

# RECEIPTRADAR

A Privacy-First, Self-Hosted Financial Operating System

By Minh Triet Vu

# FINANCIAL BLIND SPOTS

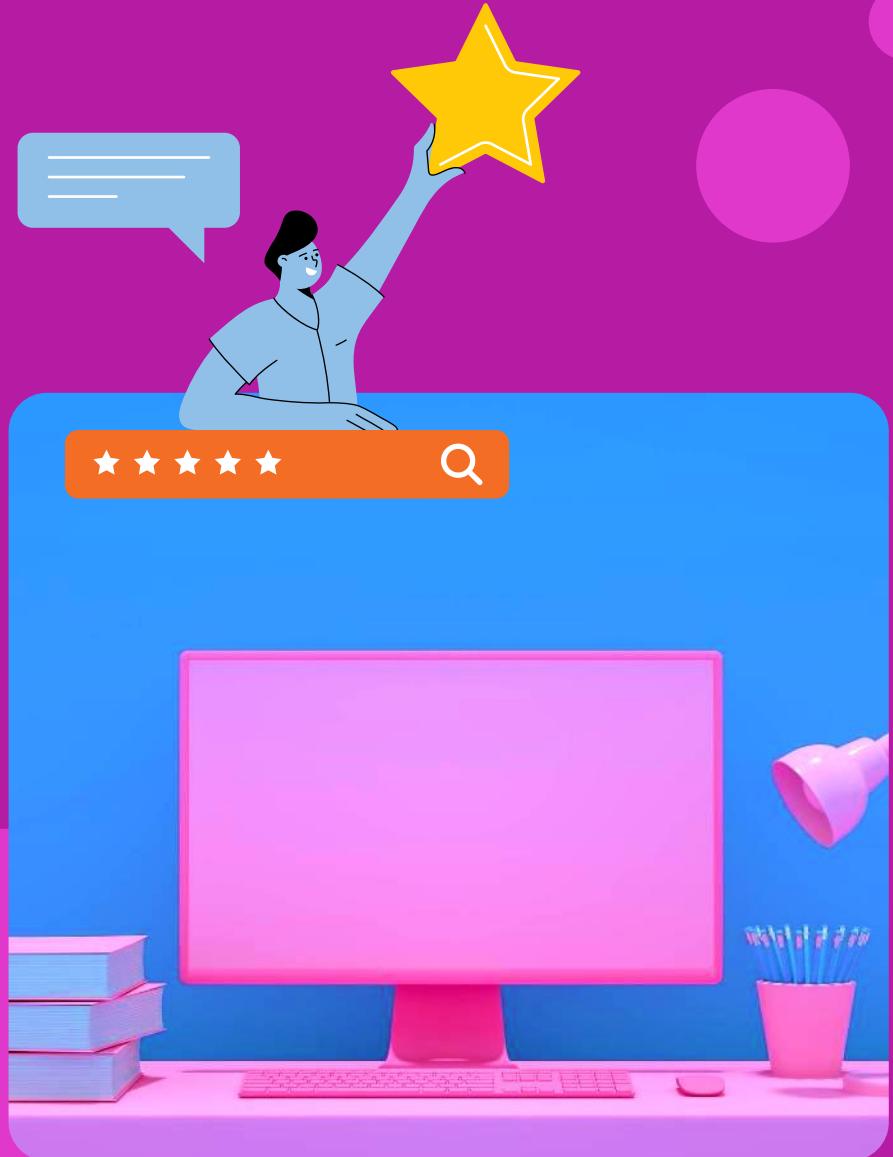


- Tracking expenses manually is high-friction and error-prone
- Current Market Failures:
  - Manual Apps
  - Bank Sync
  - Commercial Scanners
- The mission: To build to zero friction, real-time tracker that acts like an accountant in your pocket, with data privacy in mind

# YOUR ACCOUNTANT IN WHATSAPP

- Core concept: A headless, chat-based interface powered by a self-hosted AI backend
- Features:

