

# GENESIS

- **DOMAIN:** Sustainability
- **PROBLEM STATEMENT :** S04
- **TEAM NAME:** TeamDABS
- **TEAM MEMBERS:**
  - **MEMBER 1-** Aadit Mascarenhas
  - **MEMBER 2 -** Dhiren Mulwani
  - **MEMBER 3 -** Sakshi Patil
  - **MEMBER 4 -** Bhoomit Fatnani

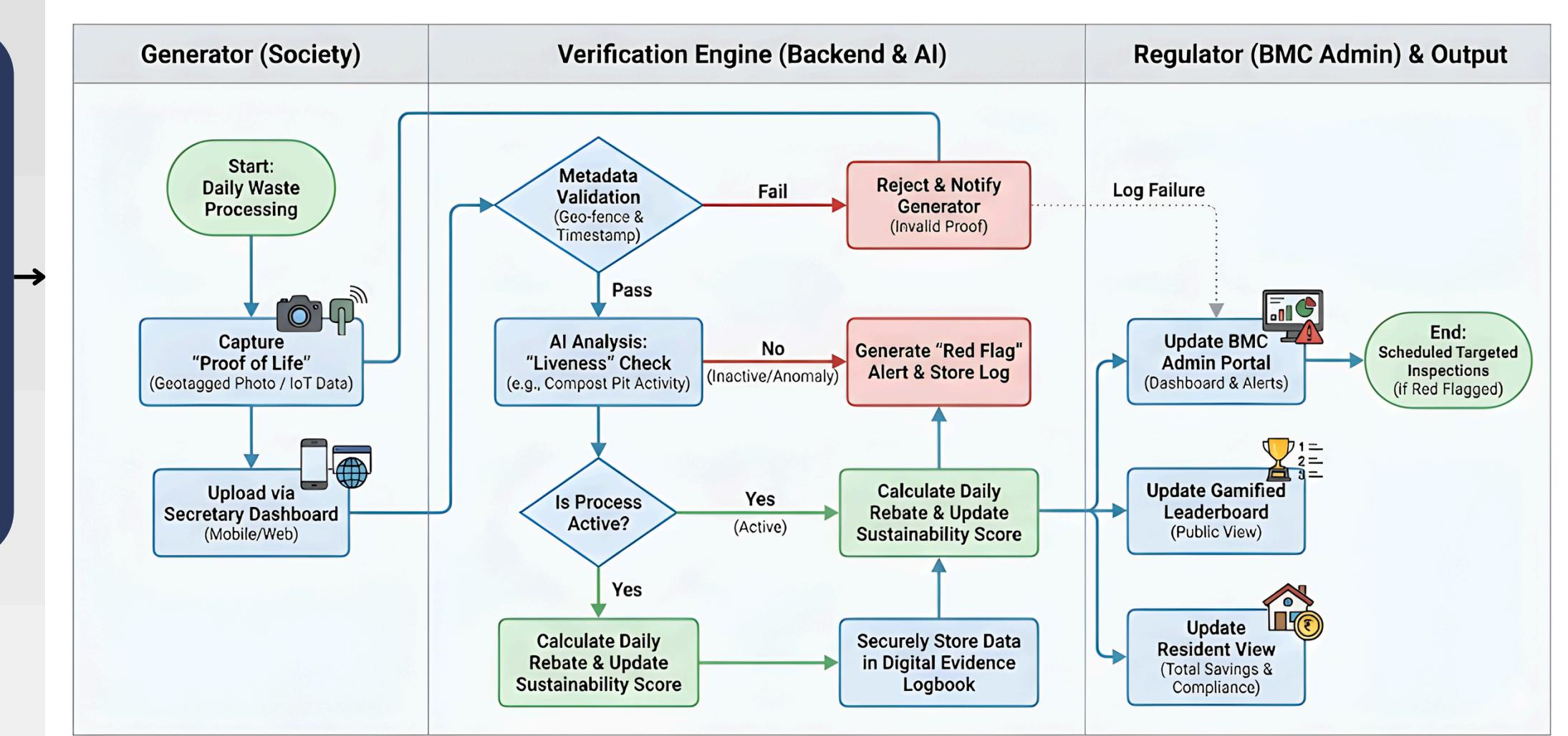
