

Daily Schedule Optimizer via Pipedream + ChatGPT

Intelligent Calendar Integration & Task Management

Executive Summary

This project automates the creation of a daily schedule by combining Google Calendar events with a set of personal standing tasks. The system uses Pipedream to extract calendar data, preprocess it with Python, and then optimize and format the schedule using ChatGPT's reasoning and HTML generation capabilities. The final output is a polished Gmail-compatible HTML email delivered each morning, demonstrating advanced workflow automation and AI integration skills.

1. Project Context & Objectives

Primary Goal: Create a smart, automated morning planner that sends a well-organized, visually polished daily schedule combining calendar events and recurring tasks.

Business Need: Eliminate the daily manual process of reconciling calendar items with to-do lists while ensuring optimal time allocation and task prioritization.

Project Constraints

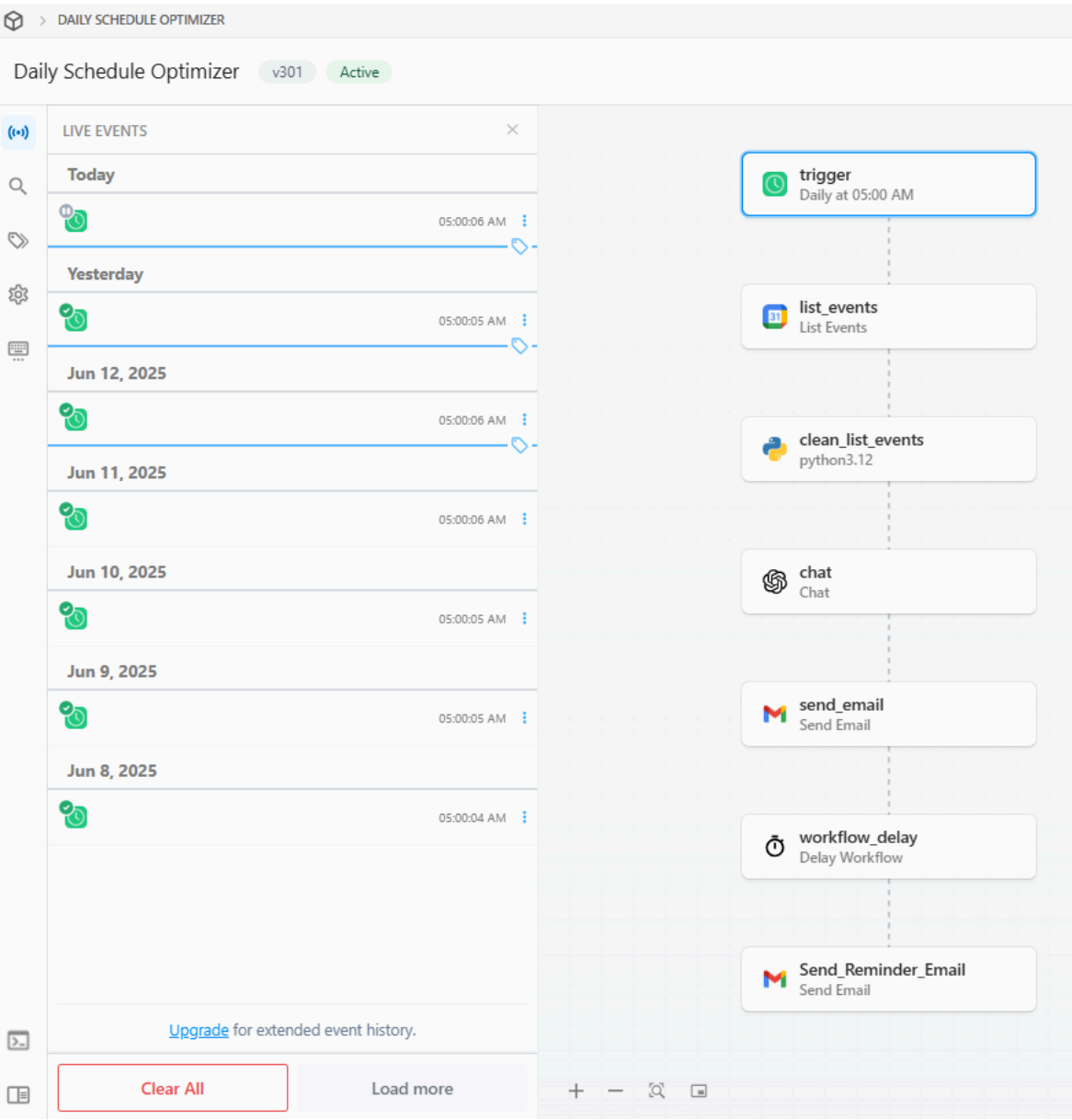
- **Infrastructure:** No traditional backend server required
- **Architecture:** Must be fully cloud-native and maintainable
- **Budget:** Minimal cost using free-tier services where possible
- **Integration:** Work entirely within existing tools (Google Calendar, Gmail, OpenAI API)