- Smart vision: Instantly reads receipt photos, extracting vendors, dates, and line items
- Intent Understanding: Handles natural language commands like "Set food budget to \$500" without buttons
- Live Visualization: Auto-generates professional financial dashboards in Google Sheets
- Privacy-First: Self-hosted architecture ensures financial data never leaves the user's-controlled ecosystem



# SYSTEM DESIGN & STACK



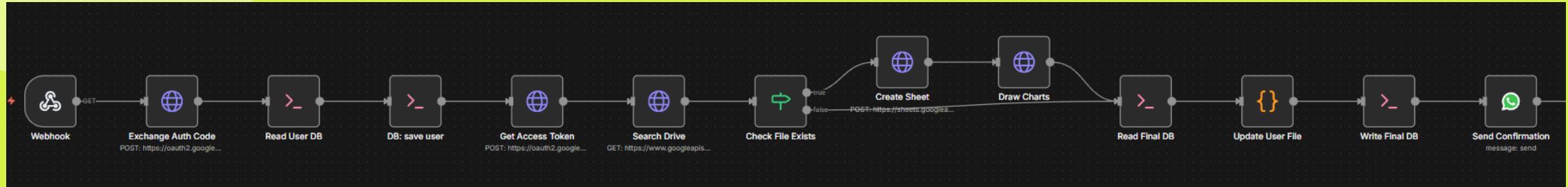
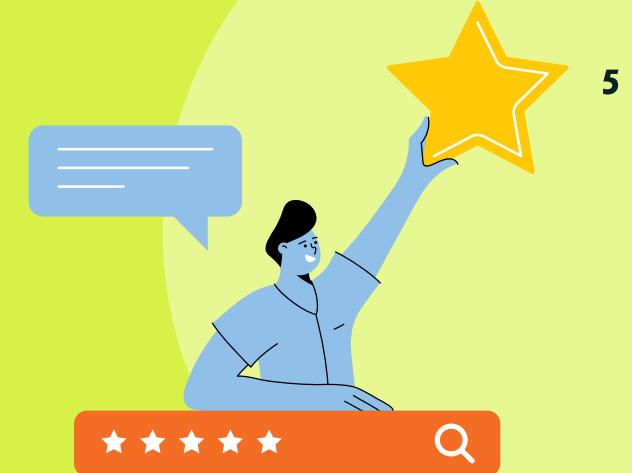
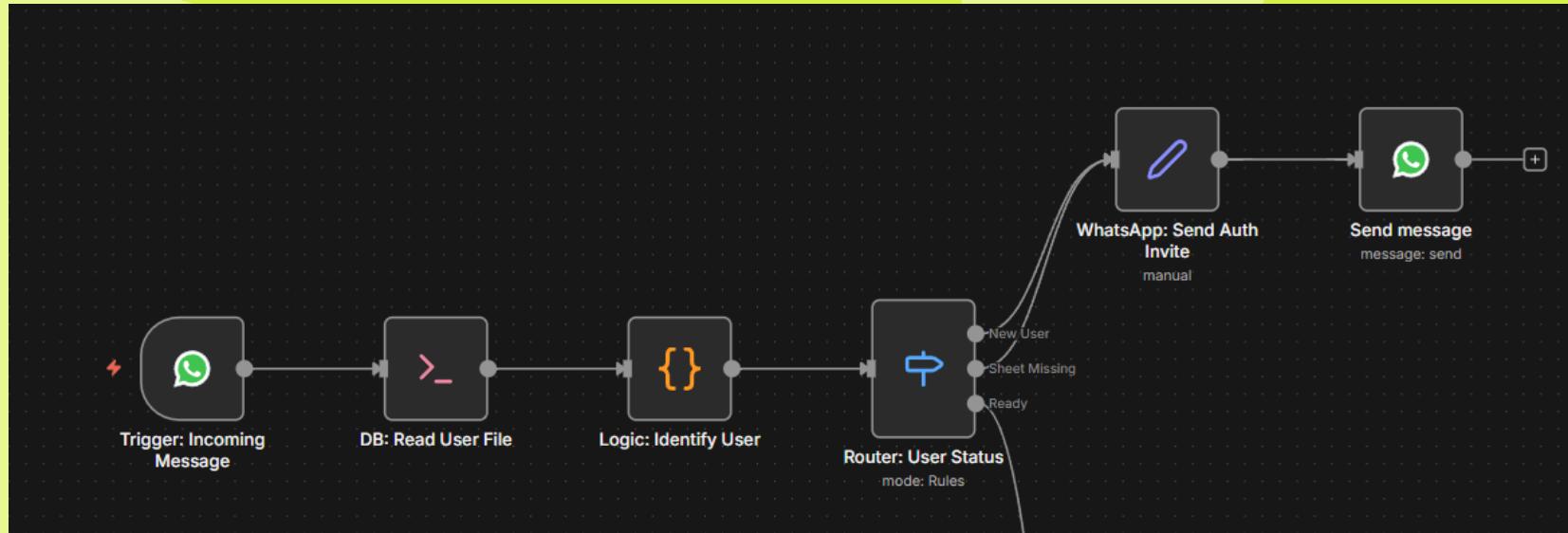
## Infrastructure:

