

# 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.