AI Model: NLP (email analysis), Image recognition (website fraud)

Cloud Services: AWS Lambda (real-time scanning), AWS S3 (logs)

Authentication: AWS Cognito/Firebase

Deployment: AWS Fargate, Kubernetes

Other Tools: OpenAI API (pattern detection), Selenium (scam site scraping)

KEY FEATURES

Phishing Email Detection:
Scans and flags suspicious emails in real time.

Fraudulent Transaction Monitoring:
Identifies abnormal transaction behavior.

Scam Website Detection:
Uses AI-based image and text analysis to flag fake sites.

Real-time Alerts:
Notifies users of potential threats instantly.

Interactive Dashboard:
Provides security insights and threat analytics.

TEAM DIVISION

AI/ML Engineer: Builds phishing detection & fraud analysis models.

Frontend Developer (Web): Creates an interactive dashboard.

Frontend Developer (Mobile): Develops mobile alerts & monitoring UI.

Backend Developer: Develops fraud detection APIs & AI integration.

Database Engineer: Manages scam/phishing detection logs.

DevOps Engineer: Deploys and secures microservices on AWS.

Cybersecurity Analyst: Ensures security compliance & ethical hacking.

SECURITY COMPLIANCE

Encryption: Secure storage of flagged data.

User Privacy: No sensitive data stored permanently.

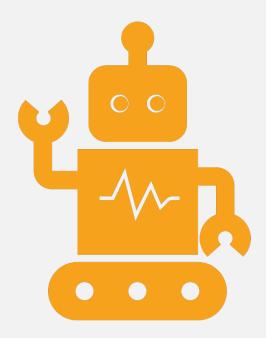**Regulatory Compliance:** GDPR, SOC2, ISO 27001 standards.

Ethical Hacking: Regular penetration testing for security assurance.

FUTURE ENHANCEMENTS

👤 **AI-Powered Voice Scam Detection** for phone calls.

👛 **Blockchain-based Fraud Prevention** for transactions.

📊 **Deep Web Monitoring** for new scam patterns.

🤖 **Self-Learning AI Models** for improving accuracy over time.

CONCLUSION

- **CyberSentinel** provides real-time AI-driven fraud detection.

- **Enhances cybersecurity** for individuals & businesses.

- **Future-ready architecture** with advanced AI models.

- **Stronger defense** against evolving phishing and fraud threats.

WIKI PAGE LINK

To see our progress visit the wiki page below:

- https://github.com/htmw/2025S-Tech-Titans/wiki/CyberSentinel%E2%80%90Pace-University-Capstone-Project

THANK YOU!