- Containerization: Docker & Docker Compose
- Orchestration: n8n
- Tunneling: Ngrok

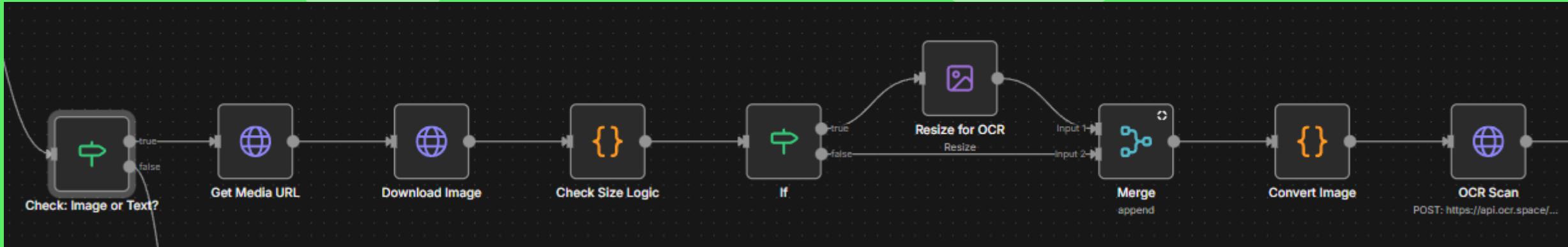
## Tech Stack:

- Frontend: WhatsApp Cloud API.
- Database: JSON-based state management (Hot-swappable to PostgreSQL).
- AI Layer: Google Gemma 3 (via OpenRouter) + OCR.space.
- Storage: Google Sheets API v4.

