# ADVANCED OSINT RECONNAISSANCE TOOL

*Real-Time Intelligence Gathering & Contact Discovery*

**Strategic Playbook & Master Guide**

**The Complete Operational Manual for Enterprise Reconnaissance**

**OSINT Application Live Beta Version:** https://recontool.vercel.app

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## 🎯 PART 1: MISSION OVERVIEW

### What This Platform Does

We have built a **single-interface intelligence aggregation system** that transforms raw domain data into actionable reconnaissance intelligence. This isn't just another WHOIS lookup tool—this is an orchestrated intelligence gathering machine.

### The Vision:

- **Input:** One target domain or IP address
- **Process:** Simultaneous deep-dive analysis across 11 specialized modules
- **Output:** Comprehensive, exportable intelligence report
- **Impact:** What would take 30 minutes across multiple tools, now happens in seconds

### Who Should Use This?

- **Security Researchers** - Conducting competitive threat landscapes

- **Cybersecurity Analysts** - Performing pre-engagement reconnaissance
- **Penetration Testers** - OSINT gathering before authorized testing
- **Business Development Teams** - Intelligence on partner organizations
- **Compliance Officers** - Vendor security assessment automation
- **CTF Players** - Rapid domain intelligence gathering

### Strategic Value

This platform consolidates **11 separate intelligence vectors** that would traditionally require:

- 11 different websites
- Countless API keys and integrations
- 20-30 minutes of manual cross-referencing
- Risk of data inconsistency

**Your tool does it in < 5 seconds, with perfect consistency.**

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## 🔍 PART 2: CORE INTELLIGENCE MODULES

### Module 1: DNS Intelligence (MX/NS/TXT Records)

**What It Reveals:**

- Mail server infrastructure (MX records) - identifies email providers
- Authoritative nameservers - reveals DNS hosting provider
- SPF/DKIM/DMARC records - email security configuration
- Text records - domain verification data

**Strategic Intelligence:**
If a company uses Gmail's nameservers (MX records pointing to aspmx.l.google.com), you instantly know they're using Google Workspace. This indicates infrastructure choices, vendor relationships, and email security maturity.

**Real-World Scenario:**
A penetration tester discovers MX records pointing to a third-party email provider not listed on the company's official IT infrastructure diagram. This could indicate shadow IT, a forgotten subsidiary, or an acquisition.

### Module 2: Technology Stack Detection

**What It Reveals:**

- CMS platform (WordPress, Drupal, Joomla, etc.)
- JavaScript frameworks (React, Vue, Angular)
- Server technologies (Apache, Nginx, IIS)
- Analytics platforms (Google Analytics, Hotjar)

- CDN providers (Cloudflare, Akamai)
- Development tools and libraries

**Strategic Intelligence:**
You instantly understand the organization's technology choices, which correlates with security maturity, budget constraints, and potential vulnerabilities. A WordPress installation with outdated plugins is a different risk profile than a hardened Node.js application.

**Real-World Scenario:**
A WordPress site running WooCommerce identifies an e-commerce target. The technology stack immediately suggests where payment processing and customer data lives, helping prioritize reconnaissance efforts.

## Module 3: Employee Intelligence (LinkedIn/Email Patterns)

### What It Reveals:

- Corporate email naming conventions (firstname.lastname@ or first_last@)
- Employee LinkedIn profiles associated with domain
- Department structures from social media presence
- Management hierarchies
- Social media presence of key personnel

**Strategic Intelligence:**
Email patterns unlock social engineering vectors. If you discover the pattern is first.last@company.com, you can generate likely email addresses for any employee you identify. LinkedIn profiles reveal organizational structure without ever contacting the company.

**Real-World Scenario:**
A red team discovers that a company uses "firstname.lastinitial@company.com" format. They identify 50+ valid email addresses by scraping LinkedIn company profiles, enabling targeted phishing campaigns (in authorized assessments).

## Module 4: Related Domains & Subdomains

### What It Reveals:

- Reverse WHOIS data - other domains registered by same person/organization
- Certificate Transparency logs - subdomains ever issued SSL certificates
- Subdomain enumeration - web services, APIs, test environments
- Sister companies or acquired brands
- Forgotten development/staging domains

**Strategic Intelligence:**
Organizations often own 10-50 related domains they don't actively promote. Dev.company.com, staging.company.com, or old-brand.company.com often lack the same security rigor as the main domain.

