

- Problem Statement ID : **25070**
- Problem Statement Title : **Secure Data Wiping for Trustworthy IT Asset Recycling**
- Theme : **Miscellaneous**
- PS Category : **Software**
- Team ID : **53476**
- Team Name : **Niet - SafeSecure**



PROBLEM EXISTING

- Data Security Fear : What if someone sees my photos or bank details?
- No Dead Device Solution : My phone is dead, how do I erase my data?
- Complex & Costly Tools : Existing tools are too technical and expensive.

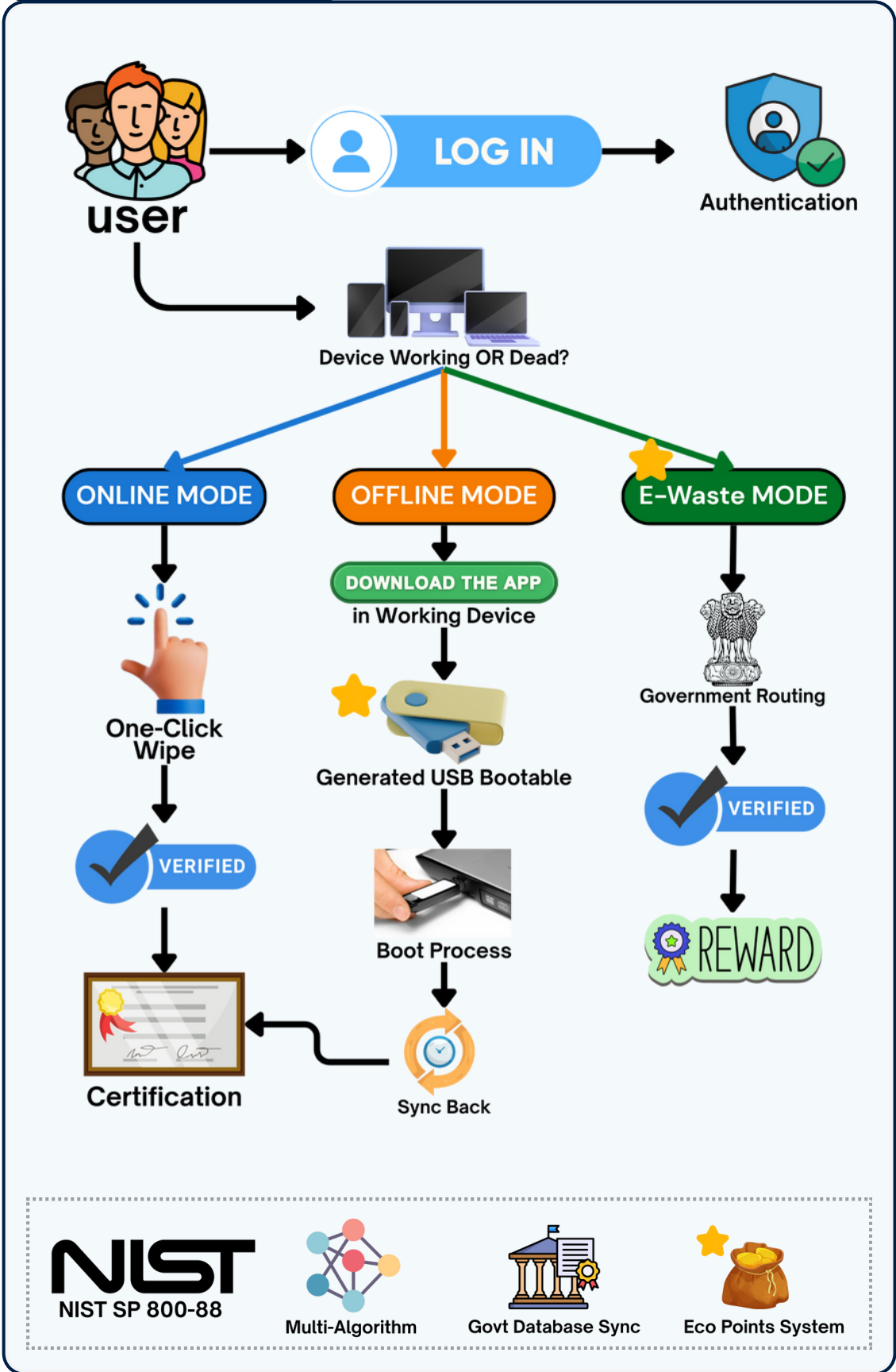


PROPOSED SOLUTION

- Cross-Platform One-Click Wipe : Works on Windows, Linux & Android, even in **hidden areas (HPA/DCO, SSD sectors)**.
- Tamper-Proof Digital Certificate : Generates signed wipe proof (**PDF/JSON**) with **QR for instant online verification**.
- Device Passport : **Auto-captures CPU, RAM & serial info** for authenticity and resale trust.
- Three-Mode Breakthrough : Online, Offline & **Direct E-Waste** modes cover every scenario - **working + dead devices**.

UVP (UNIQUE VALUE PROPOSITION)

- World's First App-Generated USB Bootable : Make your own wipe tool at home. **USB drive. No cost. No experts required.**
- Device Passport + Proof of Wipe : Every device gets a digital passport with CPU/RAM/serial details + a tamper-proof certificate for resale trust.
- Cross-Platform & Offline : Runs anywhere **unlike expensive complex tools**.
- Simple, Secure & Rewarding : Easy-to-use solution that safely wipes data while giving users Eco points for disposal.



