

FundWise

Building Trust in Digital Pooled Finance
through Fraud Intelligence

Team:

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Theme:

Enhancing Trust and Fraud Prevention

Problem

Millions of Indians use digital platforms to **save or pool money for shared goals** — weddings, education, emergencies, and investments.

Yet participation remains low due to **trust and fraud risks** such as:

- **Fake contributors & duplicate accounts**
- **Ghost withdrawals & fund misallocation**
- **Manipulated contribution sequences**
- **Lack of proactive fraud detection & intelligence**

These issues **erode trust** and **limit adoption** of digital pooled finance — especially among **micro-saving groups and informal communities**.

Proposed solution

Solution

Communicate big value AI-driven fraud detection + trust scoring → ensures safe, transparent fund pooling. prop, and be truly straight forward.

Impact

Users & groups can save confidently; funds released securely only on goal completion.

Key Features

- **Credibility Scoring Engine** – Quantifies trust using document, device & behavioural signals
- **Pooled Fund Graph Analysis** – Detects collusion & synthetic/fake accounts
- **Behavioural Anomaly Detection** – Monitors withdrawals & contribution patterns
- **Smart Escrow System** – Auto-releases funds only when goals are achieved
- **Real-Time Fraud Alerts** – Red/Green user tags for co-participants & moderators

How our solution addresses the problem

Document Verification:

- Validates bank statements, payslips, and ID proofs for authenticity.

Behavioral and Transactional Analytics:

- Extract features: transaction frequency, contribution patterns, device metadata.
- Time-series forecasting model (Prophet / ARIMA) detects abnormal payment sequences.

Group Graph Engine:

- Uses Python's NetworkX to build user–fund relationships.
- Detects duplicate accounts, collusion clusters, and fake pools.

Credibility Score Computation:

- Weighted combination of document, behavioural, and graph anomaly scores.
- Categorized into Green / Yellow / Red flags.

Alerting and Escrow Control:

- Automatic risk-based restrictions (e.g., delay withdrawal, step-up KYC).
- Smart contract/UPI-based escrow ensures funds are released only when verified.

FundWise Shield Feature

Smart escrow system + withdrawal anomaly tracking

To tackle ghost withdrawals or double spending

Real-time credibility scoring & explainable fraud signals

To handle trust deficit

Graph-based linkage analysis & device fingerprinting

To handle fake contributors & duplicate accounts

Public group dashboard with contribution visibility

To prevent lack of transparency

Innovation and Uniqueness

1. Supports multi-party pooled finance, not just single-user lending.
2. Combines tamper verification + graph analytics + behavioral AI in a single stack.
3. Builds a trust ecosystem, enabling credible user reputation across apps, beyond mere fraud prevention.
4. UPI Integration: Verifies contributions and predicts anomalies using time-series models for withdrawals or missed contributions.

Technical Stack

Language

Python

Frontend UI:

Streamlit

Graph Analysis:

NetworkX / Neo4j (GNNs
for collusion detection)

Database

PostgreSQL

Backend APIs

FastAPI

UPI Integration:

Razorpay / NPCI sandbox

ML & AI:

Scikit-learn, PyTorch
(behavioral models),
Prophet/ ARIMA (time-
series forecasting)

