StyleBot : AI Virtual Stylist for Local Clothing Stores

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Abstract

StyleBot is an artificial intelligence-powered styling assistant specifically designed for small and medium-sized local fashion retailers. It aids in the creation of outfit suggestions for customers based on their personal taste in fashion, including color, style, occasion, and body type, and in real-time compatibility with the current in-store inventory. StyleBot is accessible via WhatsApp or an easy-to-use online portal, offering a cost-effective and effective way to enhance customer experiences, increase sales levels, and assist smaller retailers in competing with larger counterparts.

1.0 Introduction

Independent fashion retailers face difficulty in competing with large e-commerce players that offer advanced personalization features through algorithms and data analytics. In India and other emerging economies, many stores still operate in offline or semi-digital modes through channels like WhatsApp or Instagram. These retailers rarely offer styling suggestions, which limits customer satisfaction and reduces cross-selling opportunities.

This research introduces StyleBot, a virtual styling software powered by artificial intelligence geared towards small apparel retailers. It allows customers to describe their wishes in plain language and, as a consequence, receive personalized outfit recommendations from the store's current stock. It is cost-effective, easy to implement, and can be customized to accommodate regional differences and linguistic variations.

1.1 Initial Needs Statement

Increasingly, consumers are looking for customized fashion experiences in garments. Large retailers apply AI to make recommendations on outfits to their consumers, but this cannot be done by smaller retailers because the tools are too pricey and complex. StyleBot fills the gap

by enabling local and smaller fashion stores to provide AI-powered fashion recommendations to customers via straightforward tools such as WhatsApp.

2.0 Customer Needs Statement

These customer needs can be assessed from various sources like Instagram based online store owners, online WhatsApp based sellers and local boutique owners.

Table 1. Initial Customer Needs List

Simple AI to recommend clothes
Works on WhatsApp
Supports regional language choice
Suggest outfits for events
Low-cost
Easy to use
Simple and Minimalist
Suggest trends based on seasons
Usability should be good

Table 2. Hierarchical Customer Needs List

1. Accessibility 1.1 WhatsApp interface
2. Personalization 2.1 Outfit matching
3. Affordability 3.1 Low Monthly Cost
4. Usability 4.1 Multi Language Support

2.1 Weighting of Customer Needs

Used Analytical Hierarchy Process (AHP) for weighting:

Need	Weight
Outfit Accuracy	0.40
Ease Of Use	0.25
Cost	0.20
Language Use	0.15

3.0 Revised Needs Statement and Target Specifications

Revised Statement: Local clothing store owners need a simple AI tool that helps customers get personalized outfit recommendations from the store's current inventory via WhatsApp.

Target Specifications:

- 95% accuracy in style matching
- Inventory sync via CSV or Google Sheets
- Response time: < 5 seconds per reply
- Deployment cost: under ₹7,000 setup + ₹500/month
- Multilingual (English + 1 regional language)

4.0 External Search

1)**Fashion Retail Challenges**: Identified lack of personalization tools in local shops.

2)**Existing Tools**: Only available in large brands like Myntra, Zara.

3)**Trends**: AI chatbots + personalization rising in demand.

4)**ML Relevance**: NLP for chat interface; rule-based or ML-based recommender system.

These are the most common considerations included under external search. The sections that follow provide more information on this domain.

4.1 Benchmarking

Feature	**StyleBot**	**Myntra AI**	**Custom Tailoring Apps**
Works with WhatsApp	Yes	No	No
Uses live inventory from store	Yes	Yes	No
Multi-Language Support	Yes	No	Yes
Subscription Cost	Low(Planned)	Built within Myntra	High (most are B2B SaaS services or customized builds)

4.2 Applicable Patents

US10713434B2 – Outfit Suggestion System Using AI
(No conflict as StyleBot will use open-source/custom models and does not copy patented tech directly)

4.3 Applicable Standards

1) Data handling must follow India's IT Rules 2021 for customer data.

2) WhatsApp Business API must be used ethically and only with opt-in.

4.4 Applicable Constraints

1) Limited Budget - Must be affordable to a small seller

2) No Tech Team - Solution must require minimal setup

3) Internet Speed - Optimized for mobile usage

4.5 Business Opportunity

StyleBot opens the door for hyper-local stores to provide big-brand-level personalization using AI. With rising online competition and limited tools, a lightweight WhatsApp-based virtual stylist offers massive value at minimal cost.

5.0 Concept Generation

This section discusses the concept of the software as a whole. This includes the problem clarification, generated concepts and ideas.