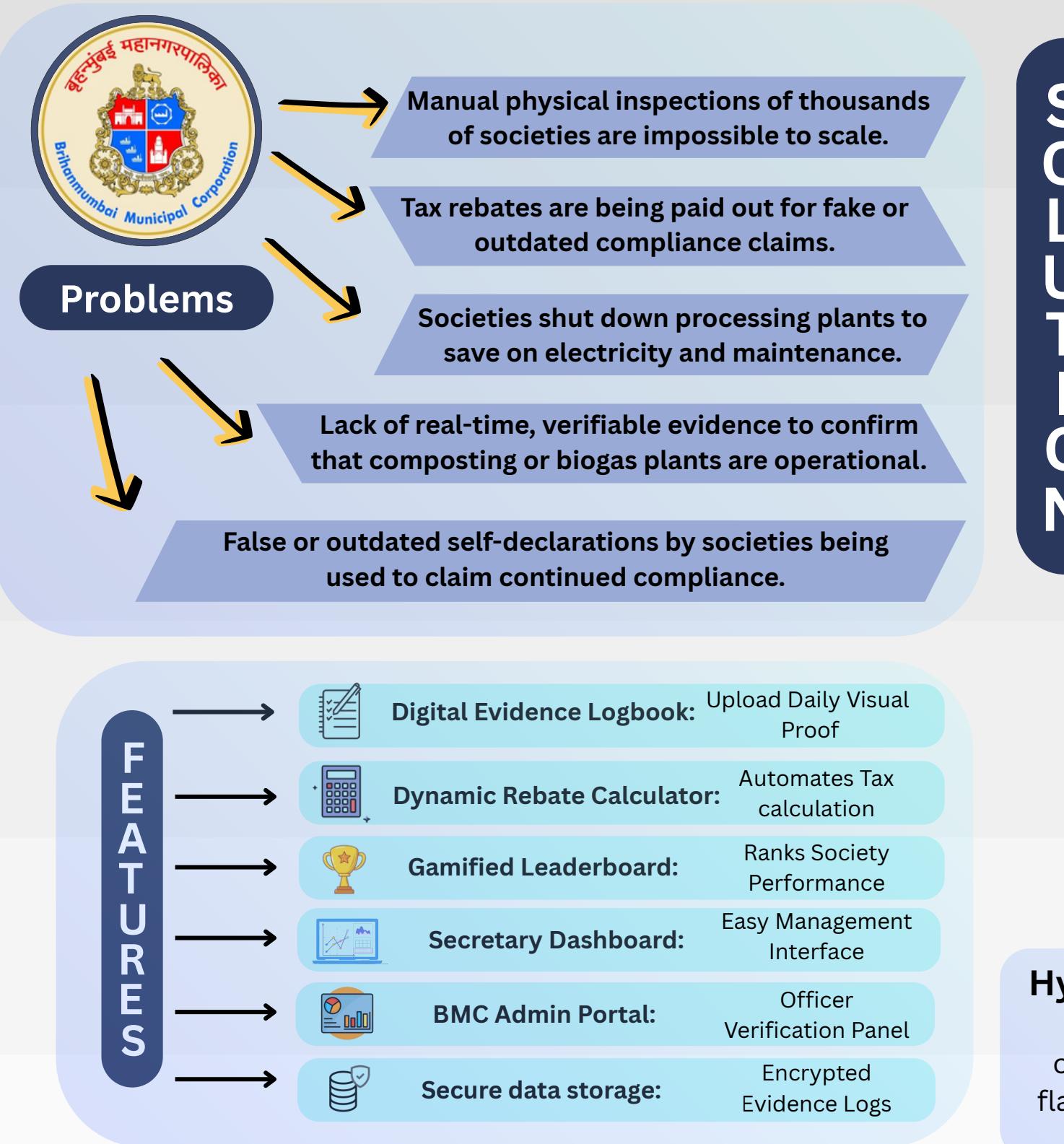




# PROPOSED SOLUTION



## SO4: "Green-Tax" Compliance & Rebate Monitor for Bulk Generators



## Innovation

### Hybrid Verification Engine

The system auto-approves claims with >70% confidence, flagging only specific anomalies for officer review.

