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Basic Details of the Team and Problem Statement

Problem Statement Title: Automated MetaData Removal Tool

Team Name: Real

Team Leader Name: Jemit Malnika

Institute Name: Universal College of Engineering

Track Name: CyberSecurity

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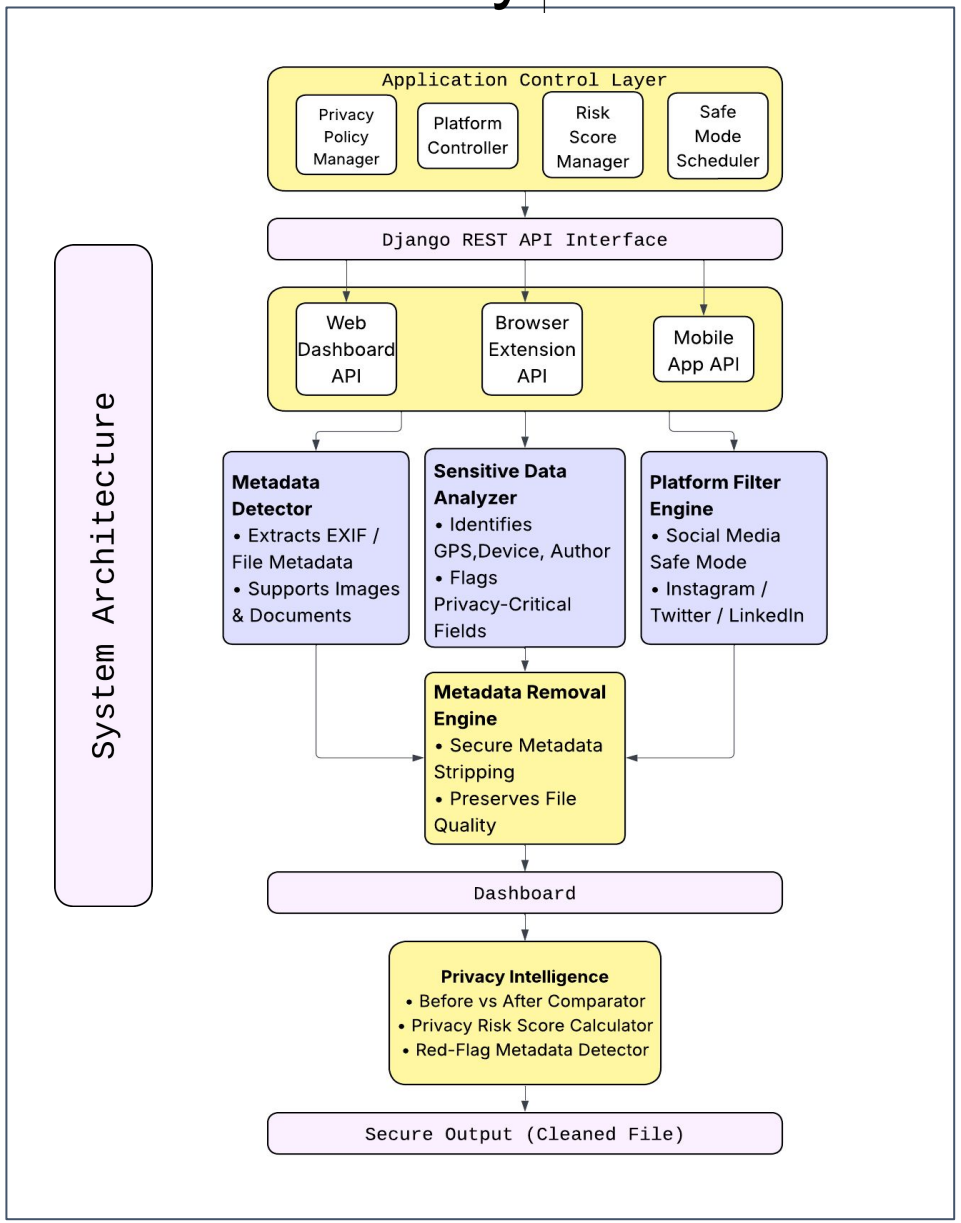
Problem Statement

- Digital files contain hidden metadata (GPS, device info, author)
- Metadata causes privacy leaks & security risks
- Users are unaware of data exposure
- No simple, automated & user-friendly solution exists

Proposed Solution

- Automated tool to detect, analyze & remove metadata (Extension for browsers and app for mobiles)
- Provides privacy risk awareness before sharing files
- One-click metadata removal without affecting file quality
- Social Media Safe Mode - Removes only metadata risky for selected platform (Instagram,facebook,twitter etc)
- Privacy Dashboard - Shows Before vs After comparison.
- Privacy Clean Status - Indicates when a file is safe to share

