



WhatsApp Bot

Intelligent Group Moderation Solution

Automated content moderation, user verification, and analytics for WhatsApp groups - powered by AI

Client Presentation | 2024

Section 01

Agenda

This presentation provides a comprehensive overview of the WhatsApp Bot solution, covering its architecture, capabilities, and deployment options.

1

System Architecture

Technical overview of components and technologies

2

Bot Functionalities

Complete feature set and capabilities

3

Moderation Pipeline

5-layer content analysis system

4

Sensitive Topics

8 monitored content categories

5

Deployment Options

Local, cloud, and mobile setups

6

Summary

Key benefits and recommendations

Key Highlights

- **Multi-layer AI-powered content moderation** - Real-time analysis using OpenAI
- **CAPTCHA-based user verification** - Prevents bots and spam accounts
- **Real-time web dashboard** - Monitor status, logs, and analytics
- **Weekly AI-generated reports** - Trending topics and engagement metrics
- **Flexible deployment** - Run on local machine, cloud, or smartphone

Section 02

System Architecture

Technology Stack

Node.js 18+

Baileys (WhatsApp Web)

Express.js

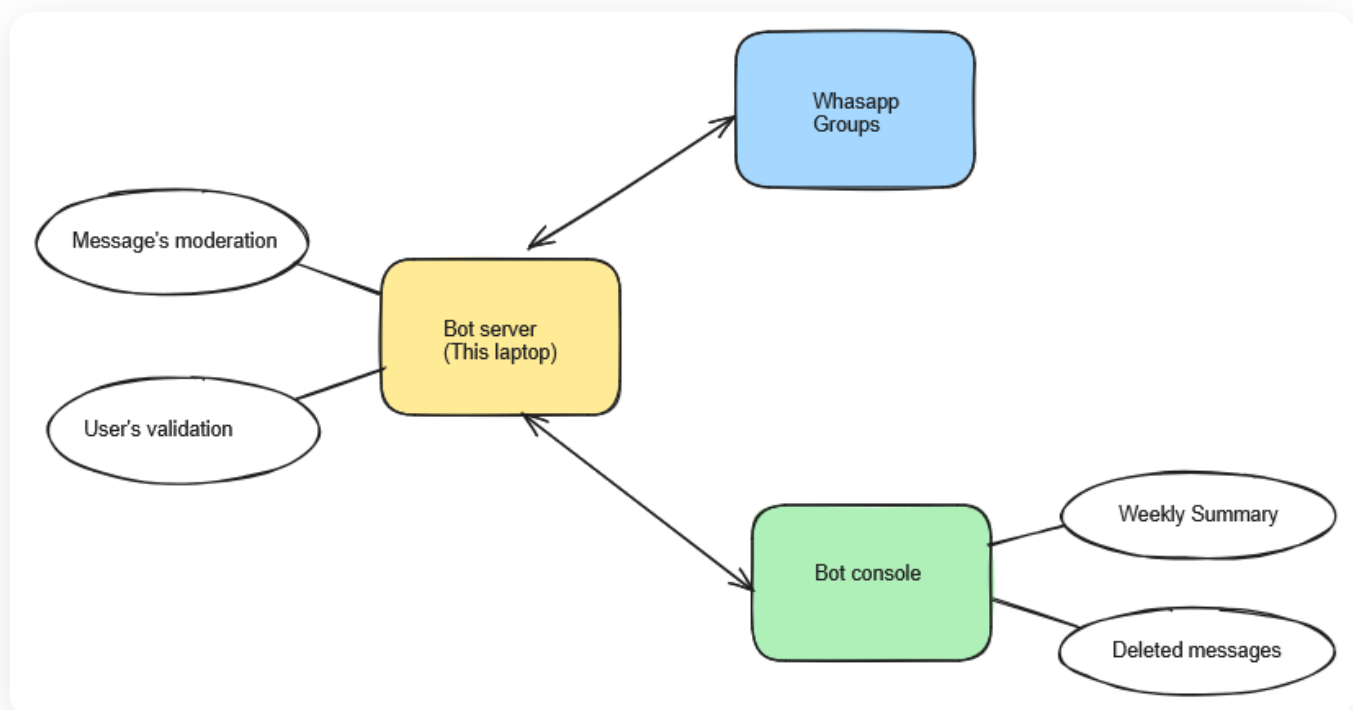
SQLite3

OpenAI GPT-4o-mini

Vision API

Moderation API

Architecture Diagram



Section 03

Bot Functionalities



Intelligent Content Moderation

Multi-layer AI system that detects spam, toxic content, and sensitive topics in real-time. Automatically removes violations and notifies users.



CAPTCHA Verification

New members must solve an image-based CAPTCHA to stay in the group. Prevents bots and spam accounts. Multilingual support (EN/NL).



Web Dashboard

Real-time monitoring interface showing connection status, moderation logs, and group analytics. Accessible via browser at port 3000.



Weekly Analytics

AI-generated reports with trending topics, engagement metrics, most active days, and conversation summaries for each monitored group.



