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PET Perplexity

An Automated Polymer Segregator

PRESENTED BY -

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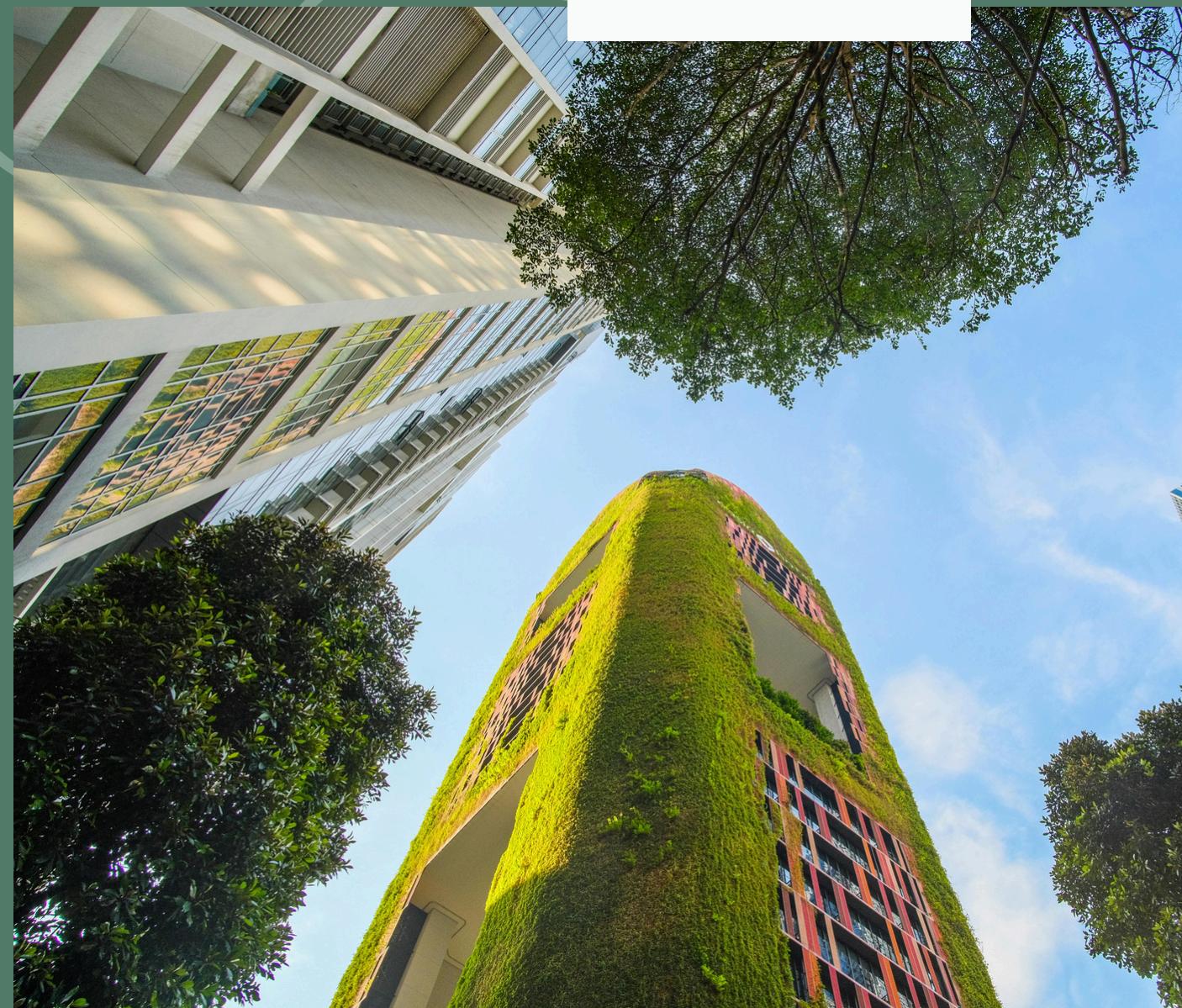
BUISENSS CONTEXT & PROBLEM STATEMENT

Current Scenario: Recycling facilities process thousands of compressed bottles daily from untied bales.

The Problem: Manual sorting is labor-intensive and error-prone.

The Gap: Current methods cannot provide real-time analytics for inventory and pricing.

Financial Implication: Mixed contamination reduces batch value; clear PET fetches significantly higher prices (₹40–50/kg) compared to colored variants.



BOTTLE DETECTION

Detects Bottle count and Bottle identification
with 95% accuracy amongst cans, glass,etc.



PET DETECTION

Identifies PET bottles by recognizing
recycling code "1" and
glossy/transparent textures , while
flagging contaminants like HDPE
(code 2), PP (code 5), or PVC (code
3).