# HEADLESS AUTHENTICATION



# INTELLIGENT IMAGE PROCESSING



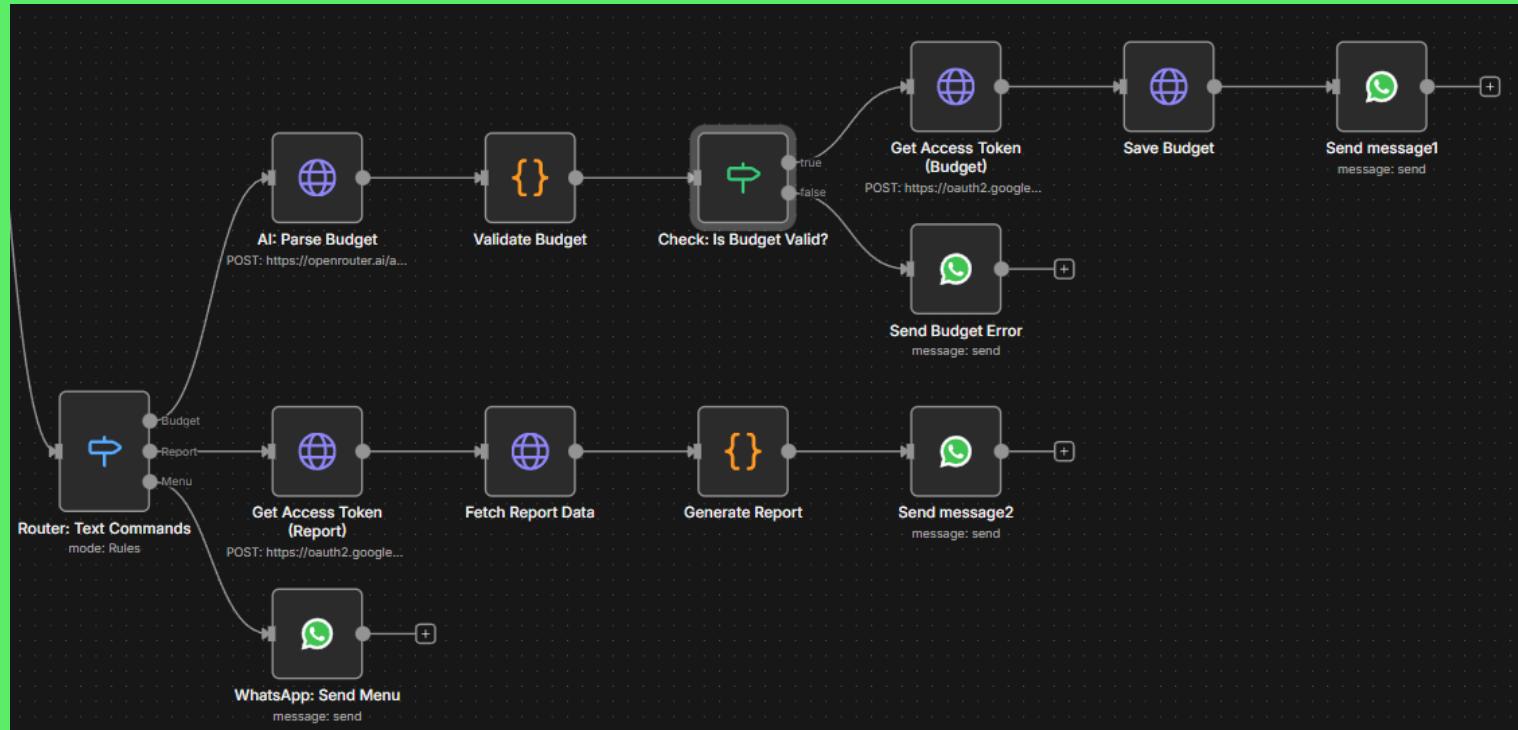
- **Challenge:** Balancing API limits
- **Solution:**
  - Analysis: System checks payload size/dimensions
  - The fork:
    - $> 1\text{MB}$ : Route through Resize Node (Downscale to 1600px)
    - $< 1\text{MB}$ : Bypass directly to preserve maximum fidelity
  - The merge: Path reconverge for Base64 conversion and AI ingestion

# AI ANALYSIS & DATA LOGIC



- The AI Layer:
  - Contextual Correction: Fixes OCR errors
  - Smart Categorization
- Backend logic:
  - Deduplication:
  - Batching

