



ReE-DZ: The Future of E-Waste Recycling in Algeria

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The Vision

ReE-DZ is a pioneering digital platform designed to revolutionize electronic waste management in Algeria. By bridging the gap between citizens with e-waste and certified collectors, we create a sustainable, circular economy that incentivizes recycling and protects our environment.

"Turning e-waste into value, one device at a time."



The Ecosystem: Three Pillars

Our platform is built on three interconnected pillars, ensuring a seamless experience for all stakeholders.

1. 👤 The Citizen App (User Side)

Empowering individuals to make a difference seamlessly.

- 📷 **AI Auto-Scan:** Identify device models and estimate their value instantly using Google Gemini AI.
- 📍 **Smart Map & Radar:** Locate nearby certified collectors, smart bins, and recycling points visually.
- 💰 **Sell & Earn:** Convert old phones, laptops, and appliances into cash or points via a transparent marketplace.
- ⚠️ **Report Waste:** Geotag and report illegal e-waste dumps to help clean up neighborhoods.
- 🎁 **Rewards Program:** Redeem eco-points for discounts, services, or donations.

2. 🚚 The Collector App (Business Side)

Optimizing operations for recycling professionals.

- 🗺️ **Route Optimization:** Intelligent routing to pickup locations, saving fuel and time.
- 📄 **Offer Management:** View, accept, or negotiate offers from citizens in real-time.
- 📊 **Operations Dashboard:** Track daily collections, revenue, and inventory status.
- ✅ **Verification System:** Digital proof of collection and recycling certification.

3. 🏠 The Admin Panel (Control Tower)

Comprehensive oversight for platform administrators.

- 📈 **Analytics Dashboard:** Real-time stats on User growth, Total E-Waste collected (kg), CO2 saved, and Revenue.
 - 👥 **User Management:** Approve/Verify collectors, manage citizens, and handle moderation (Ban/Unban).
 - 💰 **Financial Hub:** Monitor platform fees, tax calculations, and transaction history.
 - 📢 **Content Control:** Manage educational content and push notifications.
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Key Technical Features

Artificial Intelligence (Gemini Integration)

- **Automatic Recognition:** Taking a photo of a device instantly fills in details (Brand, Model, Category).
- **Condition Assessment:** AI analyzes visual wear and tear to suggest fair pricing.

Location Services (OpenStreetMap / Geolocator)

- **Real-time Tracking:** Order status tracking from "Pending" to "Collected".
- **Geofencing:** Alerts for collectors when entering high-demand areas.

Security & Architecture

- **Role-Based Access Control (RBAC):** Secure routing for Admins, Collectors, and Citizens.
- **Firebase Backend:** Real-time database updates, secure Auth (Phone/Google), and scalable Cloud Functions.

Technology Stack

Component	Technology
Frontend	Flutter (Dart) - Cross-platform (iOS/Android)
Backend	Firebase (Auth, Firestore, Cloud Functions)
AI Engine	Google Gemini 1.5 Flash
Mapping	Flutter Map / OpenStreetMap
State Mgt	Provider / MVVM Architecture
Design	Material 3 with Custom RTL Support (Tajawal Font)

Impact & Future Roadmap

Environmental Goals:

-  Save **100 tons** of CO2 in the first 6 months.
-  Divert **50 tons** of toxic e-waste from landfills.

Future Expansions:

- **IoT Smart Bins:** Bins that automatically weigh waste and credit user accounts.
 - **Corporate Portal:** Dedicated interface for companies to manage bulk e-waste.
 - **Marketplace:** Buy refurbished electronics directly through the app.
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Verified & Built by the ReE-DZ Engineering Team.