2. Solution Architecture

Solution Overview: Built an automated workflow using Pipedream that integrates Google Calendar, Python scripts, OpenAI Chat Completions, and Gmail. The workflow runs daily, intelligently organizes the day's events and tasks, and sends a custom-formatted email to kick off the day.

Technology Stack

- **Pipedream:** Event-driven workflow orchestration platform
- **Python:** Data preprocessing and timezone handling
- **OpenAI ChatGPT:** Reasoning and HTML generation
- **Gmail API:** HTML email delivery service
- **Google Calendar API:** Event data source



3. Detailed Implementation

Workflow Process

Step 1 - Trigger:

Scheduled Pipedream workflow runs each morning at 5:00 AM PST.

Step 2 - Calendar Pull:

Use the Google Calendar "List Events" action to retrieve all events for the day.

Step 3 - Python Script #1:

Clean and normalize the calendar event objects, handling edge cases like all-day events and consistent PST formatting.

Step 4 - Standing Tasks:

A hardcoded list of recurring daily tasks (e.g., meditation, email check, lunch) is prepared within the workflow.

Step 5 - Prompt Construction:

Concatenate cleaned events and standing tasks into a structured prompt for ChatGPT.

Step 6 - ChatGPT Formatting:

Use OpenAI Chat Completion to generate an optimized daily schedule with inline HTML styling, subtle visual formatting, and event links.

Step 7 - Email Send:

The resulting HTML is passed to Gmail's "Send Email" action with bodyType=HTML to ensure formatting is preserved.

trigger
Daily at 05:00 AM

+

list_events
List Events

+

clean_list_events
python3.12

+

chat
Chat

+

send_email
Send Email

triggerlist_eventsclean_list_events × chat

CONFIGURE

CODE

RESULTS

Success

Reference exports in future steps via the `steps` object

ExportsInputsLogsDetails

▼ steps.clean_list_events {1}
▼ \$return_value [2]
▼ 0 {6}
summary: Apply liquid fertilizer
description: Add to front and back plants
location:
start: 2025-06-14 (All Day)
end: 2025-06-15 (All Day)
[REDACTED]
▼ 1 {6}
summary: [REDACTED] Application
▼ description
Step 2 done as of 12-June-2025
[REDACTED]
location:
start: 2025-06-15 09:00 AM
end: 2025-06-15 09:30 AM
[REDACTED]

4. Challenges & Solutions

Challenge: Timezone Alignment

Calendar events from different sources had inconsistent timezone formatting and mixed dateTime vs date formats for all-day events.

Solution: Python Preprocessing

Built robust timezone handling using dateutil.parser and pytz, with conditional logic to properly format both timed events and all-day events in PST.

Challenge: API Response Variability

Google Calendar API responses contained inconsistent data structures, missing fields, and parsing errors for malformed events.

Solution: Defensive Data Processing

Implemented comprehensive error handling with try-catch blocks and fallback values to ensure workflow reliability despite data inconsistencies.

Challenge: Event vs Task Collisions

Static task scheduling would create conflicts with dynamic calendar events requiring intelligent placement.

Solution: AI-Powered Scheduling

Used ChatGPT to reason through the placement of standing tasks around fixed-time calendar events.

Challenge: HTML Rendering in Gmail

Email clients have varying support for CSS and HTML formatting, particularly mobile Gmail.