### AI "Compost Coach"

Goes beyond monitoring to provide real-time corrective feedback to workers (e.g., "Moisture high: Add dry leaves"), ensuring process health and higher quality output.

### Closed-Loop Marketplace

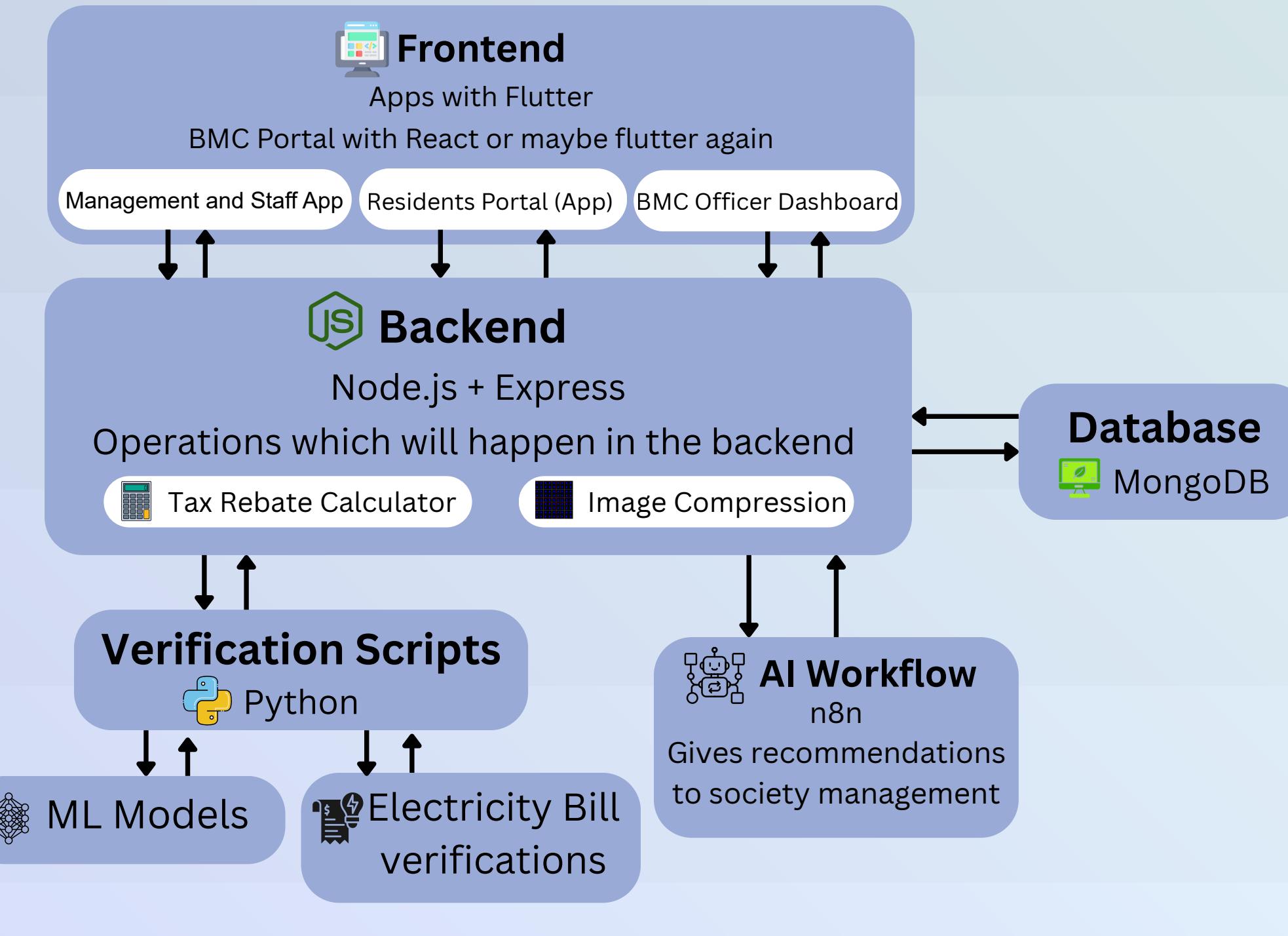
Place where farmers or nurseries or needed buyer can buy