95%

COLOUR DETECTION

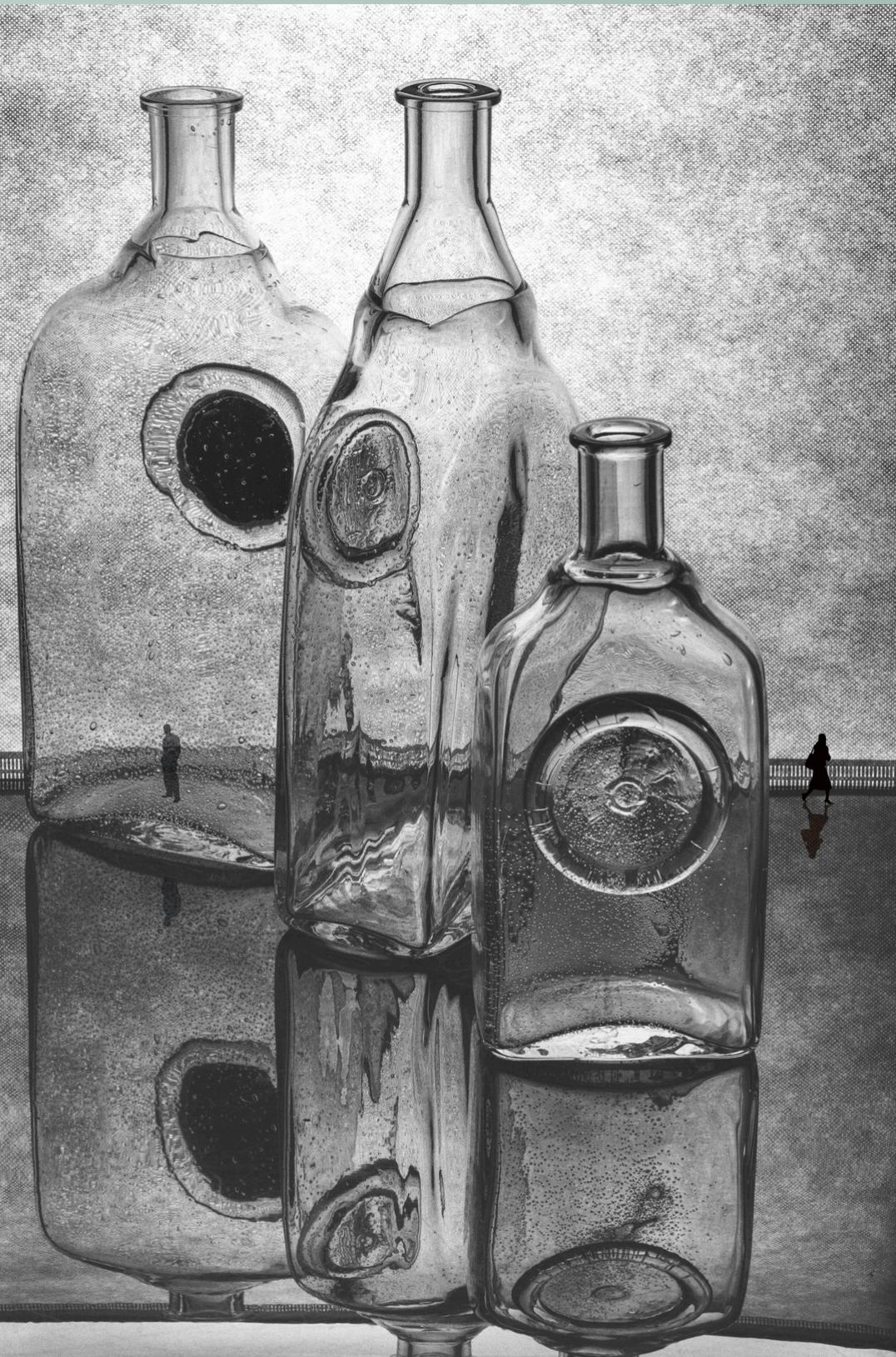
COLOR: Achieve 90%+ accuracy in color and material classification.



BRAND DETECTION: Reliable recognition of 5+ brands and professional UI/UX.