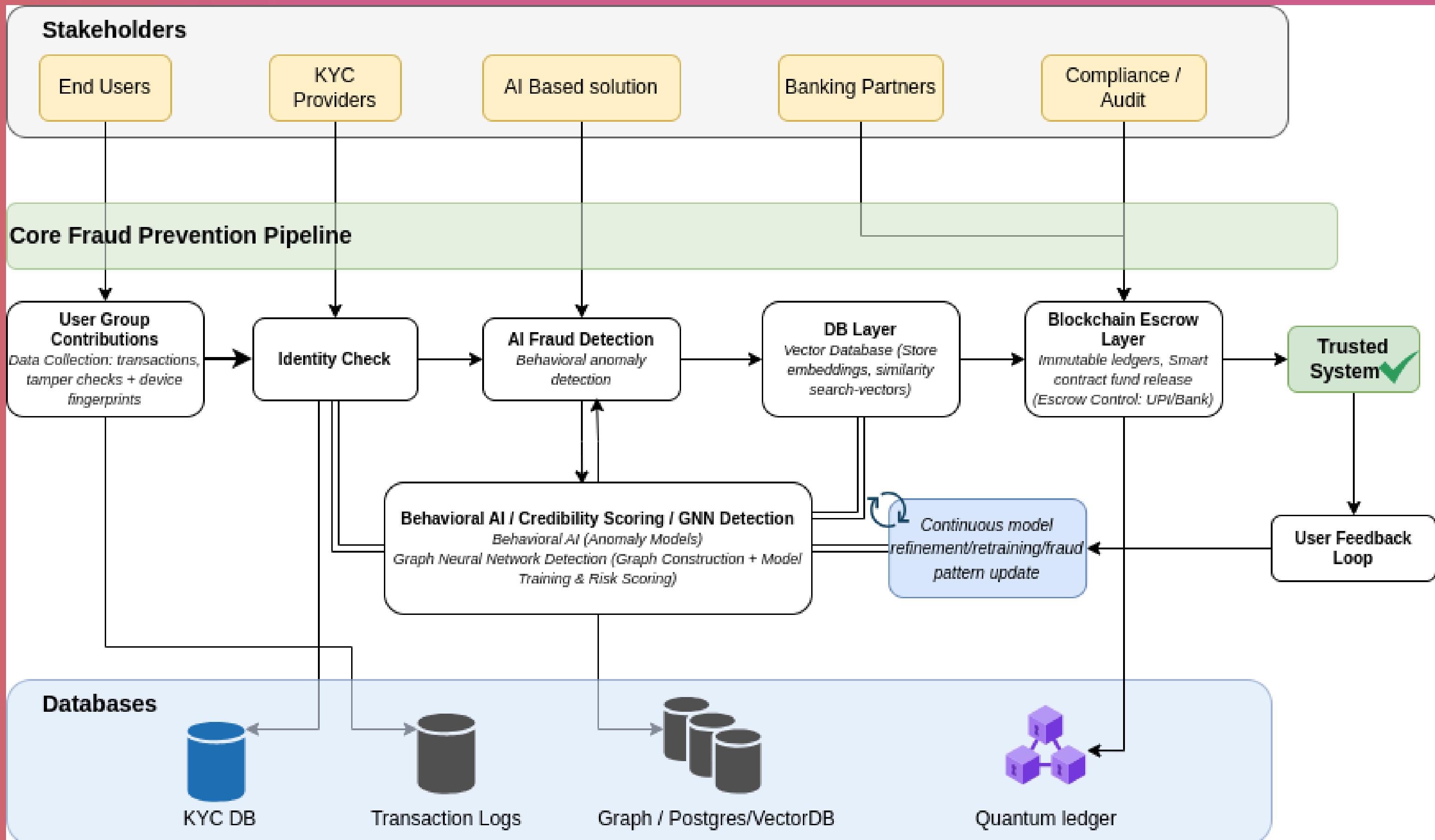
Advanced

VectorDB for vector
similarity checks against
past fraud patterns

AI Approach & Fraud Detection:

- Flags irregular contributions or activity from new devices
- Explainable AI: Assigns dynamic risk score (0–1 or any other metric) per user based on documents, transactions, and group behavior
- Graph Neural Networks: Detects collusion among accounts in the same pooled fund
- Predictive Forecasting: ARIMA/Prophet predicts next contribution dates & amounts; deviations flagged as potential fraud or financial distress

Methodology & Process of Implementing



Feasibility Analysis:

- High technical feasibility
- Integrates easily with Indian digital rails (UPI, KYC, escrow APIs)
- Scalable via modular architecture — can onboard MFIs, NBFCs, and fintech partners

Challenge / Risk	Mitigation Strategy
Limited labeled fraud data	Use semi-supervised learning & anomaly detection methods
Privacy and data consent	Hashed identities & secure data vaults
False positives impacting UX	Tiered alerts & explainable scoring
Integration with UPI	Use NPCI sandbox & partner APIs

Potential Impact

- Social: Builds financial trust for low- and middle-income communities to save together.
- Economic: Reduces fraud-related losses; encourages financial inclusion via credible micro-pooling.
- Behavioural: Incentivizes honesty through transparent reputation scores.
- Regulatory: Supports RBI's push for secure digital finance ecosystems.

Benefits

- Democratizes access to safe savings ecosystems.
- Reduces investigation time and manual fraud checks.
- Encourages user accountability and community transparency.
- Enables fintechs and NBFCs to onboard more users confidently.

Research paper and references

1. Perfios Document Tamper & Behavioural Check — [Perfios.ai](https://perfios.ai)
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Thank you !

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