# NATURAL LANGUAGE COMMAND CENTER



**Setup Complete! 🚀**

I have successfully connected to your spreadsheet:  
**YOUR AI TRACKER**

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**HOW TO USE ME**

**Scan a Receipt**  
 Just send me a photo! I will extract the data and log it.

**Set Budgets**  
 Type **Budget** to set your monthly spending limits.

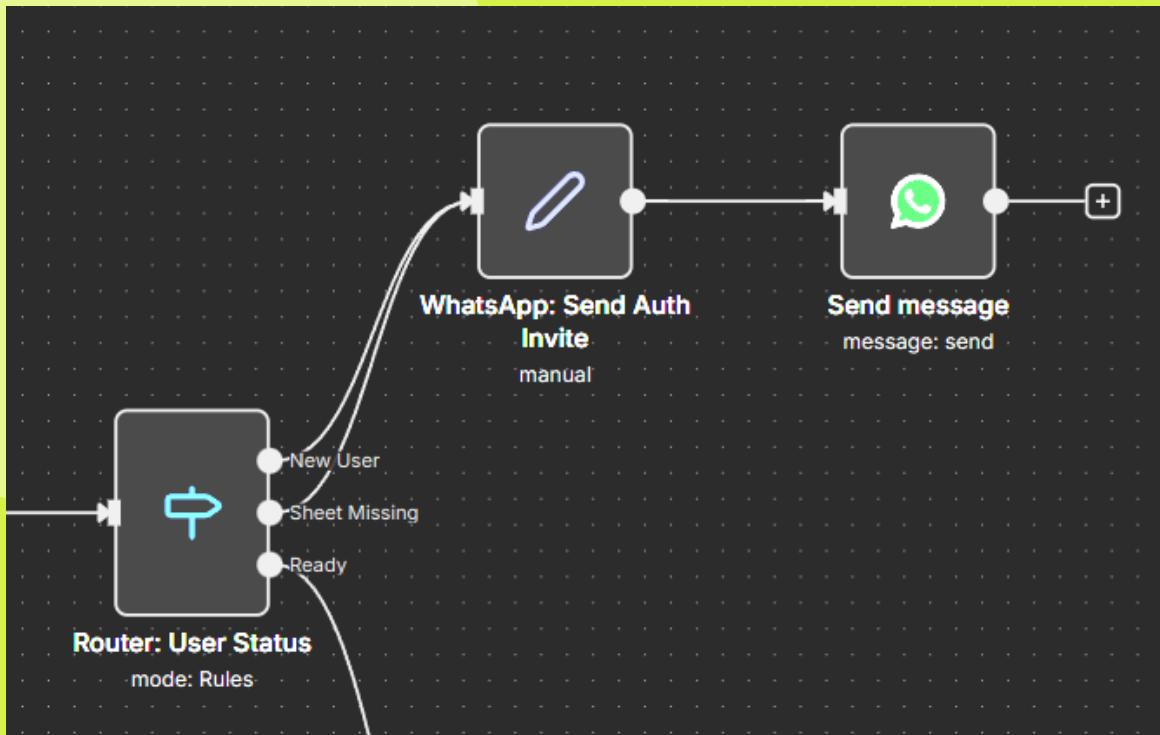
**Check Spending**  
 Type **Report** to see how much you have spent.

**Need Help?**  
 Type **Menu** to see this list again.

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Ready when you are! Try sending a receipt photo now. 📸 8:25 p.m.