**Real-World Scenario:**
A company registers company-staging.com for development. The reconnaissance system discovers it via Certificate Transparency logs. The staging environment runs with default credentials and contains real production data—a critical finding.

## Module 5: Historical Data & Domain Timeline

**What It Reveals:**

- Domain age and registration history
- Previous ownership records
- DNS changes over time
- When security certificates were first issued
- Historical snapshots of website content (via Wayback Machine integration)
- Previous compromises or incidents

**Strategic Intelligence:**
A domain registered 10 years ago shows organizational stability. Recent registration of similarly-named domains might indicate brand protection or recent M&A activity. Historical content can reveal deprecated systems, old admin panels, or legacy infrastructure still accessible.

**Real-World Scenario:**
Historical data shows company.com was registered by "John Doe" 15 years ago. A current employee with the same last name appears to be the original registrant—potential account compromise or insider threat indicator.

## Module 6: Geolocation & IP Intelligence

**What It Reveals:**

- Current server's geographic location
- IP range and ISP information
- Data center provider identification
- Whether IP is cloud-hosted (AWS, Azure, GCP)
- Historical IP changes
- IP reputation and abuse reports

**Strategic Intelligence:**
If a "local company" is actually hosted on AWS Singapore, this reveals infrastructure architecture and potential compliance implications. IP geolocation helps identify server redundancy, DDoS distribution, or potential jurisdiction advantages.

**Real-World Scenario:**
A company claims to be "European-based" but their web server's IP geolocation shows Miami. This indicates either: (1) a CDN implementation, (2) cloud infrastructure misunderstanding, or (3) a misleading marketing claim affecting GDPR compliance assumptions.

## Module 7: WHOIS Registration Data

**What It Reveals:**

- Domain registrant name, address, phone
- Administrative contact information
- Technical contact details

- Nameserver hosting provider
- Domain expiration date
- WHOIS privacy service status

**Strategic Intelligence:**
WHOIS data identifies decision-makers and technical contacts directly. Privacy services indicate security awareness. Expiration dates approaching renewal often indicate domain abandonment risk. Phone numbers and addresses are OSINT gold—they connect digital identities to real-world personas.

**Real-World Scenario:**
WHOIS reveals domain admin is "admin@company.com" with a 15-year history. Cross-referencing with LinkedIn shows this is the founder—a VIP security target for social engineering.

## Module 8: HTTP Headers Analysis

### What It Reveals:

- Server software versions (Apache 2.4.41, Nginx 1.18.0, etc.)
- Security headers presence/absence (CSP, X-Frame-Options, HSTS)
- Server timezone information
- Powered-by headers revealing tech choices
- Custom headers indicating internal tools
- Security misconfiguration indicators

**Strategic Intelligence:**
Outdated server versions have known vulnerabilities. Missing security headers indicate immature security practices. Custom headers reveal internal tool usage patterns. This is signature information—the organization is literally telling you about itself.

**Real-World Scenario:**
HTTP headers show "Server: Apache/2.4.1" (a vulnerable 2015 version) combined with missing HSTS headers. This immediately signals known CVEs and poor security practices, directing vulnerability research.

## Module 9: SSL/TLS Certificate Intelligence

### What It Reveals:

- Certificate issuer (Let's Encrypt, DigiCert, etc.)
- Certificate validity period
- Subject Alternative Names (all valid domains)
- Certificate transparency logs
- Organizational validation level
- Certificate chain information

**Strategic Intelligence:**
Self-signed certificates indicate internal applications. Let's Encrypt (free) indicates either startup or cost-consciousness. Extended validation (EV) certificates show high-security commitment. Subject Alternative Names reveal related domains that might be hosted on the same server.

**Real-World Scenario:**
SSL certificate shows Subject Alternative Names including admin-panel.company.com, api.company.com, and staging.company.com—three additional targets revealed from one certificate query.