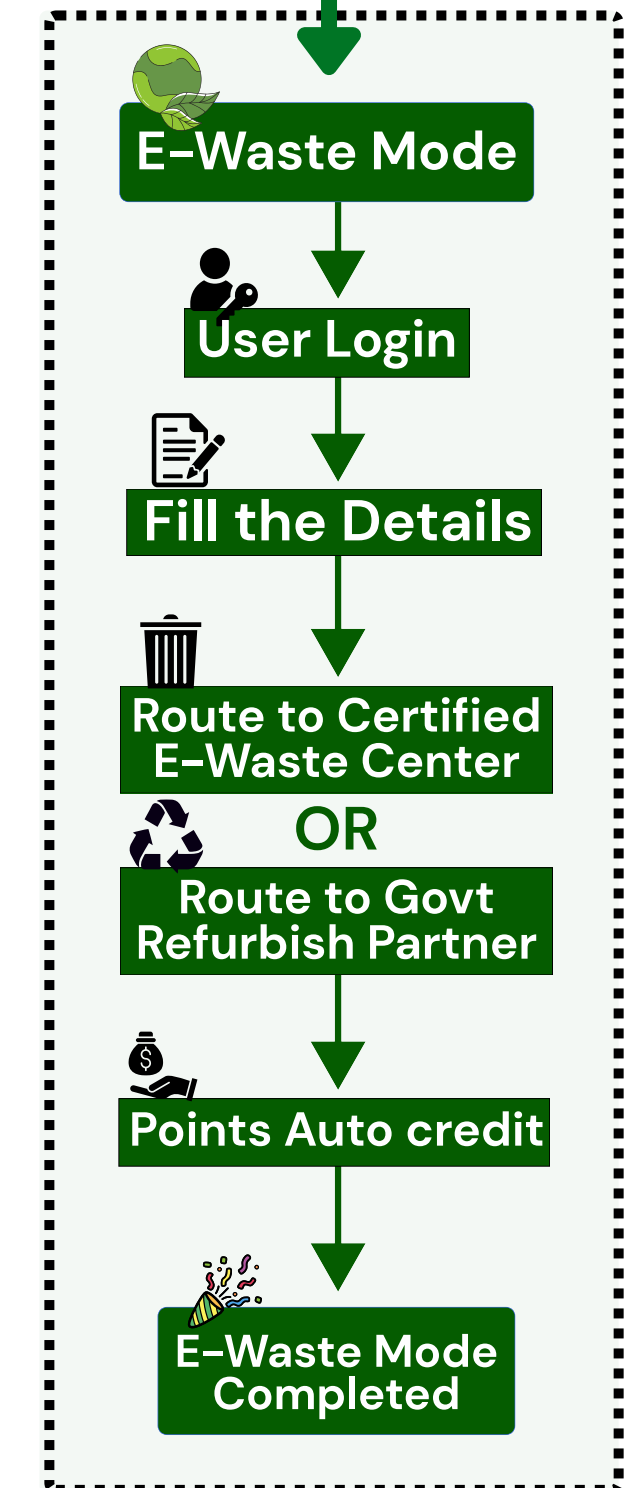
