Email Campaign & Form Analytics - WORKING!

☑ System Status

Django Server: Running on http://127.0.0.1:8000/
Admin Panel: http://127.0.0.1:8000/admin/
All Migrations: Applied successfully
All Models: Created and registered

✉ Email Campaign Tracking (Mailerlite-like)

Features Implemented

1. **Email Open Tracking**

   - 1x1 transparent tracking pixel
   - Records every time recipient opens email
   - Tracks first_opened_at, last_opened_at, open_count
   - IP address and user agent logging

2. **Link Click Tracking**

   - All links in email automatically tracked
   - Unique tracking per recipient per link
   - Records total clicks and unique clicks
   - IP address and user agent for each click

3. **Per-Recipient Statistics**

   - Individual open count for each recipient
   - Individual click count for each recipient
   - First and last opened timestamps
   - Delivery status tracking

4. **Per-Link Statistics**

   - Total clicks per link across all recipients
   - Unique recipients who clicked each link
   - Click-through rate calculation
   - Link-level analytics

5. **Campaign-Level Statistics**

   - Total sent/delivered/failed counts
   - Overall open rate percentage
   - Overall click rate percentage
   - Unique opens vs total opens

- Unique clicks vs total clicks

6. **Unsubscribe Functionality**

  - One-click unsubscribe link in emails
  - Automatic status update to 'unsubscribed'

📊 Form Analytics System

Features Implemented

1. **Form View Tracking**

  - Session-based tracking
  - Device type detection (desktop/mobile/tablet)
  - Browser detection
  - UTM parameter capture (source, medium, campaign)
  - Referer URL tracking
  - IP address logging

2. **Field-Level Interaction Tracking**

  - Time spent on each field
  - Number of changes per field
  - Field completion tracking
  - Helps identify problem fields

3. **Conversion Tracking**

  - Automatic conversion rate calculation
  - Total views vs submissions
  - Device breakdown (desktop vs mobile submissions)
  - Traffic source analysis
  - Top performing UTM campaigns

4. **Automatic Confirmation Emails**

  - Send email automatically after form submission
  - Template variable replacement ({{name}}, {{email}}, etc.)
  - Uses FormConfiguration.confirmation_email_template
  - Configurable per form

🗄 Database Models Created

Email Campaign Models

1. **EmailCampaign** - Campaign management with statistics
2. **EmailRecipient** - Individual recipient tracking with tokens

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3. **EmailLink** - Per-link click tracking
4. **EmailClick** - Individual click events
5. **EmailOpen** - Individual open events

Form Analytics Models

6. **FormAnalytics** - Aggregate form statistics
7. **FormView** - Individual form view sessions
8. **FormFieldInteraction** - Field-level engagement data

🔗 API Endpoints

Email Tracking

```
GET  /track/email/open/<token>/
     - Returns 1x1 transparent PNG
     - Records email open event

GET  /track/email/click/<link_token>/<recipient_token>/
     - Records click event
     - Redirects to original URL

GET  /track/email/unsubscribe/<token>/
     - Unsubscribes recipient
     - Returns confirmation message
```

Form Analytics

```
POST /track/form/view/<form_id>/
     - Records form view
     - Body: {
         "session_id": "string",
         "device_type": "desktop|mobile|tablet",
         "browser": "string",
         "ip_address": "string",
         "referer": "string",
         "utm_source": "string",
         "utm_medium": "string",
         "utm_campaign": "string"
       }

POST /track/form/interaction/<form_id>/
     - Records field interaction
     - Body: {
         "session_id": "string",
         "field_name": "string",
         "time_spent": 10,
```

```
            "changes_count": 3,
            "completed": true
    }
```

⚙ How to Use

Creating an Email Campaign

1. **Go to Admin Panel**

   ○ Navigate to http://127.0.0.1:8000/admin/
   ○ Login with your admin credentials

2. **Create Email Campaign**

   ```
   - Click "Email campaigns" → "Add"
   - Fill in:
     * Name: "Newsletter January 2026"
     * Subject: "Check out our latest updates!"
     * Body: HTML content with links
     * Event: Select event (optional)
     * Track Opens: ✓
     * Track Clicks: ✓
   - Save
   ```

3. **Add Recipients**

   ```
   - Click "Email recipients" → "Add"
   - Select the campaign
   - Enter email address and name
   - Save (tracking_token generated automatically)
   - Repeat for all recipients
   ```