## Module 10: Metadata & SEO Information

**What It Reveals:**

- Page title and meta descriptions
- Open Graph tags (social media preview data)
- Canonical URLs and redirects
- JSON-LD schema markup (business data)
- Robots.txt directives (honeypot paths)
- Sitemap.xml location
- Analytics tracking codes

**Strategic Intelligence:**
Meta descriptions and JSON-LD reveal business structure, location, contact info programmatically. Robots.txt often points to sensitive directories organizations want hidden. Analytics codes can be cross-referenced to identify other properties owned by same organization.

**Real-World Scenario:**
JSON-LD schema reveals multiple company locations with addresses and phone numbers. Analytics code tracking ID is registered to a different organization name—indicating potential acquisition or sister company relationship.

## Module 11: Contact & Social Media Intelligence

**What It Reveals:**

- Publicly listed email addresses
- Phone numbers and extensions
- LinkedIn company page URL
- Twitter/social media handles
- GitHub organization accounts
- YouTube channel links
- Community forum accounts

**Strategic Intelligence:**
Social media handles connect digital identity to real-world communities. GitHub accounts reveal code repositories, development practices, and internal tools. YouTube channels show company culture and recorded presentations that might leak technical details.

**Real-World Scenario:**
Social media reconnaissance reveals company's GitHub account. A developer accidentally committed AWS credentials to a public repository—critical finding requiring immediate remediation.

# 🚀 PART 3: OPERATIONAL WORKFLOW

## The Intelligence Gathering Process

- STEP 1: TARGET IDENTIFICATION
  - Enter domain or IP address
  - System validates input format
- STEP 2: MODULE SELECTION
  - Choose specific modules (or SELECT ALL)
  - Each module is independent and parallelizable
- STEP 3: INTELLIGENCE COLLECTION
  - 11 APIs execute simultaneously
  - Results stream in real-time
  - Failed modules retry with fallback data
- STEP 4: DATA AGGREGATION
  - Results unified into standardized format
  - Cross-module correlation performed
  - Confidence scoring applied
- STEP 5: REPORT GENERATION
  - Beautiful HTML report created
  - Organized by module and priority
  - Ready for presentation or export
- STEP 6: EXPORT & DELIVERY
  - Generate PDF/JSON export
  - Share with stakeholders
  - Archive for historical analysis

## Quick-Start Operational Guide

### For New Users:

1. Enter your target: Copy-paste any domain (example.com or 192.168.1.1)
2. Click "SELECT ALL" - Don't overthink it, grab everything
3. Hit "START SCAN" - Watch the real-time results stream in
4. Export when complete - Generate professional report for stakeholders
5. Review findings - Follow up with deep-dive into interesting modules

### For Power Users:

1. Preset module combinations:

- Quick Footprint - DNS + Tech Stack + Geo (60 seconds)
- Personnel Intelligence - Employee + Contact + Related (120 seconds)
- Infrastructure Audit - Headers + SSL + WHOIS + Geo (90 seconds)
- Full Reconnaissance - All 11 modules (180 seconds)

## Interpreting Results: The Intelligence Pyramid

### TIER 1: CRITICAL FINDINGS

- Exposed credentials in HTTP headers
- Vulnerable server versions with known exploits
- Misconfigurations in security headers
- Active malware/reputation flags

### TIER 2: HIGH-VALUE INTELLIGENCE

- Technology stack details revealing attack surface
- Employee/contact information enabling social engineering
- Related domains or subdomains for pivot attacks
- Certificate data revealing infrastructure

### TIER 3: CONTEXTUAL INTELLIGENCE

- Historical changes indicating recent incidents
- Geolocation revealing infrastructure decisions
- DNS records showing organizational structure
- Email patterns enabling account enumeration

### TIER 4: SUPPORTING DATA

- Metadata confirming business classification
- Social media presence validation
- General reputation and age indicators

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# 🏗 PART 4: TECHNICALARCHITECTURE

## System Design Philosophy

Your platform follows the **Modular API Aggregation Pattern**.

