



AI-Powered Lead Generation & Outreach Workflow

🎯 Objective

To design and implement a fully automated workflow for E2M that handles lead generation, data enrichment, content summarization, and personalized email outreach using a combination of free-tier APIs.



Technology Stack & Rationale

To build this workflow, we've selected the most efficient and cost-effective tools.

Below is a detailed comparison and justification for our choices.

1. Lead Scraping: Apify (Google Maps Scraper) vs. Apollo.io

Factor	Google Maps Scraper (Apify)	Apollo Scraper (Apify)	Winner & Why
Free-tier volume	≈ 100 k results / month	100 leads / run (free tier)	Google Maps – 1,000× more leads on free tier
Data freshness	Real-time Google SERP	Depends on Apollo's own index (still fresher than Apollo.io SaaS)	Google Maps – live Google data
Geo-targeting	City + keyword radius, exact coordinates	Country & industry filters only	Google Maps – precise local lists
Required fields	Returns website, phone, address even if no email	Needs email to be useful; drops 30-50 % missing-email rows	Google Maps – fewer skips, more complete rows
Input simplicity	Paste location + keywords (or Google Maps URL)	Must copy / paste Apollo search URL	Google Maps – faster to set up
Lead enrichment	Built-in website & phone scraping; optional email add-on	Directly outputs Apollo-style emails (work & personal)	Apollo – if emails are critical and you're okay paying for >100 rows

Conclusion: For generating fresh, location-specific SMB leads, **Apify's Google Maps Scraper** is the clear winner. It offers superior volume, data

freshness, and targeting capabilities on its free tier.

2. LLM Engine: OpenAI (GPT-3.5-turbo) vs. Google Gemini

Dimension	OpenAI GPT-3.5-turbo	Google Gemini (Free Tier)	✓ Winner & Why
Context Window	4k tokens (free)	32k tokens (free)	Gemini – Wins on size, but 4k is sufficient.
Email Creativity	Higher conversion copy	Slightly more generic tone	OpenAI – Proven, superior marketing voice.
HTML Formatting	Rarely breaks tags	Occasionally drops tags	OpenAI – More reliable, requires less cleanup.
Rate Limit (Free)	200 req / day	60 req / day	OpenAI – Can process 500 leads in <3 days.
Documentation	Mature & extensive	Beta, fewer examples	OpenAI – Faster development and integration.

Conclusion: While Gemini has a larger context window, **OpenAI's GPT-3.5-turbo** is better suited for this task due to its superior creative writing, reliable HTML formatting, and higher rate limits, which are critical for outreach.

The Automated Workflow Process

The system is designed to be a clean, modular, and hands-off process from lead acquisition to final output.

1. **Initiation:** The workflow begins when a user submits a form specifying the **business type**, desired **number of leads**, and **location**.
2. **Data Scraping:** An HTTP request is sent to the **Apify Google Maps Scraper**. The initial raw dataset is collected based on the form inputs.
3. **Data Filtering:** The system automatically filters the raw data, discarding any leads that **lack a website URL**. These are not viable for the subsequent enrichment and outreach steps. The domain name is extracted from the remaining leads.

4. **AI-Powered Enrichment & Generation:** For each valid lead, we leverage an **OpenAI model** to perform three critical tasks in a single pass:
 - **Information Extraction:** It intelligently scrapes the website, bypassing anti-bot measures, and condenses the content into a concise summary.
 - **Solution Mapping:** The LLM analyzes the summary to identify potential pain points and maps them to E2M's service offerings.
 - **HTML Email Generation:** It crafts a personalized, well-structured HTML outreach email ready to be sent.
5. **Finalization & Storage:** All generated data—lead details, website summary, proposed solutions, and the HTML email—is merged into a single record and inserted as a new row in a designated **Google Sheet**.

System Monitoring & Cost

Logging and Reporting

To ensure reliability and track performance, the system includes:

- **Error Logging:** All execution errors are logged for debugging and process improvement.
- **Summary Tab:** A dedicated tab in the Google Sheet tracks key metrics:
 - Total Leads Processed
 - Leads Skipped (No Website)
 - Leads Completed

Cost Analysis (per 500 leads)

Service	Plan Used	Quota Consumed	Equivalent Paid Cost
Apify Google-Maps Scraper	Free Tier	500 results (0.5%)	\$0
OpenAI GPT-3.5-turbo	Free Tier	500 requests (2.5 days)	\$0
Google Sheets API	Free Tier	~2,500 writes (0.3%)	\$0

Bottom Line: The total cost for processing **500 leads is \$0** under current free-tier plans. This architecture is highly scalable, with a projected cost of only **~\$5.20 for 5,000 leads**, compared to over \$100 with alternative paid services.