Message Restoration

Administrators can review and restore accidentally deleted messages through the dashboard. Full audit trail maintained for all actions.



Detailed Logging

Complete audit trail of all moderation actions including timestamps, violation types, and original message content for compliance review.

Section 04

5-Layer Moderation Pipeline

The bot uses a multi-layer moderation pipeline that processes messages in sequence, from fast local checks to advanced AI analysis.

1

Spam Detection

Checks for excessive links (>3), caps ratio (>70%), and repeated messages within 60 seconds

Local Rules

2

Keyword Detection

Fast regex scan for 28 sensitive topic keywords across 8 categories

Regex Scan

3

Toxic Content Analysis

Detects hate speech, harassment, violence, self-harm, and explicit content

OpenAI Moderation

4

Sensitive Topic Intelligence

GPT-4o-mini analyzes nuanced discussions with confidence scoring (>0.7 threshold)

GPT-4o-mini

5

Image Content Analysis

Vision API scans images for policy violations with 0.6 confidence threshold

Vision API

Moderation Actions

- **Message Deletion:** Violating content is removed from the group immediately
- **User Notification:** Private message sent explaining the violation reason
- **Audit Logging:** Full details stored in database for review and restoration
- **Admin Exemption:** Group administrators bypass all moderation checks

Section 05

8 Sensitive Topics Monitored

The bot monitors and moderates discussions on these sensitive topic categories to maintain a respectful group environment:



Politics

Politicians, parties, elections, voting, government discussions



Religion

God, church, mosque, temple, bible, quran, conversion topics



Caste

Caste system, social divisions, reservation debates



Gender

Feminism debates, misogyny, patriarchy arguments



LGBTQ+

Sexual orientation, same-sex marriage debates



Racism

Skin color, regionalism, ethnic stereotypes



Health Misinfo

Anti-vax content, conspiracy theories, COVID misinformation



Abortion

Pro-life vs pro-choice debates and related content

Detection Methods




- **Keyword Matching:** Fast regex scan for known trigger words and phrases
- **AI Context Analysis:** GPT-4o-mini understands nuanced discussions beyond simple keywords

- **Image Recognition:** Vision API detects sensitive content in shared images
- **Confidence Thresholds:** Configurable sensitivity levels to reduce false positives

Section 06

Deployment Options & Costs

The WhatsApp Bot can be deployed in three main configurations, each with different cost and operational characteristics.

 Local Machine	 Cloud Server	 Smartphone
<p>Monthly Cost</p> <p>\$6-20</p> <p>Electricity + OpenAI</p>	<p>Monthly Cost</p> <p>\$6-25</p> <p>VPS + OpenAI</p>	<p>Monthly Cost</p> <p>\$2-6</p> <p>OpenAI only</p>
<p>✓ Advantages</p> <ul style="list-style-type: none">• No hosting fees• Full data control• Easy initial setup• Direct log access <p>✗ Disadvantages</p> <ul style="list-style-type: none">• PC must run 24/7• Electricity costs• Manual restarts needed• Internet dependency	<p>✓ Advantages</p> <ul style="list-style-type: none">• 24/7 guaranteed uptime• Auto-restart on failure• Remote access anywhere• Scalable resources <p>✗ Disadvantages</p> <ul style="list-style-type: none">• Monthly hosting fees• Technical setup required• Data on third-party• Server knowledge needed	<p>✓ Advantages</p> <ul style="list-style-type: none">• Always connected• Low power usage• Portable solution• No extra hardware <p>✗ Disadvantages</p> <ul style="list-style-type: none">• Limited processing• Complex setup (Termux)• Battery drain• Storage constraints

Recommended Setup by Use Case

Use Case	Recommended	Reason
Personal / Small Community	Local Machine	Simple setup, full control, minimal costs
Business / Professional	Cloud Server	Reliability, multiple groups, remote management
Testing / Development	Local Machine	Ideal for initial configuration before production
Remote / Mobile Setup	Smartphone	Portability for tech-savvy users with limited resources

Section 07

Summary

Solution at a Glance

5

Moderation
Layers

8

Topic
Categories

2

Languages

24/7

Operation

\$2-25

Monthly Cost

Why Choose This Solution?

- **Intelligent Moderation:** AI-powered content filtering that understands context, not just keywords
- **Secure Verification:** CAPTCHA system blocks spam bots before they can cause damage
- **Full Transparency:** Complete audit logs with message restoration capability
- **Actionable Insights:** Weekly AI-generated analytics about group activity and trends
- **Cost Effective:** Minimal operational costs (\$2-25/month depending on deployment)
- **Flexible Deployment:** Run on local machine, cloud server, or even a smartphone
- **Privacy Focused:** Phone numbers hashed, data stored locally, no external tracking

Technical Requirements

Requirement	Specification
Node.js	Version 18.0.0 or higher
Memory	256 MB minimum

Requirement	Specification
Storage	1 GB recommended
OpenAI API	Valid API key with credits
Network	Stable internet connection (24/7)

Ready to Get Started?

Contact us to discuss your specific requirements and deployment preferences.