The architecture consists of:

**Frontend Layer:** Beautiful, responsive user interface (HTML5, CSS3, JavaScript)
**Orchestration Layer:** Module selection and parallel execution engine
**API Integration Layer:** 11 specialized reconnaissance modules
**Data Aggregation Layer:** Normalization, deduplication, correlation
**Report Generation:** HTML rendering, PDF export, JSON output

**Core Technologies**

**Frontend:**

- Vanilla JavaScript (no framework bloat)
- CSS3 animations (falling stars, smooth transitions)
- Responsive grid layout
- Real-time result streaming

**API Layer:**

- 11 separate third-party and public APIs
- Parallel execution for speed
- Error handling and fallback logic
- Rate-limit management

**Data Processing:**

- Client-side processing (privacy-first)
- No data stored on servers
- On-demand export generation
- Modular, extensible architecture

## API Integrations

| Module | Primary API | Backup API | Speed |
|---|---|---|---|
| DNS | Google Public DNS API | Cloudflare 1.1.1.1 | 500ms |
| Tech Stack | Wappalyzer API | Builtwith | 800ms |
| Employee Info | LinkedIn API* | Hunter.io | 1200ms |
| Related Domains | WHOIS API | Certificate Transparency | 900ms |
| Historical Data | Wayback Machine API | Domain Tools | 1500ms |
| Geolocation | ipapi.co | MaxMind | 300ms |
| WHOIS | RDAP API | WHOIS.com | 700ms |
| Headers | Live HTTP Request | Archive.org | 400ms |
| SSL/TLS | crt.sh | Censys | 600ms |
| Metadata | Live crawl | SEO APIs | 1000ms |
| Contact Info | Hunter.io | Email-Finder | 800ms |

Table 1: API Integration Overview

*LinkedIn integration should use LinkedIn Data API with proper OAuth2

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# ⚖️ PART 5: SECURITY & LEGAL FRAMEWORK

## Critical Legal Considerations

**This tool performs OSINT (Open-Source Intelligence) using publicly available data.** However, legal obligations vary by jurisdiction:

✅ **LEGAL USES:**

- Pre-employment security assessment with consent
- Authorized penetration testing
- Academic security research
- Competitive business intelligence (public data)
- Vendor security assessment
- Personal domain audit
- Incident response investigation

⚠️ **RESTRICTED USES:**

- Unauthorized access attempts (don't use reconnaissance to hack)
- Violating terms of service of data sources
- Privacy law violations (GDPR, CCPA, etc.)
- Social engineering attacks
- Harassment or stalking
- Business espionage

## Compliance Requirements

**Before deployment, you MUST:**

1. Add Terms of Service - Clarify permitted uses
2. Implement Rate Limiting - Respect API quotas and terms
3. Add Privacy Policy - Explain data collection (you don't store it, but users should know)
4. GDPR Compliance - Add cookie notices, data processing disclosures
5. CFAA Compliance - Add warnings about unauthorized access
6. Terms of API Providers - Ensure your usage complies with each integrated API's ToS

## Recommended Legal Disclaimer

> This tool is designed for authorized security assessment and OSINT research only. Users are responsible for ensuring they have authorization before conducting reconnaissance on any target. Unauthorized access to computer systems is illegal. This tool performs passive reconnaissance using publicly available information.

## Security Best Practices for Users

**Data Handling:**

- Don't share reports with unauthorized parties
- Store results securely
- Don't leave browser tab open on shared computers
- Consider VPN usage if concerned about ISP monitoring
- Disable browser history for sensitive reconnaissance

**Responsible Disclosure:**

- If you discover vulnerabilities, report through responsible disclosure channels
- Contact company's security team (security@company.com)
- Use platforms like Hacker One or Bug crowd
- Allow reasonable time for remediation before public disclosure

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# 🌐 PART 6: DEPLOYMENT STRATEGY

## Hosting Options & Recommendations

**Option 1: Cloud Deployment (RECOMMENDED)**

- **Provider:** Vercel, Netlify, or AWS Amplify
- **Advantage:** Global CDN, instant scaling, built-in security
- **Cost:** Free tier available, scales on usage
- **Deployment:** Git push triggers automatic deployment
- **Recommendation:** Best for public availability

**Option 2: VPS Deployment**

- **Provider:** Digital Ocean, Linode, Hetzner
- **Advantage:** Full control, customizable, predictable costs
- **Cost:** $5-20/month
- **Setup:** Docker containerization recommended
- **Recommendation:** Good for custom configurations

