

User Guide

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Problem Statement

Growing businesses and operations teams often struggle to run reliable email communication beyond simple one-off newsletters. Typical operational gaps include:

Fragmented contact and list operations

Teams maintain contacts, lists, and campaign logic in separate tools, which creates synchronization overhead and inconsistent targeting.

Limited event-driven automation

Manual campaign blasts do not cover behavior-based journeys such as wait conditions, conditional branches, or automatic subscribe/unsubscribe flows.

Weak campaign observability

Without structured delivery/open/click/unsubscribe tracking and reporting, teams cannot optimize message performance reliably.

Manual ingestion bottlenecks

Organizations need API-based lead ingestion from websites, forms, and external systems, but often lack secure list-level entry points.

Workflow maintainability challenges

As automations grow, teams need a visual or structured workflow model with step ordering, conditions, and repeatable execution.

Email Automation addresses these challenges through a unified Laravel platform combining contacts, list management, campaign sending, automation workflows, API ingestion, and SendGrid event telemetry.

Solution Offered

Email Automation is a web-based email operations platform with role-based dashboarding, campaign tools, automation workflows, and API/webhook integrations.

Centralized contacts and lead lists

The system manages contacts and lead lists (`Lead`, `ContactLead`, `ContactLeadUser`) so teams can target specific groups for campaigns and automations.

Campaign management with template support

Users can create campaigns, select target lists, choose template-backed dynamic content, and send through SendGrid with tracking enabled.

Workflow automation engine

A service/action model (`Service`, `ServiceAction`) supports multi-step journeys including:

- Send Email
- Wait
- If/Else Conditions
- Subscribe/Unsubscribe actions

SendGrid-based event tracking

Webhook ingestion updates email status (delivered/open/clicked/unsubscribe) and writes event logs for reporting and follow-up logic.

API-first lead ingestion

An authenticated API endpoint (`/api/create-lead`) allows external systems to insert contacts into specific lead lists using per-user API keys.

Platform Scope and Modules

Based on route definitions, models, commands, and views, the product currently includes the following major areas:

Authentication, user management, and profile

Laravel auth/verification plus user administration, API key generation, and profile management.

Dashboard and analytics snapshots

Role-based dashboard surfaces operational metrics: contacts, leads, campaigns, automations, templates, total emails, delivered/opened/clicked stats, and unsubscribes.

Contact and lead list management

Create/update/delete contacts and lead lists, map contacts into lists, and manage list-level state for targeting.

Campaign module

Campaign CRUD with status control, lead-list targeting, SendGrid delivery integration, and email log persistence.

Email template module

Template CRUD with JSON + HTML payload storage, sender/subject controls, and dynamic placeholder replacement.

Workflow builder module

Visual flow-style workflow creation with trigger setup and action insertion (email, wait, condition, contact actions), including branching and step ordering.

Automation execution module

Cron/command-based processing (`app:automation`) traverses active services, evaluates trigger contacts, executes actions, and dispatches delayed jobs.

Webhook and reporting module

SendGrid event webhook updates message state and unsubscribe behavior; reporting screens provide campaign/workflow reporting slices.

API and documentation module

Public API endpoint for lead ingestion with header-based API key auth and Swagger/OpenAPI documentation artifacts under `docs/`.

Technology Stack (Observed and Inferred)

Backend framework

- PHP 8.1+
- Laravel 10

- Laravel Sanctum
- Laravel Socialite

Email and external services

- SendGrid SDK for outbound mail and tracking
- SendGrid Event Webhook for delivery/open/click/unsubscribe updates

Data and persistence

- MySQL 8
- Eloquent ORM models for contacts, campaigns, templates, automations, logs, and webhook events

Frontend/admin stack

- Blade templates
- Vite build system
- Tailwind CSS
- Alpine.js
- Axios

API and developer tooling

- L5 Swagger for API documentation
- PHPUnit for tests

Scheduling and background execution

- Laravel console commands
- Queue jobs (`waitJob`) for delayed automation steps
- Cron-based automation and campaign execution patterns

Use Cases

Newsletter and campaign broadcasting

Marketing teams can send campaign emails to selected lead lists with tracking and status updates.

Drip and lifecycle automation

Teams can build multi-step journeys with delays, conditions, and follow-up emails for onboarding, nurture, and re-engagement.

Behavior-driven branching

If/Else conditions can react to engagement events (for example opened/not opened, clicked/not clicked) and branch subsequent steps.