# HANDLING EDGE CASES

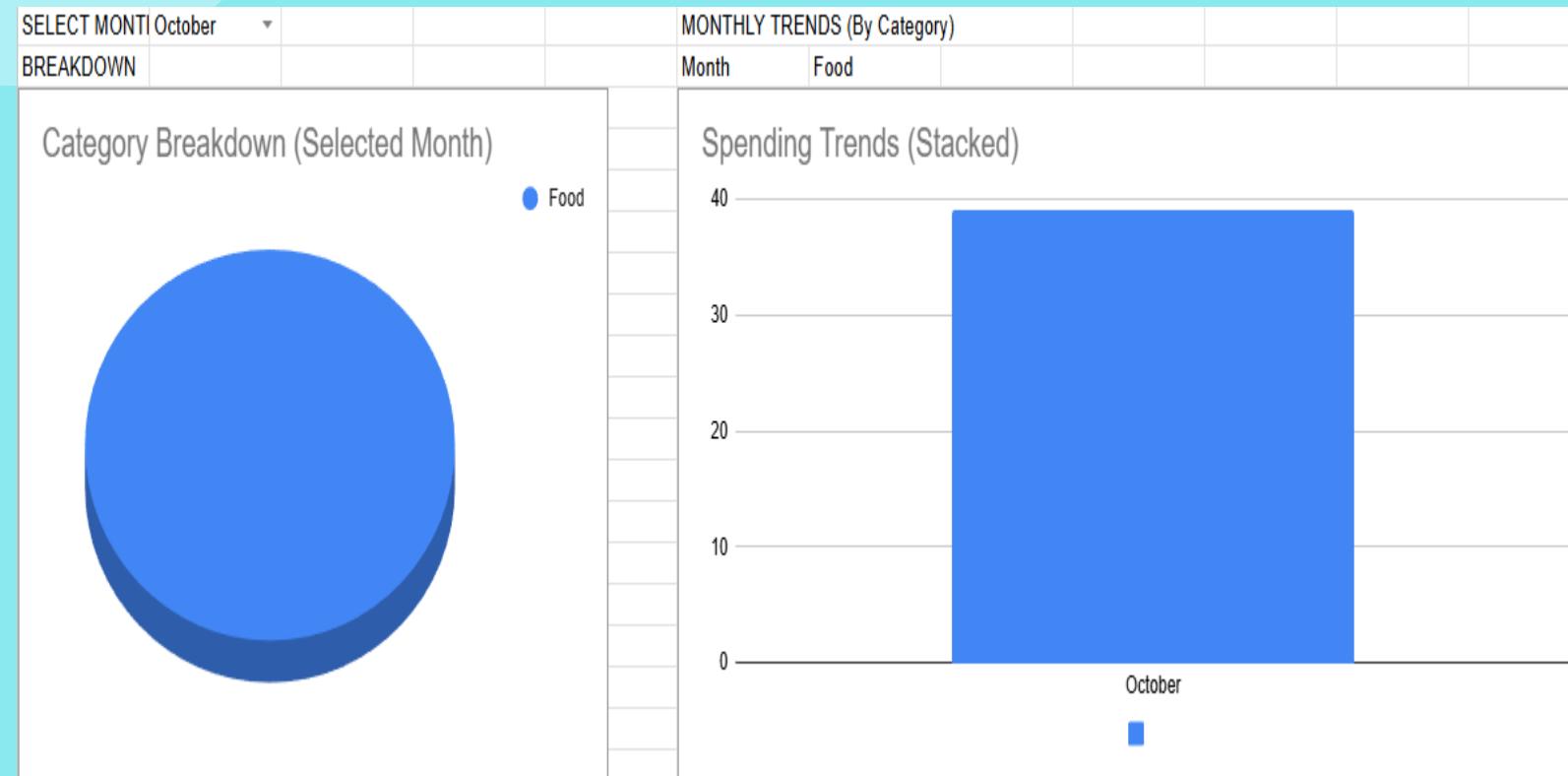


- The Scenario: A “zombie user”
- The Challenge: A valid auth token pointing to a missing resource
- The Solution: Intelligent Routing
  - Router Node validates 2 flags: User Exists? And Sheet ID Valid?
  - Auto-repair: Sheet ID is missing, reroute user back to Onboarding Flow