Solution: Inline CSS Optimization

Iterated on inline CSS and layout until HTML emails looked consistent in Gmail across mobile and desktop.

Challenge: Data Format Translation

Complex calendar API responses with nested datetime objects and optional fields needed standardization for reliable prompt construction.

Solution: Structured Data Cleaning

Created systematic data cleaning pipeline that extracts essential fields, handles missing data gracefully, and outputs consistent JSON structure.

Your Daily Schedule for Jun 14, 2025

Inbox x



5:00 AM (2 hours ago)



Daily Schedule

5:30 - 6:00 AM:



5:30 - 6:00 AM:



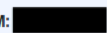
6:00 - 6:30 AM: Yoga

6:30 - 7:00 AM: 1 Mile Jog

7:00 - 8:30 AM: Day Prep

8:30 - 9:30 AM: PL-300 Study

9:30 - 12:00 PM:

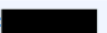


12:00 - 12:30 PM: Read Book

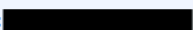
12:30 - 2:00 PM:



2:00 - 2:30 PM:



2:30 - 3:00 PM:



3:00 - 4:00 PM: MCP Projects/Learning

*Ensure to take short breaks between tasks for better focus and energy.

← Reply

→ Forward



5. Technical Skills Demonstrated

Workflow Integration: Successfully configured and connected multiple third-party services through Pipedream's pre-built actions and custom Python scripts.

Serverless Workflow Automation: Designed and implemented complex multi-step workflows using Pipedream's orchestration platform.

Data Preprocessing: Built robust Python scripts for data cleaning, timezone handling, and format standardization with comprehensive error handling.

Prompt Engineering: Created structured prompts that consistently generate high-quality, formatted output from ChatGPT.

Email Formatting: Developed HTML templates with inline CSS optimized for email client compatibility.

Product Thinking: Built solution to solve real-world personal productivity need with potential for broader application.

6. Results & Impact

<div>100%</div> <div>Daily Delivery Success Rate</div>	<div>~15min</div> <div>Daily Time Savings</div>	<div>7</div> <div>Integrated Technologies</div>
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Quantitative Outcomes

- **Personal Productivity:** Eliminated the need to manually reconcile calendar items and to-do lists every morning
- **Professional Growth:** Created a high-impact portfolio piece demonstrating cloud workflow automation and applied AI
- **Reusability:** Workflow is modular and can easily be adapted for team use, parental scheduling, or other domains

7. Alternative Approaches Analysis

Considered Alternatives

Airtable or Notion Integration:

Could offer more flexibility in editing tasks but would add complexity and API management overhead.

Full Custom Backend:

Greater control over logic and data persistence but requires deployment, monitoring, and security management.

No AI Approach:

Could schedule using simple logic only, but would lose the intelligent reordering and HTML formatting provided by ChatGPT.

Decision Rationale: The Pipedream + ChatGPT approach optimally balanced functionality, development speed, and maintenance overhead while demonstrating modern AI integration capabilities.

8. Lessons Learned & Future Enhancements

Key Insights

- **Prompt Design Impact:** Prompt design can significantly influence ChatGPT's ability to generate structured and visually appealing output
- **Email Client Testing:** HTML emails need to be manually tested across clients for layout integrity
- **Platform Power:** Pipedream is a powerful and accessible tool for building full solutions without deploying infrastructure

Potential Extensions

- **Behavioral Analytics Integration:** Implement task completion tracking with mood, energy, and motivation data to optimize scheduling based on historical performance patterns and personal productivity cycles
- Introduce machine learning-driven time allocation recommendations based on task completion rates by time of day and day of week
- Add Slack or SMS output option alongside Gmail for multi-channel delivery
- Make standing tasks configurable via Google Sheets or Notion for dynamic task management
- Support multiple calendars and user-specific personalization preferences

Conclusion

This project exemplifies how non-traditional developers can deliver thoughtful, well-designed automation using modern tools. It balances technical depth, practical utility, and user experience—all without writing backend code or maintaining servers. The implementation demonstrates creative problem-solving, real-world application, and effective use of AI and cloud workflows, making it a strong portfolio piece for strategic operations roles requiring technical creativity and process optimization expertise.