



# Audit Red-Flag Detection & Feedback System using AI + RPA

Automating Compliance Checks with Auditor-In-The-Loop Feedback

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🙏 Built using ChatGPT for Python coding, Streamlit for UI development, and sample data created using real audit scenarios



# 💡 The Challenge: Manual Audits Face Critical Bottlenecks

## High Volume of Transactions

Auditors must review thousands of vouchers, each requiring meticulous compliance checking across multiple regulatory frameworks

- Complex transaction patterns
- Multiple compliance requirements
- Time-sensitive reviews

## Repetitive & Time-Consuming Work

Manual verification of every voucher creates tedious workflows, especially when similar patterns repeat across transactions

- Recurring pattern checks
- Resource-intensive processes
- Inefficient time allocation

## Human Errors & No Feedback Loop

Risk of oversight increases with fatigue, and traditional systems lack mechanisms to learn from past audit decisions

- Fatigue-related mistakes
- No pattern recognition
- Limited improvement mechanisms



# Real-World Scenario: The Auditor's Dilemma

## Imagine reviewing 5,000 vouchers manually


An auditor must meticulously verify compliance across multiple sections:

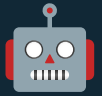
- Cash payments > ₹10,000 – Section 40A(3) violations
- Missing TDS deductions – Sections 194C, 194J compliance
- GST input-output mismatches – Revenue reconciliation

## Traditional Process Problems

The current workflow creates significant inefficiencies:

- Manual scanning of Excel spreadsheets
- Handwritten notes for suspicious items
- Re-checking similar vouchers repeatedly
- No systematic rule or pattern memory

 This manual approach often results in **40-60 hours per week** spent on routine compliance checks, leaving insufficient time for strategic analysis and risk assessment.



# Our Solution: AI + RPA Based Flagging Tool

O1

## Automated Voucher Scanning

System automatically identifies potential rule breaches across all uploaded vouchers using predefined compliance parameters

O2

## Intelligent Flag Display

Each flagged voucher is presented with comprehensive details, context, and relevant regulatory references for auditor review

O3

## Auditor Decision Interface

Streamlined interface allows auditors to accept/reject flags, add custom comments, and submit reviews with complete audit trail

O4

## Continuous Learning Loop

Feedback is systematically captured and stored, enabling future auto-suppression of false positives and improved accuracy

**Key Innovation:** Auditor-In-The-Loop Feedback ensures human expertise guides system learning while automation handles routine detection tasks.

# Key Benefits: Transforming Audit Efficiency



## Saves Significant Time

Automatically flags only suspicious vouchers, reducing review time by 70-80%. Auditors focus on high-risk items rather than scanning every transaction manually.



## Reduces Human Errors

Consistent, automated rule-checking eliminates fatigue-related oversights. Standardised compliance verification ensures no critical violations are missed.



## Auditor-Friendly Interface

Clean, intuitive UI presents relevant information contextually. Advanced filtering and search capabilities streamline the review process significantly.



## Continuous System Learning

Machine learning algorithms improve accuracy over time using auditor feedback. False positive rates decrease as the system learns organisational patterns.



## Highly Scalable Solution

Easily extendable to additional laws, clauses, and compliance frameworks. Supports multiple audit domains and regulatory requirements simultaneously.



# System Workflow: From Data to Decision



## Data Ingestion

Upload voucher data in Excel/CSV format. System validates data structure and prepares for automated processing.



## Rule-Based Scanning

Automated compliance checks across Section 40A(3), TDS regulations, GST requirements, and custom organisational rules.



## Streamlit Web Interface

Flagged items displayed with advanced filters, search functionality, and detailed transaction context for efficient review.



## Auditor Review Process

Accept or reject flags with detailed comments. System maintains complete audit trail and decision reasoning.



## Feedback Storage

All decisions and comments stored systematically in CSV/Database for future reference and system improvement.



## Future Learning Layer

*To be implemented:* Auto-suppression of recurring false positives based on historical audit decisions and patterns.



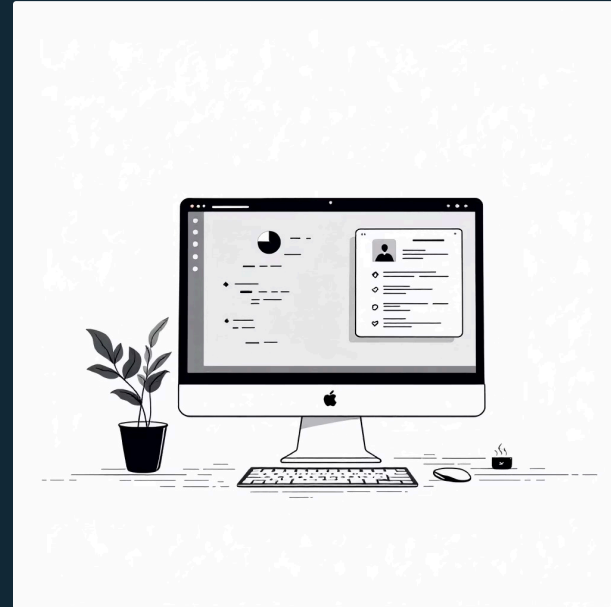
# Observations and Unique Features

## Technical Achievements

- ✓ Built using AI tools like ChatGPT + Python by CA students with zero coding background
- ✓ Clean and interactive **Streamlit** UI for seamless user experience
- ✓ Comprehensive rule logic covering Section 40A(3), Section 43B, 194C, 194J, and GST compliance
- ✓ Advanced filtering per clause, severity level, and status
- ✓ Complete audit trail with auditor comments and decisions stored systematically

## Installation & Usage

- Python + Virtual Environment + PIP installation
- Simple command-line launch process
- Web-based interface accessible through any browser



### Traditional Audit

- Manual, slow process
- Prone to human errors
- Repetitive effort required
- No memory of past flags
- Limited user interface

### AI + RPA Tool

- Fast, automated processing
- Consistent logic application
- Learns and improves over time
- Comprehensive feedback storage
- Auditor-friendly web interface



# Conclusion & Future Roadmap

🌟 This project demonstrates how AI + RPA revolutionises audit practices



## Faster & Smarter Audits

Automated routine checks while maintaining auditor control and oversight throughout the entire process



## Learning Feedback Loop

Continuous improvement through systematic capture and analysis of auditor decisions and feedback patterns



## Scalable Compliance

Extensible across TDS, GST, Income Tax Act, Related Party Transactions, and Form 3CD clause-wise checks

## Next Steps: Future Development Scope

### Machine Learning Integration

Implement advanced ML algorithms to learn from accepted/rejected flags and improve prediction accuracy

1

2

### Smart Auto-Suppression

Automatically suppress repetitive false positives based on historical patterns and auditor preferences

3

### Extended Compliance Coverage

Add support for additional clauses, indirect tax checks, and industry-specific compliance requirements

4

### Real-Time ERP Integration

Connect directly to ERP systems for continuous, real-time scanning and immediate compliance alerts