

## ***Initial Design for Toutche's Chatbot***

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### **1. Structure:**

The chatbot will have a modular design, consisting of various components to handle specific functions. Each module will be responsible for distinct tasks like understanding user queries, managing responses, and interacting with backend systems. Below is a high-level structure:

- **Natural Language Processing (NLP) Module:** This module will handle the user input by tokenizing, tagging, lemmatizing, and identifying intents. It will make use of an NLP library like Rasa, NLTK, or spaCy for parsing and intent detection.
- **Intent Management:** Once the NLP module processes the input, the intent manager will determine the user's goal. This could include common intents like greetings, FAQs, product inquiries (e.g., Helio Electric Bicycles), or troubleshooting.
- **Response Generation Module:** Based on the identified intent, this module will either fetch static responses or invoke dynamic processes such as retrieving product data from the backend or setting up further conversation steps.
- **Backend Integration:** This module will connect the chatbot with Toutche's backend systems, including databases, CRM, or any product information APIs.
- **Conversation Memory:** The chatbot will track past interactions within a session to provide context-aware responses. This can help in situations where users ask follow-up questions or refer to previous parts of the conversation.
- **Feedback and Learning Module:** The chatbot will collect feedback from users on the quality of responses, allowing continuous improvement through manual updates or machine learning models.

### **2. Main Features:**

- **Multi-Platform Support:** The chatbot will be designed to work on multiple platforms such as Toutche's website, mobile app, and social media platforms like Facebook Messenger or WhatsApp.
- **Personalization:** The chatbot will learn user preferences, such as preferred product models (e.g., Helio Electric Bicycles) and offer tailored responses. Personal data will be handled securely and comply with data protection regulations.
- **Product Assistance:** The chatbot will provide detailed information about Toutche's products, including electric bicycles, accessories, and services. It will help users browse through product categories, offer recommendations, and answer queries.
- **Order Tracking:** Users will be able to inquire about their orders, delivery status, or make changes to orders through the chatbot.
- **Troubleshooting:** The chatbot will guide users through troubleshooting for common issues with electric bikes, offering step-by-step solutions or connecting them with support if needed.
- **Live Agent Handoff:** In complex situations, the chatbot will seamlessly hand off the conversation to a live agent.

### 3. User Interaction Flow:

#### 1. Greeting:

- *User:* "Hello"
- *Chatbot:* "Hi! I'm Basit, the Toutche Assistant. How can I help you today?"

#### 2. Intent Recognition:

- *User:* "Tell me about Helio Electric Bicycles."
- *Chatbot:* "Helio Electric Bicycles offer a perfect balance of eco-friendly commuting and performance. They are lightweight, come with powerful lithium-ion batteries, and have a range of up to 60 miles. Which model are you interested in?"

### 3. Product Exploration:

- *User*: "What models do you have?"
- *Chatbot*: "We currently offer Helio A25 for city commuting and Helio B50 for off-road adventures. You can explore more details or compare the two models."

### 4. Product Query:

- *User*: "Tell me more about the A25."
- *Chatbot*: "Helio A25 is designed for urban commuting. It features a 250W motor, a removable battery, and a top speed of 20 mph. It's lightweight and ideal for everyday use."

### 5. Order Assistance:

- *User*: "Can I track my order?"
- *Chatbot*: "Sure, please provide your order number."

### 6. Troubleshooting:

- *User*: "My bike isn't charging."
- *Chatbot*: "Have you checked if the charger is connected properly? Try unplugging it for 10 seconds and reconnecting. If the issue persists, I can connect you to support."

### 7. Closing the Conversation:

- *User*: "Thank you!"
- *Chatbot*: "You're welcome! If you have any more questions, feel free to ask. Goodbye!"