**Option 3: GitHub Pages (Static)**

- **Advantage:** Free, no server costs, instant CDN
- **Limitation:** No backend needed (you're already doing client-side processing!)
- **Cost:** Free
- **Recommendation:** Perfect for your architecture

## Step-by-Step Deployment (GitHub Pages)

1. Create GitHub repository: your-username/web-recon-platform
2. Push index.html and app.js to main branch
3. Go to Settings → Pages → Source: Deploy from main branch
4. Your site is live at: https://your-username.github.io/web-recon-platform
5. Enable custom domain (optional)

# Production Optimization Checklist

**Performance:**

**1.** Minify JavaScript and CSSEnable gzip compression

**2.** Implement service workers for offline capability

**3.** Optimize images (use modern formats)

**4.** Cache API responses client-side

**Security:**

1. Enable HTTPS (automatic with GitHub Pages)
2. Implement Content Security Policy headers
3. Add rate limiting headers
4. Sanitize all user inputs
5. Remove debugging logs in production

**Monitoring:**

**1.** Set up Google Analytics for usage insights

2. Monitor API uptime with status.io integration

3. Create error tracking (Sentry or similar)

4. Track user feedback and feature requests

## SEO & Discoverability

**For LinkedIn & Community:**

- Create compelling demo GIF showing reconnaissance in action
- Write technical blog post: "Building an OSINT Platform in JavaScript"
- Share on r/cybersecurity, security focus forums
- Create YouTube tutorial: "5-minute domain reconnaissance"
- Open source on GitHub with detailed README

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## 🔧 PART 7: ADVANCED USE CASES

## Use Case 1: Pre-Engagement Assessment

**Scenario:** You're a penetration tester with a signed contract to test Example Corp.

**Workflow:**

1. Run full reconnaissance on example.com
2. **Findings:** Tech stack reveals WordPress with WooCommerce
3. **Next Steps:** Target WordPress-specific vulnerabilities
4. **Time Saved:** Instead of 30 minutes of research, you have actionable intelligence in 3 minutes

## Use Case 2: Competitive Intelligence

**Scenario:** Business development team needs to understand a competitor's infrastructure.

**Workflow:**

1. Scan competitor.com with Employee + Related Domains + Tech Stack modules
2. **Discover:** They own 15 related domains, only 3 are actively used
3. **Insight:** Potential acquisition or failed product lines
4. **Action:** Research abandoned domains for opportunity analysis

## Use Case 3: Incident Response Investigation

**Scenario:** Security team investigating a data breach at a third-party vendor.

**Workflow:**

1. Run full reconnaissance on vendor.com
2. **DNS findings:** Mail server misconfiguration allows external forwarding
3. **Historical data:** Domain was recently transferred to new owner
4. **Geo data:** Server moved from US to Eastern Europe
5. **Timeline:** Correlate changes with breach timeline—indicates potential compromise

## Use Case 4: Due Diligence for Acquisition

**Scenario:** Your company is evaluating an acquisition target.

**Workflow:**

1. Scan target company domains (primary + related)
2. **Tech Stack:** Outdated frameworks (high remediation cost)
3. **Certificate data:** Multiple infrastructure gaps discovered
4. **Employee intelligence:** Key technical staff may leave post-acquisition
5. **Financial impact:** Intelligence informs acquisition valuation

## Use Case 5: Automated Security Monitoring

**Scenario:** You want to monitor competitors' infrastructure changes over time.

**Enhancement:** Modify your app to store periodic scan results

- **Month 1:** Competitor runs 10 servers
- **Month 2:** Competitor runs 20 servers (expansion detected)
- **Month 3:** Technology stack changes (potential pivot)

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# 🐛 PART 8: TROUBLESHOOTING & OPTIMIZATION

## Common Issues & Solutions

### Issue 1: "No Results" for a Module

- **Cause:** API rate limit exceeded, or data doesn't exist for target
- **Solution:** Wait 5 minutes, try single module instead of all
- **Prevention:** Implement retry logic with exponential backoff

### Issue 2: Slow Scan Times

- **Cause:** One slow API blocking others
- **Solution:** Implement timeout (5 second fallback for each module)
- **Optimization:** Cache results for repeated targets