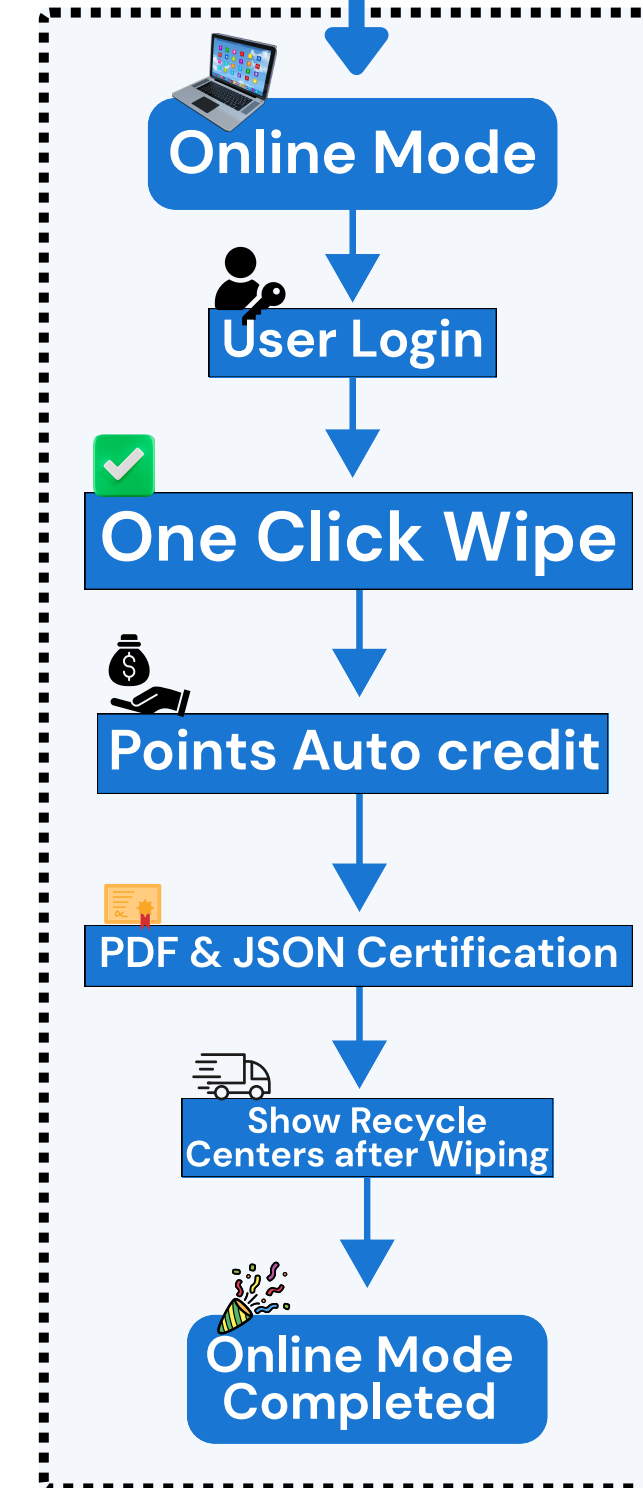