# INSTANT FINANCIAL CLARITY AND PRIVACY

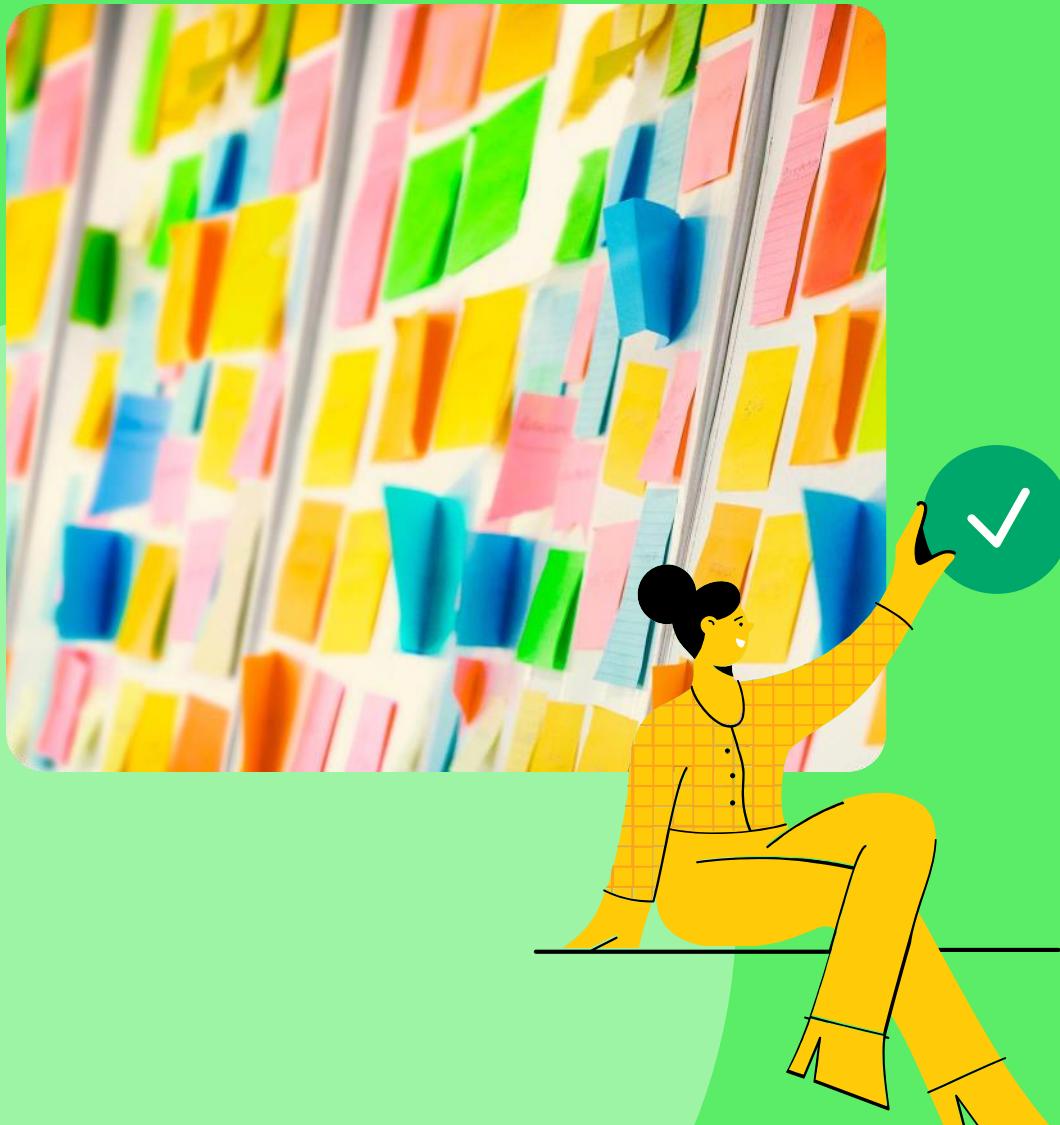
- **The Engineering:**

- Programmatic Build: The system uses the Google Sheets API batchUpdate method.
- Dynamic Injection:
  - Injects complex =QUERY() formulas for real-time pivot tables
  - Creates Data Validation dropdowns for date filtering
  - Generates native Charts (Pie & Stacked Bar) that update live



# FUTURE ROADMAP

- **Scalability:** Switch JSON storage to Postgre
- **Temporal Scaling:** Aggregates data by Month Name
- **Conversational Analytics**
- **Duplicate Detection Engine**
- **Multi-Currency Support**
- **Multi-Language Support**



# THANK YOU