# TECHNICAL APPROACH



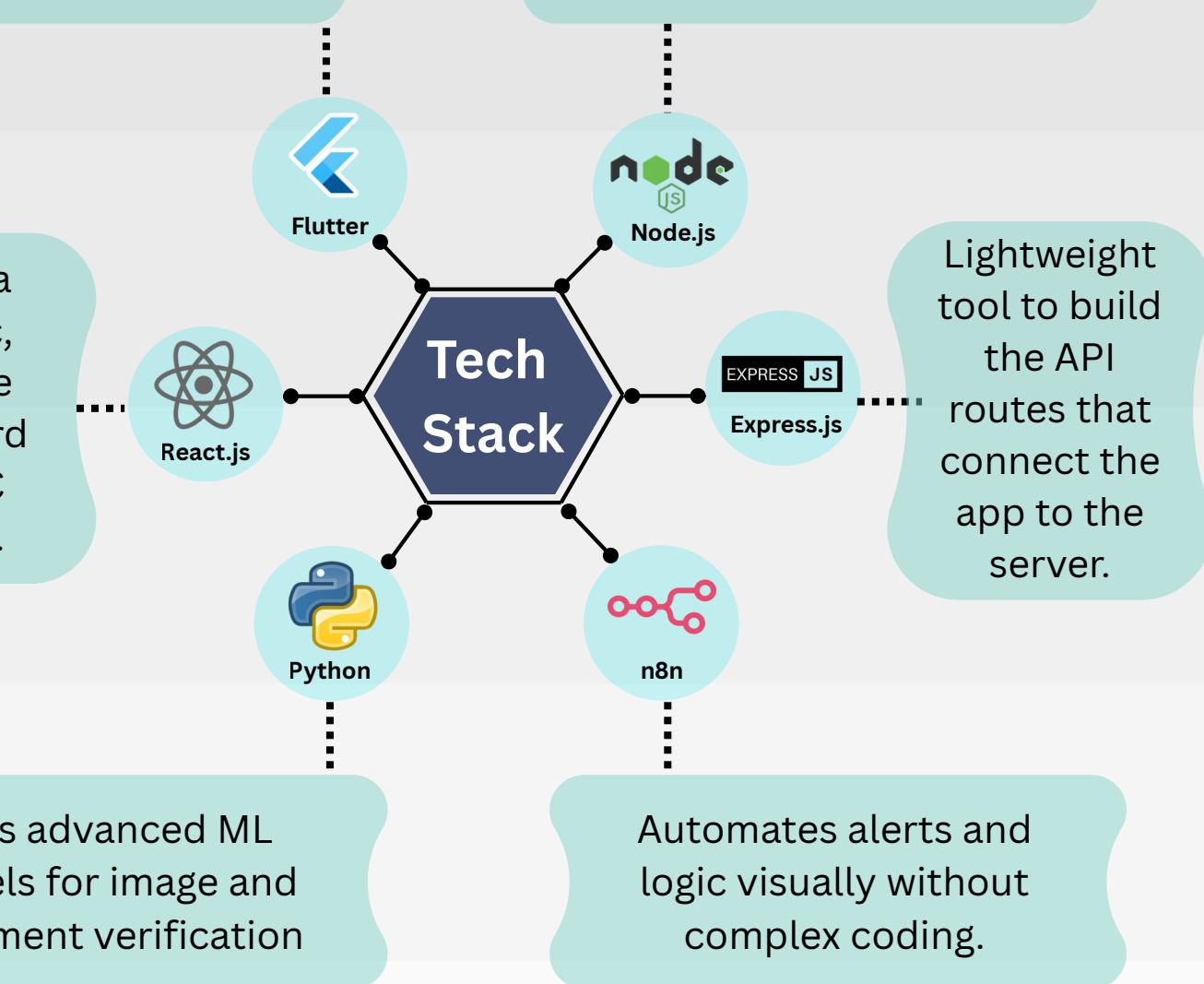
## Architecture Diagram:-



## Technology Stack and the Justification for Its Selection

Single codebase for Android & iOS ensures universal access.