### Issue 3: Export Button Not Working

- **Cause:** Possible JavaScript error or browser compatibility
- **Solution:** Test in Chrome DevTools (F12), check console for errors
- **Fix:** Implement fallback export formats (JSON, CSV, HTML)

### Issue 4: Different Results Than Expected

- **Cause:** Data source inconsistency or API changes
- **Solution:** Cross-reference with multiple OSINT tools (Shodan, Censys)
- **Note:** OSINT data is point-in-time—always verify critical findings

## Performance Optimization Tips

### Frontend Optimization:

- Use request Animation Frame for animations instead of set Interval
- Lazy-load results as they stream in
- Implement virtual scrolling for large result sets
- Use CSS transforms instead of JavaScript animations

### API Optimization:

- Batch requests where possible

- Implement client-side caching with localStorage
- Use parallel execution (Promise.all()) instead of sequential
- Add request timeout (5 seconds) to handle slow APIs

**Network Optimization:**

- Minify all JavaScript and CSS
- Use gzip compression
- Implement HTTP/2 push for critical resources
- Consider CDN for global distribution (Cloudflare free tier)

## Analytics & Metrics to Track

**User Metrics:**

- Average scan time per module
- Most popular module combination
- Export format preferences (PDF vs JSON vs HTML)
- Repeated targets (top domains scanned)

**Performance Metrics:**

- API response time per module
- Success rate per API
- False positive rate (data accuracy)
- Server uptime and error rates

**Business Metrics:**

- User retention (% who return)
- Feature adoption (which modules are used)
- Geographic distribution of users
- Referral sources (how users find you)

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# 🚀 PART 9: FUTURE ROADMAP

## Phase 2: Enhanced Intelligence (Next 3 Months)

**Planned Features:**

1. Threat Intelligence Integration
   - Cross-reference domain against known malware databases
   - Display threat reputation scores
   - Alert on recently compromised infrastructure
2. Historical Timeline Visualization

    - Interactive timeline showing infrastructure changes over 1 year
    - Correlation with public incidents
    - Export historical trend analysis
3. Multi-Target Campaign Scanning
    - Batch scan 100+ domains at once
    - Comparative analysis across targets
    - Industry benchmarking reports
4. Advanced Export Formats
    - Professional PDF with client branding
    - Executive summary (non-technical stakeholders)
    - JSON API for third-party integrations
    - CSV bulk import/export

**Phase 3: Enterprise Features (6-12 Months)**

**Planned Capabilities:**

1. User Accounts & Collaboration
    - Save and share scans with team
    - Role-based access control
    - Audit logs for compliance
2. Automated Monitoring
    - Schedule recurring scans
    - Alert on infrastructure changes
    - Trend analysis and anomaly detection
3. Custom Modules
    - Build your own reconnaissance modules
    - API marketplace for third-party extensions
    - Scripting environment for advanced users
4. Reporting & Analytics
    - Pre-built report templates
    - Executive dashboard with KPIs
    - Historical trend analysis

## Phase 4: AI-Powered Intelligence (12+ Months)

**Advanced Features:**

1. Automated Threat Assessment
    - AI analyzes findings and assigns risk scores
    - Predictive vulnerability identification

    - Behavioral anomaly detection
2. Natural Language Reports
    - AI generates human-readable conclusions
    - Automatically suggests remediation steps
    - Executive summaries in plain English
3. Cross-Domain Intelligence Graph
    - Visualize relationships between domains
    - Identify hidden organizational structure
    - Threat actor tracking and attribution

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## 📝 FINAL THOUGHTS: YOUR COMPETITIVE ADVANTAGE

A production-ready OSINT platform that fills a genuine market gap**.** The combination of:

- **Speed:** < 5 seconds vs hours with manual tools
- **Accessibility:** Free, no learning curve, beautiful UI
- **Professional Quality:** Export-ready reports for stakeholders
- **Ethical Foundation:** Legal framework built in
- **Scalability:** Client-side architecture means unlimited users

This isn't a hobby project—it's a real product that professionals will pay for.

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**Application Live Demo:** https://recontool.vercel.app

*"Build something people need. Make it beautiful. Make it ethical. Iterate relentlessly. Dominate your niche."*

By

Jaleel Basha