Technical Stack



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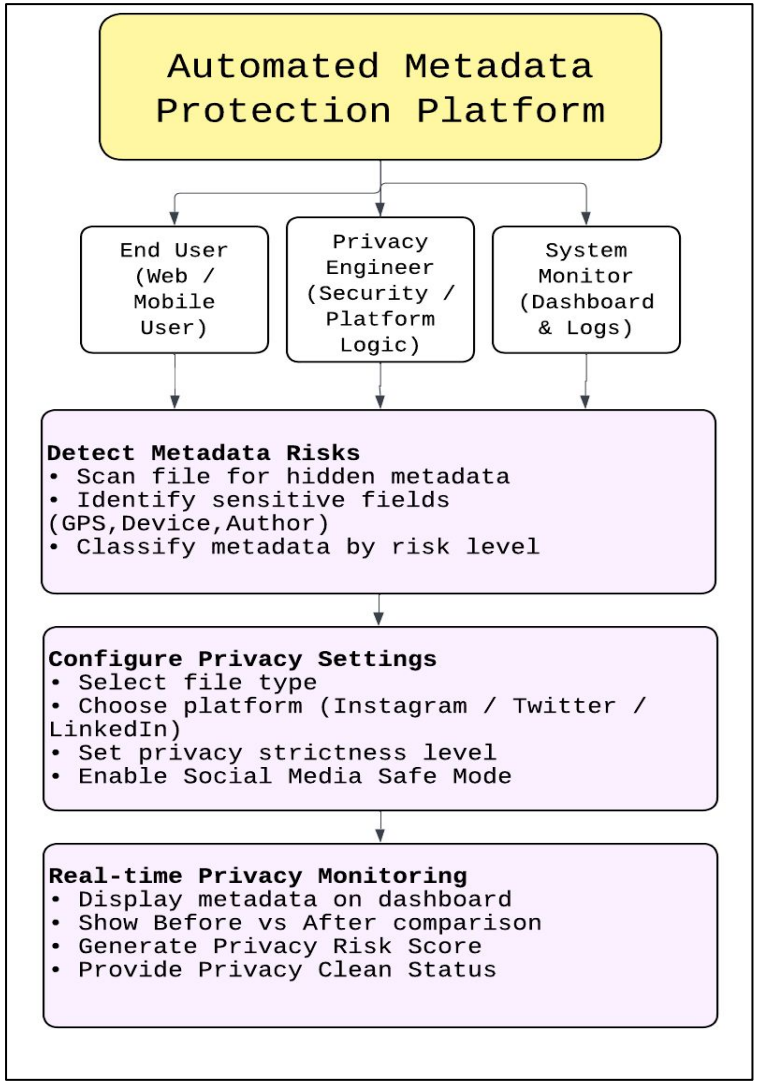
USE CASES



Key Dependencies

Dependency area	Details
Metadata Libraries	ExifRead, Pillow, PyExifTool
Backend Framework	Django & Django REST Framework
Browser Extension	Chrome APIs (Manifest V3)
Device Permissions	File access (Browser & Mobile)
File Standards	Supported formats & metadata standards

SUMMARY

A metadata security platform that detects, analyzes, and sanitizes hidden metadata in digital files using platform-aware privacy rules, real-time risk scoring, and zero-retention processing. The system provides before-and-after metadata visibility through an interactive dashboard, supports **Social Media Safe Mode** for platform-specific sharing, and ensures secure, high-performance operation across web applications, browser extensions, and mobile environments without impacting file quality or user experience.

INNOVATIVENESS

API-driven privacy orchestration enables **automated metadata detection** and sanitization across web, mobile, and browser extension interfaces. Platform-aware rules combined with browser-based pre-upload protection transform basic metadata removal into intelligent, real-time privacy enforcement, while zero-retention processing ensures secure and efficient operation.

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POTENTIAL CHALLENGES WE WILL FACE

Technical Challenges

Accurately detecting and sanitizing hidden metadata across diverse file formats, platforms, and metadata standards is complex.

Privacy And Trust

Handling sensitive user files while maintaining strict privacy guarantees and zero data retention.

Integration and compatibility

Seamless integration with browsers, operating systems, and social media platforms while complying with security and permission constraints.

POTENTIAL SOLUTIONS

Our Technical Approach for Metadata Detection

We use modular, format-aware metadata parsers combined with a Django REST API to ensure accurate detection and platform-specific sanitization.

Our Privacy-First Design

Zero-retention processing, in-memory file handling, and no server-side storage ensure complete user privacy and compliance.

Our Seamless Integration Strategy

Platform-agnostic APIs and rule-based Social Media Safe Mode allow smooth integration across browsers, apps, and sharing platforms without workflow disruption.

BUSINESS MODEL

The platform follows a **freemium privacy-first model**, offering basic metadata detection and removal for free to ensure wide adoption. Advanced capabilities such as **Social Media Safe Mode**, **platform-specific privacy rules, batch processing, and real-time pre-upload protection** are unlocked through premium plans. A lightweight browser extension`and mobile app act as the primary entry points, while enterprises and developers can integrate the system directly using scalable **Django APIs**. This approach balances **accessibility with monetization**, delivering powerful metadata security as an intuitive, cross-platform service without compromising user privacy or file quality.

Video Link