Depute AI – Unified Communication & Productivity Platform

1. Project Overview

Depute AI is a centralized enterprise platform designed to unify communication, productivity, and collaboration tools into a single system. The platform integrates email services, calendar management, tasks, notes, chat, and file search capabilities while synchronizing seamlessly with external providers such as Google and Microsoft Outlook.

The objective was to eliminate the need for multiple disconnected tools by creating a single interface that synchronizes data across platforms and provides real-time collaboration capabilities for organizations.

2. Problem Statement

Modern organizations rely on multiple tools for communication and productivity, such as:

- Gmail / Outlook for emails
- Google Calendar for scheduling
- Separate tools for tasks and notes
- External chat platforms
- File storage systems

This fragmentation leads to:

- Inefficiency in workflow
- Data inconsistency
- Context switching overhead
- Lack of centralized control

The challenge was to build a system that:

- Integrates all tools into one platform
- Syncs data in real time

- Supports multiple organizations and users
- Maintains secure and scalable architecture

3. Proposed Solution

A multi-tenant SaaS platform built with:

- Frontend: HTML templates with dynamic rendering
- Backend: Django + Django REST Framework
- Integrations: Google APIs (Gmail, Calendar, Contacts), Microsoft Outlook APIs
- Real-time communication: WebSockets
- Database: Relational database for structured storage

The system provides a unified dashboard where users can:

- Access emails from Gmail and Outlook
- Manage calendars and events
- Handle tasks and notes
- Communicate via chat
- Search files across emails and attachments

4. System Architecture

Frontend Layer

The frontend is built using HTML templates with modular components:

- Static templates rendered via Django
- Reusable UI components for scalability
- Dynamic updates using API calls
- Responsive layout for multiple devices

Backend Layer

The backend is powered by Django and Django REST Framework:

- Handles authentication and authorization
- Manages business logic
- Provides REST APIs for all modules
- Integrates with external services (Google, Outlook)

Integration Layer

The platform connects with:

- Google Gmail API
- Google Calendar API
- Google Contacts API
- Microsoft Outlook API

OAuth 2.0 authentication is used to securely connect user accounts and sync data.

Real-Time Layer

WebSockets are used for:

- Chat messaging
- Live updates
- Session persistence

Database Layer

The system stores:

- Users and organizations
- Emails metadata
- Calendar events
- Tasks and notes
- Chat sessions
- File indexing data

5. User and Organization Management

Account Creation

Organizations can create accounts using:

- Standard email signup
- Google OAuth
- Microsoft Outlook OAuth

Each organization can have:

- Multiple users
- Department-based access control
- Role-based permissions

Authentication

Supports:

- Email/password login
- Google login
- Outlook login

Password reset is handled securely using token-based verification.

6. Dashboard

The dashboard acts as the central hub of the platform.

It provides:

- Overview of emails, tasks, and events
- Quick access to modules
- Organization-level insights
- User activity tracking

7. Mailbox System

Unified Inbox

The platform fetches and displays emails from:

- Gmail
- Outlook

Emails are categorized into:

- Inbox
- Sent
- Spam
- Trash

Features

- Real-time email synchronization
- Move emails between folders
- Mark as read/unread
- Star and favorite emails
- Label emails with custom tags
- Threaded conversations
- Attachment preview and download

All actions performed in the platform are synced back to the original email provider.

8. Calendar Integration

Event Management

Users can:

- Create events
- Edit events
- Delete events

- Mark events as completed

Synchronization

- Events are fetched from Google Calendar
- Stored locally for performance
- Synced back to Google in real time

Filtering

Users can view calendar data by:

- Day
- Week
- Month

9. Contacts Management

The system allows:

- Creating contacts
- Editing contact details
- Deleting contacts

All contacts are synchronized with Google Contacts, ensuring consistency across devices.

10. Tasks and To-Do System

Users can manage tasks through:

- Creation of tasks
- Editing and deletion
- Marking tasks as completed

Tasks are synchronized with external services to ensure cross-platform availability.

11. Notes Module

The notes system allows users to:

- Create internal notes
- Edit and delete notes
- Mark notes as favorite
- Organize personal or team information

All notes are stored securely within the platform database.

12. Scrumboard (Project Management)

The scrumboard module enables:

- Creation of projects
- Task assignment within projects
- Drag-and-drop task management
- Editing and deletion of tasks

This module supports agile workflows within organizations.

13. Chat System

Real-Time Messaging

Users can:

- Start conversations
- Send and receive messages
- Share images
- Use emojis

Technical Implementation

- WebSocket-based communication
- Persistent chat sessions
- Message storage in database

14. Account Settings

Users can manage:

- Profile details
- Address and contact information
- Social links
- Privacy preferences

The system allows:

- Account activation/deactivation
- Secure account deletion with re-authentication

15. Payment Integration

Stripe integration is used for:

- Subscription management
- Secure payment processing
- Billing management

16. Admin Panel

Super Admin

The super admin has access to:

- All organizations
- All users
- Platform-wide analytics

Organization Admin

Each organization has its own admin panel:

- Manage users
- Assign roles and permissions
- Control department-level access
- Monitor user activity

17. File Search System

File Indexing

All email attachments are:

- Stored in a centralized system
- Indexed for search

Keyword Search

A background process:

- Extracts text from files (PDF, DOC, etc.)
- Stores extracted data in database

Users can:

- Search keywords across all files
- Retrieve associated email threads

18. Challenges and Solutions

Multi-Platform Integration

Different APIs (Google, Outlook) required unified handling.
A centralized integration layer was implemented.

Real-Time Synchronization

Ensuring data consistency across systems was complex.
Bi-directional sync mechanisms were introduced.

Large Data Handling

Emails and attachments generated large datasets.
Pagination and indexing improved performance.

Security and Permissions

Multi-tenant architecture required strict access control.
Role-based and department-level permissions were implemented.

File Search Complexity

Searching across multiple file types required optimization.
Custom indexing and keyword extraction pipelines were developed.

19. Outcome

The platform successfully:

- Unified multiple productivity tools into one system
- Enabled real-time synchronization with Google and Outlook
- Improved workflow efficiency for organizations
- Reduced dependency on third-party tools
- Provided scalable architecture for enterprise use

20. Conclusion

Depute AI delivers a comprehensive workspace solution by integrating communication, collaboration, and productivity tools into a single platform. Through seamless synchronization with external services and a modular architecture, the system enhances efficiency, reduces operational complexity, and provides a scalable foundation for modern organizations.