4. **Send Campaign (Python)**

   ```python
   from dashboard.utils_campaign import send_campaign

   # Send to all recipients
   send_campaign(campaign_id=1)
   ```

5. **View Statistics**

```
- Go to "Email campaigns" in admin
- See Open Rate, Click Rate columns
- Click campaign → View detailed stats
- Check "Email opens" for individual opens
- Check "Email clicks" for individual clicks
```

Tracking Form Analytics

1. Configure Form

```python
from dashboard.models_form import FormConfiguration

form = FormConfiguration.objects.get(id=YOUR_FORM_ID)
form.send_confirmation_email = True
form.confirmation_email_template = email_template  # Select template
form.save()
```

2. Frontend Integration

```javascript
// When form loads
fetch('/track/form/view/FORM_ID/', {
    method: 'POST',
    headers: {'Content-Type': 'application/json'},
    body: JSON.stringify({
        session_id: 'unique_session_id',
        device_type: 'desktop',
        browser: 'Chrome',
        utm_source: 'facebook',
        utm_medium: 'cpc',
        utm_campaign: 'summer_sale'
    })
});

// When user interacts with field
fetch('/track/form/interaction/FORM_ID/', {
    method: 'POST',
    headers: {'Content-Type': 'application/json'},
    body: JSON.stringify({
        session_id: 'unique_session_id',
        field_name: 'email',
        time_spent: 5,
        changes_count: 2,
        completed: true
    })
});
```

3. **View Analytics**

```
- Go to "Form analytics" in admin
- See conversion rates, device breakdown
- Check "Form views" for session details
- Check "Form field interactions" for field problems
```

🔬 Testing the System

Test Email Tracking

1. **Create Test Campaign**

```python
from dashboard.models_email import EmailCampaign, EmailRecipient

campaign = EmailCampaign.objects.create(
    name="Test Campaign",
    subject="Test Email",
    body="""
<h1>Hello!</h1>
<p>This is a test email.</p>
<a href="https://example.com">Click here</a>
""",
    track_opens=True,
    track_clicks=True
)

recipient = EmailRecipient.objects.create(
    campaign=campaign,
    email="test@example.com",
    name="Test User"
)
```

2. **Send Test Email**

```python
from dashboard.utils_campaign import send_campaign_email
send_campaign_email(recipient)
```

3. **Test Tracking URLs**

```
# Open tracking (copy recipient.tracking_token)
http://127.0.0.1:8000/track/email/open/RECIPIENT_TOKEN/
```

```
# Click tracking (get tokens from EmailLink model)
http://127.0.0.1:8000/track/email/click/LINK_TOKEN/RECIPIENT_TOKEN/
```

4. **Check Statistics**

```python
# Refresh from database
recipient.refresh_from_db()
print(f"Opens: {recipient.open_count}")
print(f"Clicks: {recipient.click_count}")

campaign.refresh_from_db()
print(f"Open Rate: {campaign.get_open_rate()}%")
print(f"Click Rate: {campaign.get_click_rate()}%")
```

🗀 File Structure

```
makeplus_api/
├── dashboard/
│   ├── models_email.py        # Email campaign models
│   ├── models_form.py         # Form analytics models
│   ├── views_tracking.py      # Tracking endpoints
│   ├── urls_tracking.py       # Tracking URL routes
│   ├── utils_campaign.py      # Campaign utilities
│   └── admin.py               # Admin registrations
├── makeplus_api/
│   ├── settings.py            # Email config added
│   └── urls.py                # Tracking routes included
└── migrations/
    └── 0006_...               # All tracking tables
```

⚙ Configuration

Email Settings (in settings.py)

```python
# SMTP Configuration
EMAIL_BACKEND = 'django.core.mail.backends.smtp.EmailBackend'
EMAIL_HOST = config('EMAIL_HOST', default='localhost')
EMAIL_PORT = config('EMAIL_PORT', default=587, cast=int)
EMAIL_USE_TLS = config('EMAIL_USE_TLS', default=True, cast=bool)
EMAIL_HOST_USER = config('EMAIL_HOST_USER', default='')
EMAIL_HOST_PASSWORD = config('EMAIL_HOST_PASSWORD', default='')
DEFAULT_FROM_EMAIL = config('DEFAULT_FROM_EMAIL',
default='noreply@makeplus.com')
```

```
# Site URL for tracking links
SITE_URL = config('SITE_URL', default='http://127.0.0.1:8000')
```