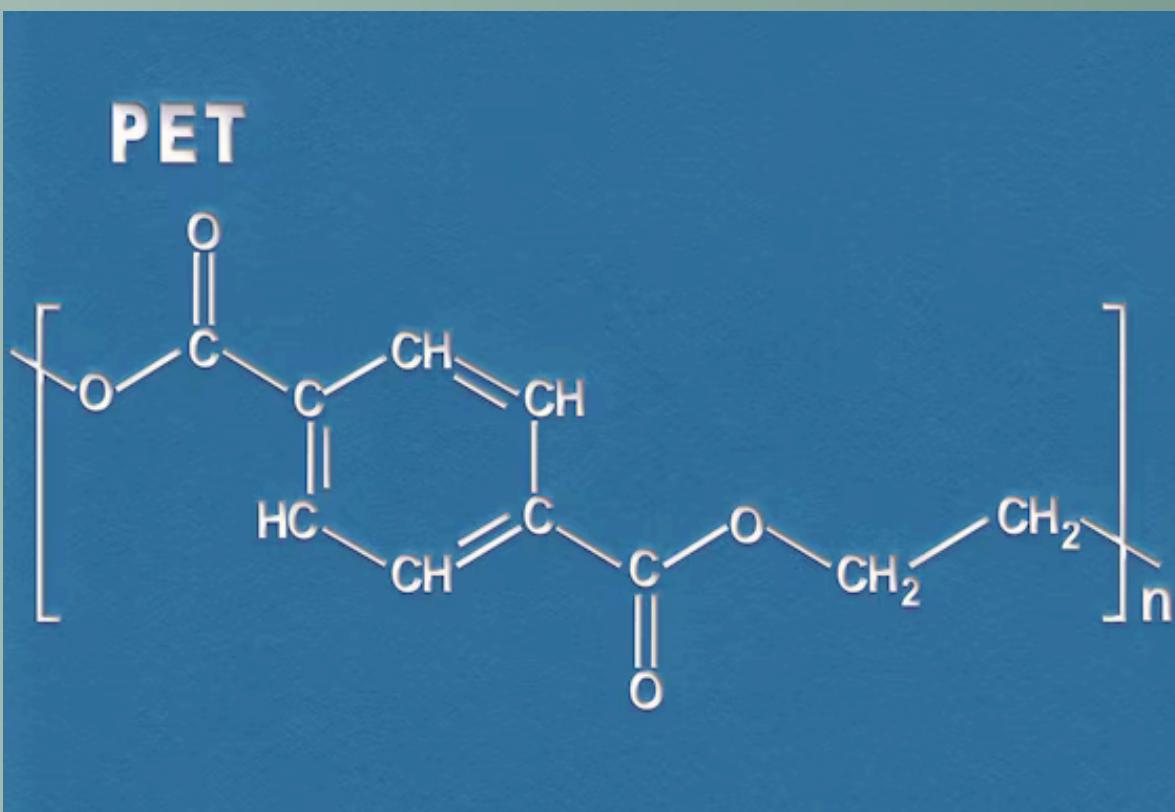
SIZE PREDICTION: predicts bottle size with 94% accuracy



Weight Estimation: Estimates weight of bottle using it's size,height and diameter



PET DETECTION: Correctly determines whether the bottle is Polyethylene terephthalate.



Analytics Dashboard

VISUALISATION

- Pie charts for color distribution and bar charts for size distribution.

