

Feature list:

Module A: The Core Platform (Backend & Logic)

These features provide the structure for the application.

1. **User Login System:**
 - Secure login using OAuth2 (JWT Tokens).
 - Hashes passwords for security (Bcrypt).
 2. **Chat History Management:**
 - Stores all conversation logs in a local SQL database.
 - Retrieves the last 20 messages when a user logs back in.
 3. **Automatic Ticket Creation:**
 - Automatically generates a "Support Ticket" in the database when the AI cannot solve a problem or detects high user frustration.
 4. **Email Notification System:**
 - Uses Python's SMTP library to instantly email the support team (you) whenever a High-Priority ticket is created.
 5. **Feedback & Rating System:**
 - A simple 1–5 star rating interface shown to the user after a query is resolved to track AI performance.
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Module B: The "Brain" (Generative AI Agent)

*Powered by **Llama 3 (8B)** running on your GPU.*

6. **Natural Language Understanding (NLU):**
 - Understands complex, conversational language (slang, typos) without needing rigid keywords.
7. **Context-Aware Conversation:**
 - Remembers the context of the chat (e.g., if you say "it doesn't fit," the AI knows "it" refers to the shirt mentioned 2 messages ago).
8. **Automated FAQ Handling (RAG):**
 - Uses **Vector Search (FAISS)** to instantly retrieve company policies (Returns, Shipping) from a text file and answer accurately.

9. Multilingual Support (Hindi & English):

- Automatically detects the user's language and replies in the same language without any manual settings.

10. Human Agent Escalation:

- Smart "Handoff Protocol": If the AI fails to answer twice or the user asks for a human, it pauses the AI and flags the ticket for a human.
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Module C: The "Eye" (Vision Agent)

Powered by **ResNet18 (CNN)** trained on Fabric Defects.

11. Clothing Defect Detection:

- Users can upload photos of damaged clothes.
 - The AI analyzes the fabric texture to detect **holes, stains, or cuts**.
 - **Confidence Check**: If the AI is less than 70% sure, it marks the result as "Uncertain" and asks for a human review.
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Module D: The "Ear" (Voice Agent)

Powered by **Faster-Whisper** running on your CPU.

12. Speech-to-Text (STT):

- Allows users to speak their complaints via microphone.
 - Includes **Silence Detection** to automatically stop recording when the user stops talking.
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Module E: The "Analyst" (Logic & Classification)

Powered by **DistilBERT** and Python Logic.

13. Sentiment Analysis:

- Instantly analyzes every user message to detect emotions (Positive, Neutral, Angry).

14. Ticket Priority Prediction:

- Automatically assigns High/Medium/Low priority based on logic: IF Sentiment = 'Angry' OR Topic = 'Refund' THEN Priority = 'High'.
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Module F: The "Tools" (Self-Service Automation)

Powered by **Function Calling** (AI connecting to Database).

15. Order Status Lookup:

- The AI can query your database to find real-time shipping updates (e.g., "Where is my order #123?").

16. Return & Refund Assistance:

- If a defect is verified by the "Eye" (Feature 11), the AI automatically triggers the `process_refund()` function to start the return workflow.