Environment Variables (.env)

```
EMAIL_HOST=smtp.gmail.com
EMAIL_PORT=587
EMAIL_USE_TLS=True
EMAIL_HOST_USER=your-email@gmail.com
EMAIL_HOST_PASSWORD=your-app-password
DEFAULT_FROM_EMAIL=noreply@makeplus.com
SITE_URL=https://yourdomain.com
```

🔧 Utility Functions

Send Campaign to All Recipients

```python
from dashboard.utils_campaign import send_campaign

# Sends to all recipients in campaign
result = send_campaign(campaign_id=1)
print(f"Sent: {result['sent']}, Failed: {result['failed']}")
```

Send to Single Recipient

```python
from dashboard.utils_campaign import send_campaign_email
from dashboard.models_email import EmailRecipient

recipient = EmailRecipient.objects.get(id=1)
send_campaign_email(recipient)
```

Process Links for Tracking

```python
from dashboard.utils_campaign import process_email_links_for_tracking

links = process_email_links_for_tracking(campaign)
print(f"Found {len(links)} links in email")
```

Send Form Confirmation

```python
from dashboard.utils_campaign import send_form_confirmation_email

send_form_confirmation_email(
    form_submission=submission,
    recipient_email="user@example.com",
    context={'name': 'John', 'email': 'john@example.com'}
)
```

📈 Admin Panel Features

EmailCampaign Admin

- List display: Name, Event, Status, Total Sent, Opens, Clicks, Open Rate, Click Rate
- Filters: Status, Event, Created Date, Track Opens, Track Clicks
- Search: Name, Subject, From Email
- Readonly: Statistics fields, timestamps

EmailRecipient Admin

- List display: Email, Campaign, Status, Open Count, Click Count, Sent Date, First Opened
- Filters: Status, Campaign, Sent Date
- Search: Email, Name, Tracking Token

EmailLink Admin

- List display: URL, Campaign, Total Clicks, Unique Clicks, Click Rate
- Filters: Campaign, Created Date
- Search: URL, Tracking Token

FormAnalytics Admin

- List display: Form, Total Views, Total Submissions, Conversion Rate, Last Updated
- Filters: Form, Last Updated
- Search: Form Name

✦ Key Features Summary

☑ **Email Open Tracking** - Pixel-based tracking like Mailerlite
☑ **Link Click Tracking** - Every link tracked individually
☑ **Per-Recipient Stats** - Detailed metrics for each person
☑ **Per-Link Stats** - Click-through rates for each URL
☑ **Campaign Statistics** - Overall open/click rates
☑ **Form View Tracking** - Session-based analytics
☑ **Field Interaction Tracking** - Identify problem fields
☑ **Conversion Tracking** - Automatic rate calculation
☑ **Device/Browser Analytics** - Understand your audience

- ☑ **UTM Campaign Tracking** - Track marketing effectiveness
- ☑ **Auto Confirmation Emails** - Send after form submission
- ☑ **Template Variables** - {{name}}, {{email}} replacement
- ☑ **Unsubscribe Links** - One-click opt-out
- ☑ **Admin Dashboard** - Beautiful statistics display

🚀 Next Steps

1. **Configure Production Email**

   - Set up SMTP credentials in .env
   - Test email delivery

2. **Integrate Frontend**

   - Add form view tracking
   - Add field interaction tracking
   - Implement session ID generation

3. **Create Email Templates**

   - Design professional email templates
   - Add unsubscribe links
   - Test across email clients

4. **Set Up Celery (Optional)**

   - Background task processing
   - Scheduled campaign sending
   - Better performance for large campaigns

5. **Add Email Verification**

   - Verify recipient email addresses
   - Bounce handling
   - Spam prevention

📞 Support

For issues or questions:

- Check Django admin logs
- Review terminal output for errors
- Verify email configuration in .env
- Test tracking URLs directly in browser
- Check database for recorded events

Status: ☑ FULLY IMPLEMENTED AND WORKING
Server: ◍ RUNNING
Database: ☑ MIGRATED
Admin Panel: ☑ ACCESSIBLE