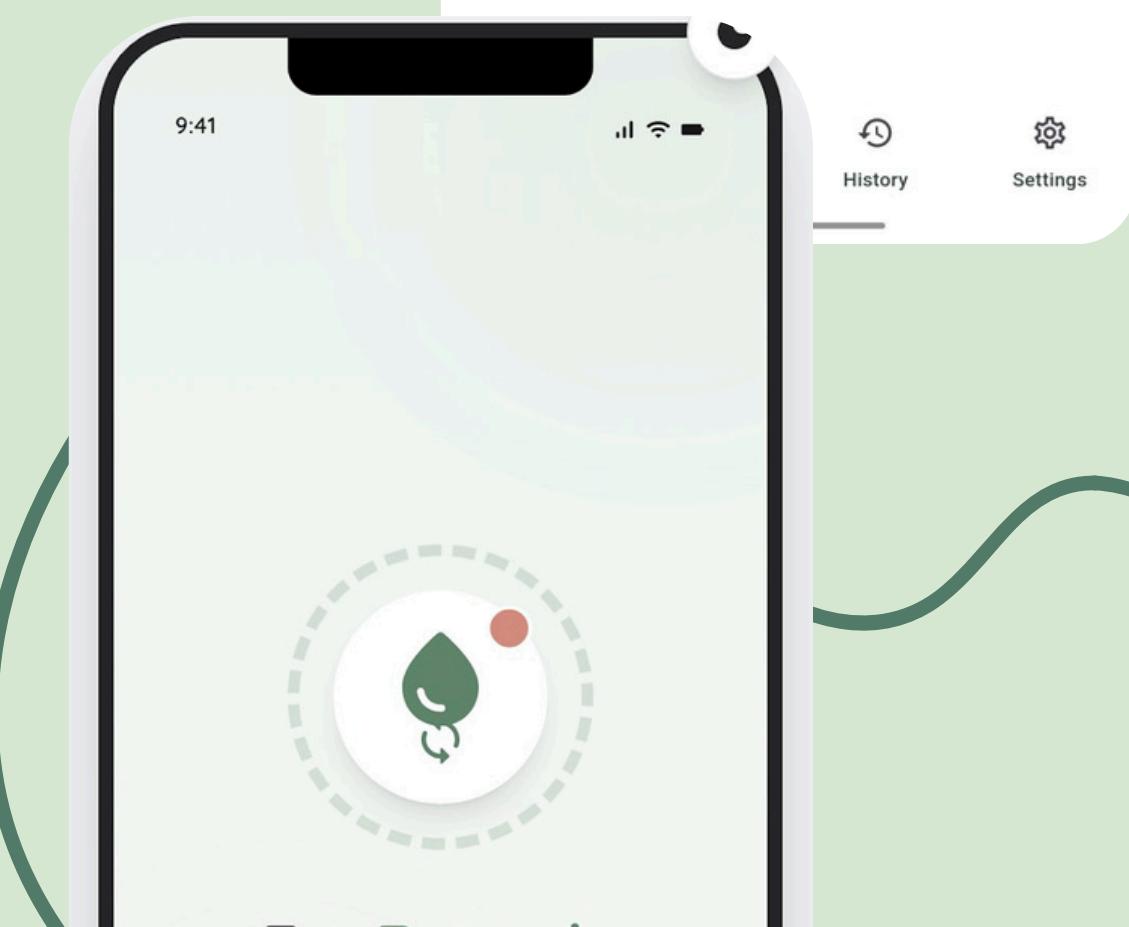
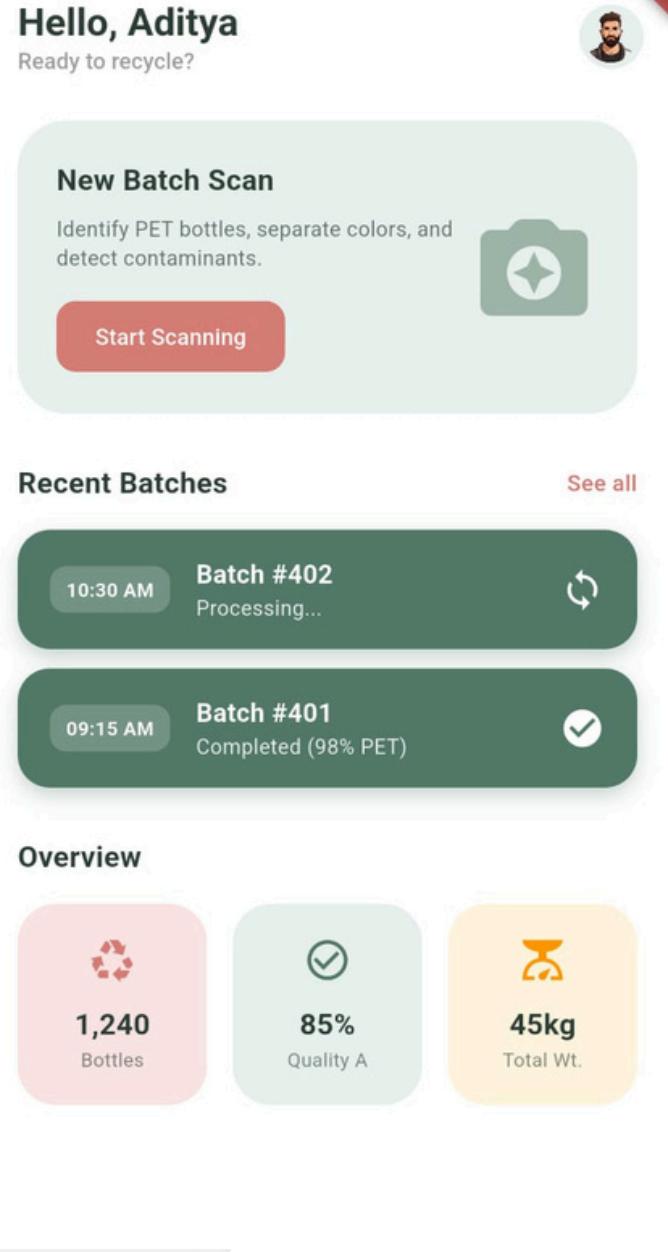


KEY METRICS

- Total bottles detected, PET vs. Non-PET ratio, and Brand-wise counts.
- Quality grade (percentage of clear PET) and total estimated weight.

SCALABILITY

- This Flutter-based dashboard utilizes a single-codebase, layered architecture to deliver a high-performance, natively compiled solution that scales seamlessly across Android, iOS, Web, and Desktop for real-time PET analytics.





THANK YOU

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