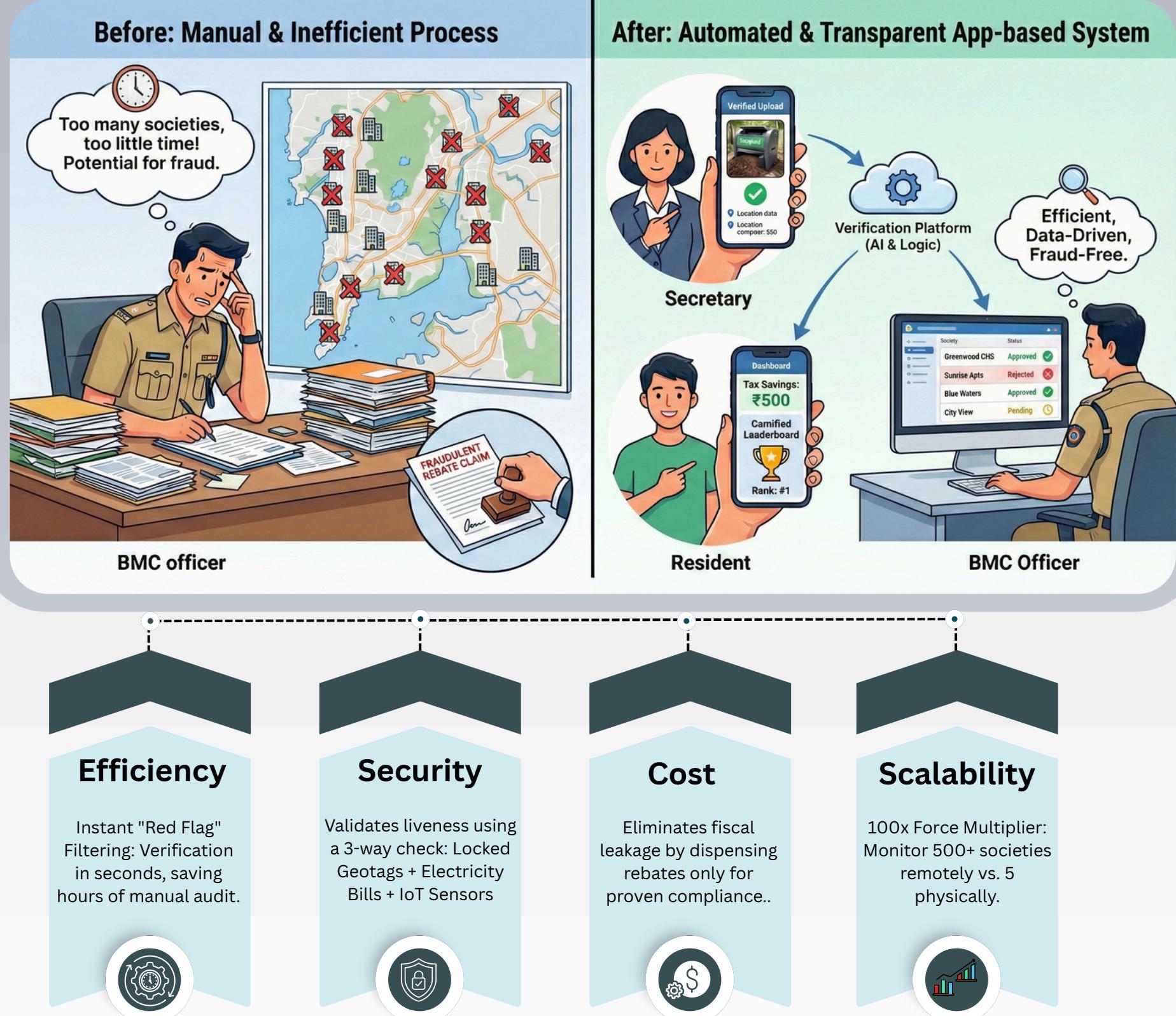
Efficiently handles thousands of concurrent uploads.