List hygiene and subscription control

Subscribe/unsubscribe workflow actions and webhook-driven unsubscribe handling help keep contact lists compliant and current.

External lead intake automation

Third-party apps and forms can push contacts directly into lists using the authenticated API endpoint.

Operational reporting and monitoring

Admins and operators can monitor send activity and engagement metrics from dashboard and report pages.

About this case study

This case study is based on direct codebase analysis of the `email-automation` repository.

Method used:

- Reviewed route maps (`web.php`, `api.php`) to identify module boundaries.
- Analyzed controllers, models, and console commands for campaign and automation logic.
- Traced email lifecycle from send action to webhook status updates.
- Cross-checked dashboard and workflow views for implemented UI capabilities.

Note: No screenshots were used for this case study.

Detailed Website Walkthrough

1. Login and dashboard entry

Users land on authenticated dashboard views that surface role-aware metrics and operational controls.

2. Configure SendGrid credentials

Users add/update a SendGrid API key in configuration before executing outbound email workflows.

3. Build contact foundations

Operators create contacts and lead lists, then map contacts into list memberships for downstream targeting.

4. Create templates and campaigns

Users author templates (HTML + JSON + sender metadata), then create campaigns tied to selected lead lists and optional templates.

5. Design automation workflows

From workflow builder, users add start triggers and action steps (email, wait, conditions, subscribe/unsubscribe), building sequential and branched automation logic.

6. Execute automation logic

The automation command processes active services, evaluates conditions per contact, dispatches wait jobs where required, and sends emails through service email actions.

7. Track delivery and engagement

SendGrid webhook events are ingested and mapped to email logs, updating statuses such as delivered/open/clicked/unsubscribe.

8. Review reports and iterate

Users inspect report pages and dashboard counters to refine templates, lead segmentation, campaign timing, and automation conditions.

Key Product Flows

Flow A: API-based lead ingestion

1. External system sends `POST /api/create-lead` with `API_KEY` header and contact payload.
2. Server validates key, list ID, and contact fields.
3. Contact is created and associated with the specified list.
4. Response confirms successful ingestion.

Flow B: Manual campaign send

1. User creates a campaign and selects target lead list/template.
2. System enumerates active contacts in that list.
3. Campaign content is rendered (template placeholders replaced).
4. SendGrid API sends email; message ID is logged in email logs.

Flow C: Event-driven automation journey

1. User creates an automation service and defines start triggers.
2. User adds ordered steps (email/wait/condition/contact actions).
3. `app:automation` command evaluates active services and contacts.
4. Conditions gate action execution; wait steps dispatch delayed jobs.
5. Email actions log outcomes for each targeted contact.

Flow D: Webhook feedback and unsubscribe propagation

1. SendGrid posts event payloads to `/webhook/event-webhook`.
2. System resolves message ID to email log record.
3. Status updates are persisted (delivered/open/clicked/unsubscribe).
4. Unsubscribe events create unsubscribe records and affect future sends.

Challenges Observed

Scheduler dependency and operational setup

Core automation and campaign recurrence rely on commands/queues/cron configuration; if scheduler workers are not deployed correctly, journeys can stall.

Complexity growth in workflow logic

Condition chains, branching, and delayed jobs increase behavioral complexity and require careful validation to avoid unintended paths.

External provider dependency

Delivery reliability, status signals, and event completeness depend on SendGrid API/webhook availability and correct account configuration.

Data consistency across modules

Contacts, list memberships, email logs, webhook logs, and unsubscribe records must remain synchronized to prevent duplicate sends or wrong audience targeting.

Compliance and unsubscribe handling

Email systems must maintain robust unsubscribe behavior and traceability to support compliance obligations and user trust.

Staging and live links

- Staging/Login: <https://email-automation.itechnolabs.tech/login>
- API endpoint (environment-dependent base URL): /api/create-lead
- Webhook endpoint (environment-dependent base URL):
/webhook/event-webhook

Screenshot Inventory

No screenshots were provided or included for this case study.

Conclusion

Email Automation is a comprehensive campaign-and-journey platform that combines contact/list management, campaign sending, workflow orchestration, API ingestion, and webhook-driven telemetry in one Laravel codebase. Its strongest value lies in unifying operational marketing workflows with both manual campaign control and event-based automation logic. Continued success at scale will depend on reliable scheduler/queue operations, robust condition-path testing, and disciplined data integrity/compliance handling across the full email lifecycle.