ARTIVERSE 2.0

Team Name : **Trojan Terminators**

Theme : **Cybersecurity**

Title : **Trust IoT: Advanced Security for Smart Devices and Networks**

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ABSTRACT

The rapid growth of IoT devices has transformed industries and daily life but introduced critical security challenges. This initiative presents a comprehensive framework to address these vulnerabilities and secure IoT ecosystems. It ensures robust device authentication using a secure database with hashed credentials, allowing only authorized access. Advanced cryptographic techniques encrypt sensitive data during transmission, protecting it from interception. Continuous network monitoring identifies anomalies and potential cyberattacks, adding a proactive defence layer. This framework integrates cutting-edge practices in cryptography, secure database management, and network traffic analysis to deliver a multi-layered security approach. Scalable and adaptable, it suits various IoT applications, including smart homes, healthcare, and industrial automation. By safeguarding data integrity and privacy, it not only protects IoT systems but also fosters trust in connected technologies. This initiative offers an effective solution to enhance IoT security, paving the way for future innovations in the field.

KEYWORDS: Device Authentication, Cryptographic Techniques, Network Monitoring, Data Integrity and Privacy.

 PROGRAMMING LANGUAGES & TOOLS: Python (Flask, SQLite), cryptography (Fernet), Scapy for network monitoring, and HTML/CSS/JavaScript for the web interface.