# IMPACT AND BENEFITS

## Real World Case:-



## Impacts and Benefits

### Impacts

- Plug Fiscal Leakage:** Saves BMC ~₹15 Cr/year by blocking fake rebates.
- Direct Cost Savings for Societies:** Unlocks ~₹50k-1L/year in tax savings per society.
- Reduced Logistics Cost:** Saves fuel & labor by reducing waste transport to landfills.
- Zero Compliance Risk:** Shields societies from BMC penalties and notices using irrefutable digital proof.

### Benefits

- 100x Monitoring Capacity:** Scales daily monitoring from 5 to 500+ societies.
- Management by Exception:** Auto-filters 95% of data, focusing officers on just 5% of "Red Flag" violators.
- Verified Landfill Diversion:** Ensures wet waste is actually processed, not just declared.
- Marketplace:** Also get revenue by selling composts
- Recommendation for composite quality:** Ensures high-quality manure via real-time AI feedback (e.g., "AdjustMoisture").



# RESEARCH AND REFERENCES



## Future enhancements

- 1.** Deep IoT Integration: Integration of Methane/Ammonia gas sensors to detect bad odors before neighbors complain.
- 2.** A feature allowing secretaries to report operational issues directly to Ward Officers.(e.g., "Compost machine part unavailable")
- 3.** Expand the platform beyond wet waste. Add modules to schedule verified pick-ups for E-waste (electronics) and Dry waste (recyclables) with authorized recyclers.
- 4.** A dedicated news feed within the Resident App highlighting BMC's latest green initiatives, policy updates, and "Success Stories" from top-performing societies.

## Integration opportunities:

👉 **MAHA FPC Integration:** Deep IoT automates quality certification, building a trusted city-to-farm compost supply chain.

## References:

### To research about the current scenario:-

[Mumbai: After a lull, BMC to go after waste generators - 50% Non-compliance \(Times of India\). mohua.gov.in](https://timesofindia.indiatimes.com/mumbai-after-a-lull-bmc-to-go-after-waste-generators-50-non-compliance-times-of-india-mohua.gov.in)

### Dataset for making compost:-

[Compost data  
Composting Business Model that is Profitable and Economical for Smallholder Farmers](https://www.semanticscience.org/dataset/resource/CompostingBusinessModelthatisProfitableandEconomicalforSmallholderFarmers)

## References:

### To research about potential solutions:-

[Dr.G.Rajamuneswaran, P.Hridhya, B.Sakthivel, N.Gayathri Bai, 2025, Smart Compost Guardian: An IOT-Based Real-Time Compost Monitoring and Alert System, INTERNATIONAL JOURNAL OF ENGINEERING RESEARCH & TECHNOLOGY \(IJERT\) Volume 13, Issue 05 \(June 2025\),](https://www.semanticscience.org/dataset/resource/SmartCompostGuardianAnIOTBasedRealTimeCompostMonitoringandAlertSystem)

[Khandakar, Amith & Ashraf, Azad & Ayari, Mohamed & Esmaeli, Amin & Aljarrah, Mohannad & Michael, Philips & Nahiduzzaman, Md & Kibria, Hafsa & Gerokosta, Vasiliki & Shehzad, Abdul & Al-Mansoori, Maryam & Khattab, Farah. \(2025\). Compost maturity prediction and gas emissions monitoring: A sensor-based and interpretable machine learning approach. Computers and Electrical Engineering. 123. 110115. 10.1016/j.compeleceng.2025.110115.](https://www.semanticscience.org/dataset/resource/CompostmaturitypredictionandgasemissionsmonitoringAsensorbasedandinterpretablemachinelearningapproach)