

Supermarket WhatsApp Bot Project – ASKMART

1. Project Overview

Objective:

The goal of this project is to create a **WhatsApp bot** to improve customer experience in supermarkets by handling customer queries, order placements, and order tracking through WhatsApp. Alongside the bot, a **Web Dashboard** will allow business owners to manage products, connect their databases, and monitor customer interactions.

Key Features:

- **WhatsApp Bot:**
 - Customers can query products, place orders, and track deliveries on WhatsApp.
 - Integrates with the supermarket's product database for real-time information.
 - Uses WhatsApp Business API for communication.
 - **Web Dashboard:**
 - Business owners log in to manage the bot.
 - Features include database integration, WhatsApp number connection, order management, and analytics.
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2. High-Level Architecture

Flow of the System:

1. Customer Interaction:

- Customers use WhatsApp to interact with the bot.
- The bot provides product details, processes orders, and tracks deliveries.

2. Business Dashboard:

- Business owners configure the bot, manage product information, and track orders via a web dashboard.

Components:

1. WhatsApp Business API:

- Enables communication between the bot and customers on WhatsApp (via Twilio or 360dialog).

2. Backend:

- **FastAPI** or **Flask** to handle customer requests, connect to the supermarket's database, and serve data to the bot.

3. Database:

- **MySQL**: Stores product details, order information, and user data, supports real-time syncing with the bot.

4. Web Dashboard:

- **HTML/CSS/JS** or **React.js**: Provides a control panel for business owners to manage their bot settings, product catalog, and view analytics.
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3. Detailed Features

1. WhatsApp Bot Features:

- **Product Inquiry:**

- Customers ask for product details such as price, availability, and category.
- Example: "Show me all fruits", "What's the price of Milk?"

- **Order Placement:**

- Customers can browse available products and add them to the cart.
- Example: "Add 2 apples to my cart."

- **Order Tracking:**

- Customers can check the status of their orders.
- Example: "Track my order #12345."

- **Advanced Features for the Bot:**

- **Product Recommendations:** Based on customer's previous orders or popular items in the supermarket.
- **Customer Preferences:** Store customer preferences to provide a more personalized experience (e.g., favorite products, past purchases).
- **Promotions & Discounts:** Notify customers about ongoing promotions or discounts.
- **Availability Alerts:** Notify customers when out-of-stock items are back in stock.
- **Multi-language Support:** The bot can respond in different languages based on customer preference.
- **Payment Integration:** Enable customers to make payments directly through WhatsApp via third-party integrations (e.g., Razorpay, PayPal).
- **Order Confirmation:** After an order is placed, the bot confirms the details and provides an estimated delivery time.

2. Web Dashboard Features:

- **User Authentication:**

- Business owners can log in and manage their account securely.

- **Business Profile Setup:**

- Add details like name, contact, and address for the supermarket.

- **WhatsApp Integration:**

- Business owners can link their WhatsApp number to the bot.

- **Database Integration:**

- Synchronize the product catalog with the supermarket's database.

- **Product Management:**

- Add, remove, or update products manually via the dashboard if needed.

- **Order Management:**

- Track orders, process refunds, and handle order status updates (pending, completed, shipped).

- **Analytics & Reporting:**

- Monitor sales, customer interactions, popular products, and order trends.

- **Multi-User Support:**

- Different access levels for supermarket staff (Admin, Manager, etc.) to manage the bot and dashboard.
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4. Technology Stack

Frontend:

- **React.js**: For building a dynamic and interactive dashboard.
- **HTML/CSS/JS**: For the basic layout, styles, and interactivity.

Backend:

- **FastAPI** or **Flask**: Lightweight, high-performance Python web frameworks to handle API requests.
- **MySQL**: For data storage (product information, order details, etc.).

Bot Framework:

- **Rasa**: Open-source conversational AI framework for building the WhatsApp bot. It will handle natural language understanding (NLU) and dialogue management (DM).

WhatsApp API:

- **Twilio API** or **360dialog API**: For integrating WhatsApp messaging with the bot.
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5. Development Plan

Phase 1: Proof of Concept (PoC)

- Develop core functionality of the WhatsApp bot (product inquiry and order placement).
- Implement basic order processing and database integration.

Phase 2: Web Dashboard

- Build the dashboard for business owners to manage their profiles and bot settings.
- Implement database syncing and WhatsApp number integration.

Phase 3: Testing & Deployment

- Conduct rigorous testing for both the bot and the web dashboard.
- Deploy on cloud services (AWS, Heroku, etc.).

Phase 4: Full Product

- Refine the system based on feedback and add advanced features like product recommendations, promotions, etc.
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6. Monetization Strategy

- **Subscription-based model:** Charge supermarkets a monthly or yearly fee to use the bot and dashboard.
 - **Per-Transaction Fee:** Charge a small fee for each successful order processed via the bot.
 - **Premium Features:** Offer additional features like advanced analytics, custom branding, or priority customer support for an extra cost.
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7. Next Steps for the Team

1. Team 1 (Bot Development):

- Focus on Rasa integration and set up product inquiries, order placements, and advanced features like promotions, recommendations, and multi-language support.

2. Team 2 (Web Dashboard Development):

- Develop user authentication, product management, and order tracking.
- Implement the MySQL database connection for data syncing.

3. Team 3 (Testing & Deployment):

- Test the integration between the bot and the dashboard.
 - Ensure the system is scalable and deployable on the cloud.
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8. Conclusion

This project will create a powerful tool for supermarkets to enhance their customer service experience by leveraging the simplicity of WhatsApp. The bot will streamline order processing and provide a robust dashboard for business owners to manage their operations efficiently.