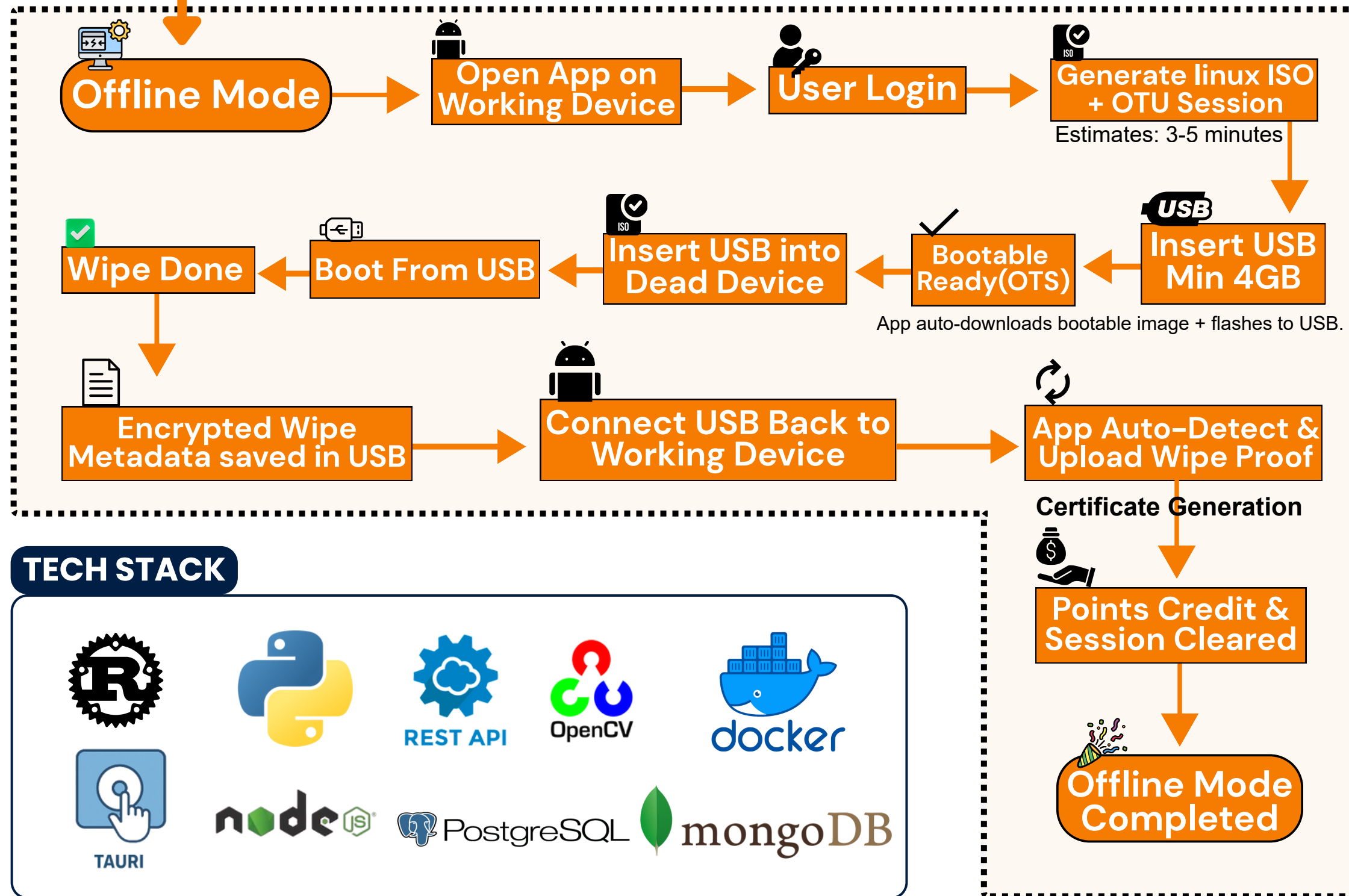


