

Smart Inbox Auto-Responder - Full Technical Documentation

1. Introduction

The Smart Inbox Auto-Responder is an AI-driven email automation system designed for handling AI Hackathon registration and inquiry workflows. It automates email intake, classification, data extraction, auto-responses, calendar scheduling, and dashboard analytics.

2. System Objectives

The system was built to:

- Reduce manual inbox handling
- Provide instant auto-replies to participants
- Log registrations and questions for tracking
- Extract structured participant information
- Schedule hackathon-related events into calendar
- Maintain analytics for organizers

3. System Architecture

The system communicates with Gmail API for email ingestion and sending, Google Calendar API for scheduling, OpenAI LLM for classification and response generation, and a local dashboard server for metrics.

Architecture Diagram (Conceptual)

Incoming Email --> Gmail Client --> LLM Agent --> Dashboard + Calendar + Outgoing Reply

4. Core Components & Working Structure

Component	Responsibilities
gmail_client.py	Reads inbox, parses payloads, sends emails, marks messages processed.
auth.py	Handles OAuth tokens for Gmail and Calendar services.
calendar_client.py	Creates and manages calendar events for scheduled items.
agent.py	LLM-based classification, intent extraction, info parsing, response drafting.
dashboard.py	Stores interaction logs and metrics for

	organizers.
app.py	REST API layer for programmatic dashboard and logs access.
main.py/main_v2.py	Main execution loop for polling Gmail and processing new messages.

5. Email Handling Workflow

Step-by-step message processing:

1. Poll Gmail for unread messages
2. Parse sender, subject, and email body
3. Send content to LLM agent for:
 - a. Intent classification
 - b. Information extraction
 - c. Response generation
4. Depending on intent:
 - Registration -> create calendar event + send confirmation
 - Question -> send information template
 - Cancel -> notify and update logs
 - Spam -> ignore
5. Store event & extracted details into dashboard
6. Mark email as processed

6. Supported Intents & Behaviors

Intent	Description	System Action
registration	User wants to register for hackathon	Send confirmation + schedule event + log lead
question	User asks for event details	Auto-reply with FAQ templates + log question
cancel	User cancels registration	Log cancellation + notify organizer
spam	Irrelevant mail	Ignored
unknown	Not classifiable	Fallback reply + log for manual review

7. Data Extraction

The agent extracts structured information using AI models such as:

- Full name

- Email
- Phone
- Organization
- Intent
- Questions
- Preferred session slots

8. Dashboard Metrics

Dashboard exposes:

- Total registrations
- Cancellations
- FAQ question categories
- Participant info summaries
- Lead counts over time

9. Deployment Requirements

Dependencies include OAuth tokens, Google Cloud credentials, OpenAI key, Flask for API, and a machine capable of running polling loop.

10. Improvements & Roadmap

Future enhancements include:

- Real-time Gmail push notifications
- Admin template editing UI
- Multi-language model support
- Role-based analytics dashboard
- Webhook integration for CRM