Device Working OR Dead?

Can't Boot Device

Dead/Crash

Working + Internet Device



FEASIBILITY :

Technical :

- Proven Tech Stack - Rust, Tauri, PostgreSQL + supporting tools - secure, cross-platform, and extendable.
- Data Compliance: NIST SP 800-88 – ensures all deleted data is unrecoverable. [LINK](#)

Innovation : Bootable USB Generation - World's First App-Generated Bootable Technology - Technically Validated.

Operational : Can be set up quickly and runs smoothly even without internet, on most devices people already have.

Economic : Uses existing devices, no need to buy new hardware or pay for extra tools.

TECHNICAL CHALLENGES :

Risk : Some devices might not automatically recognize the USB or fail to boot from it.

Mitigation : We'll test the USB on a wide range of devices to make sure it works for most people. If it doesn't, users can still complete the process easily through a E-mode option.

VIABILITY :

Market : ₹50,000 Cr of idle IT assets; 78% of users hesitant to recycle; opens huge opportunity for refurbished devices.

Policy & Revenue : Fits Digital India, Swachh Bharat, Circular Economy; revenue from government, enterprise, and certification services.

Investment & ROI : Minimal setup cost; Break-even within 18 months; 25x ROI projected over 5 years.

Scalability & Retention : Runs smoothly on the devices people already have, and the eco-points system motivates users to keep using it.

BUSINESS / USER CHALLENGES :

Risk : People are often afraid to recycle their old devices because they worry about losing data, or they just hold onto them.

Mitigation : We'll encourage responsible recycling with a points-based reward system. Government support will also help users feel safe and confident when disposing of their devices.

- The Economic & Job Creation Impact** : Hundreds of millions of old laptops and phones are sitting idle. By securely selling/recycling these devices, we can recover ₹50,000 crore in value and generate over 25,000+ direct jobs in e-waste sector within 3 years.
- Environmental & Sustainability Gains** : 5 lakh tonnes of e-waste through nationwide goes to landfills every year. Proper recycling of devices gives an electronic device a second life, reduces pollution to our land and air and conserves CO₂ and metals.
- Social & Governance Transformation** : People worry about data theft when recycling devices. Verified wipe certificates and rewards make it safe and encouraging. The project also opens jobs for women and rural areas and supports Digital India & Swachh Bharat.

Feature	Existing Solutions	EcoWipe
Dead Device Data Wiping	✗	✓
App-Generated USB Bootable	✗	✓
One-Click Public Interface	✗	✓
Cross-Platform Support (Win/Linux/Android)	✗	✓
Government Integration & Routing	✗	✓
Tamper-Proof Certificates (PDF + JSON)	✗	✓
Third-Party QR Verification	✗	✓
Hidden Storage Area Wiping (HPA/DCO)	⚠	✓
NIST SP 800-88 Compliance	⚠	✓
Points-Based Reward System	✗	✓
Complete Device Lifecycle Coverage	✗	✓

HOW ECOWIPE WORKS

MODE 1: ONLINE (Working Device)

- For** : Device boots normally with internet
- Process** : Install app → Login → One-click wipe → Certificate ready
- Time** : 5-10 minutes
- Success Rate** : 95+%
- Best For** : Normal device disposal, working laptops/phones

MODE 2: OFFLINE (Dead Device)

- For** : Device won't boot but hardware functional
- Process** : App creates USB → Boot dead device → Confirm wipe → Certificate ready
- Time** : 10-20 minutes
- Success Rate** : 80-90%
- Best For** : OS crashed, display broken, system corrupted

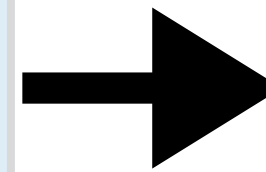
MODE 3: E-WASTE (Completely Dead)

- For** : Device totally dead or physically damaged
- Process** : App routes to government center → Professional destruction → Certificate issued
- Time** : 1-3 days
- Success Rate** : 100%
- Best For** : Motherboard dead, physical damage, no power

- NIST SP 800-88 Rev.1 is the foundational U.S. government standard that provides guidance for secure data erasure. At the same time, we also considered the NIST SP 800-88 Rev.2 (Draft, 2025) – the updated version.
Full Details : [NIST SP 800-88 Rev.1](#) / [NIST SP 800-88 Rev.2 \(Draft\)](#)
- Studies show data wiping is tricky but essential for trust. **Links :** [IEEE](#) / [Jetico](#)
- Market reports highlight growing e-waste and economic opportunity for secure disposal. **Links :** [Niti](#) / [Geneva](#)

SOLUTIONS ALREADY EXIST

- Most are complex and expensive, made only for companies not for general public.
- **AVAILABLE APPS :** [Blancco](#) / [Bitraser](#) / [Youwipe](#) / [Jetico](#)



OUR SOLUTIONS STANDS OUT

- **One-click** : easy for anyone
- **Certificate** : proof of secure wipe
- **Cost-effective** : affordable for all
- **Safe & verified** : follows global standards

PROJECT RESOURCES

Demo Video : [Click Here](#)

Prototype : <https://ecowipe.figma.site/>

Business Model Canvas : [Click Here](#)