5.1 Problem Clarification

-Inputs: Style, event, body type, preferred colors

-Outputs: Outfit suggestions with images, prices, and matching accessories

5.2 Concept Generation

Generated concepts:

1. Mobile App Virtual Stylist (Implemented in Myntra)
2. In-store Mirror-based Assistant (Just like the one in Azorte by Reliance)
3. WhatsApp AI Assistant (tentative decision)

5.3 Initial Screening

We can use one of the three methods to initiate our software. The three are compared below in a short discussion based on their implementation cost, ease of use and scalability.

1) **Mirror Assistant** : This is an in-store technique that has been recently implemented in mid to high level stores around the country. These are usually installed near the trial rooms and provide a virtualized and personalised mirror based experience to you. Some of the examples include stores by Reliance based Azorte.

Cost of Implementation - Low to Medium

Ease of Use - Medium

Scalability - Low

2) **Mobile App** : A seperate app for mobile would open doors for seamless customer interactions but would come at the cost of a lot of updates, maintenance and associated costs to maintain and handle the workloads. However, it would provide a lot of personalised experiences to the customers.

Cost of Implementation - Medium

Ease of Use - High

Scalability - High

3) **WhatsApp Bot** : This is the one we have tentatively chosen. This method uses the WhatsApp business perks and provides personalised options and suggestions to the client. The dependency on WhatsApp increases but it also on the other hand, significantly reduces the cost of implementation.

Cost of Implementation - Low

Ease of Use - High

Scalability - High

6.0 Concept Selection

6.1 Feasibility & Effectiveness

1) WhatsApp + Twilio

2) GPT or custom rules

3) Google Sheets integration

4) Requires minimal technical setup

7.0 Final Design

7.1 How Does It Work?

1. User sends a message to WhatsApp Bot (e.g., “I need something for a wedding”).
2. Bot asks for preferences (body type, color, style).
3. Backend matches responses with inventory.(from the store)
4. Suggestions (e.g., kurta + pants + dupatta + earrings) are sent with prices & images.

7.2 Cost and Manufacturing

- One-time setup: ₹5,000–₹7,000

- Monthly API + maintenance: Roughly ₹500

- Built using: Python, Flask, GPT, Twilio API

7.3 Flowcharts

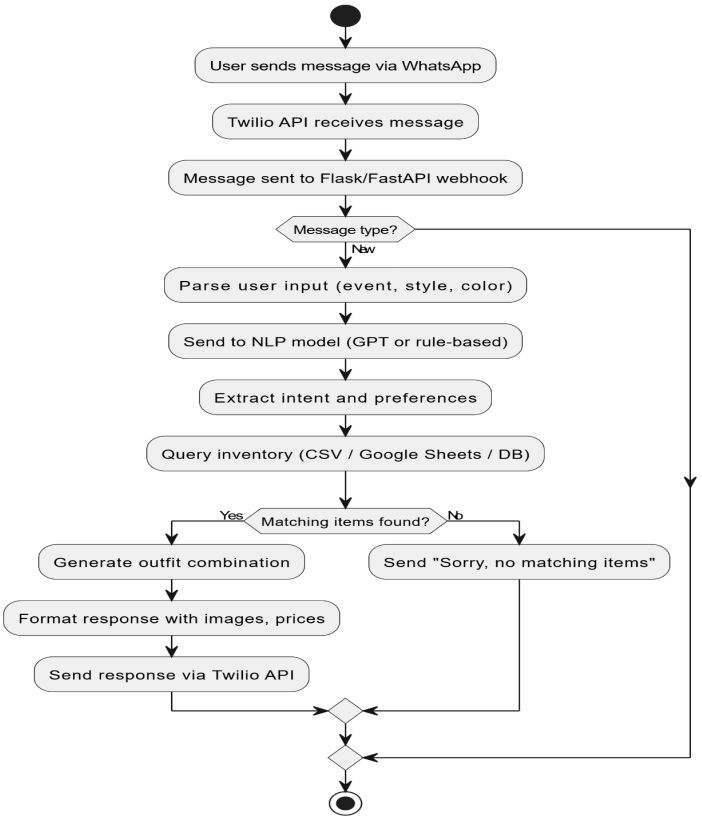

Figure 1. Technical Flow of StyleBot

7.4 Monetization Techniques

1) **Freemium Tier**
Basic usage, limited chats/day

2) **Monthly Subscription**
₹499–₹999/month for full features

3) **Pay-per-Use**
₹2 per chat or ₹100 for 75 chats

4) **White-Label Licensing**
For agencies/multi-store use

5) **Affiliate Links / Product Placement**
Earn commission via partner stores

6) **Setup & Maintenance Plan**
One-time setup + annual support fees

8.0 Conclusions

StyleBot meets the objective of enabling small fashion retailers to deliver AI-powered personalization. It increases the perceived value of local stores and drives customer satisfaction. Below are the needs that StyleBot aims to reach and achieve.

- Suggestion Accuracy : 90%
- Cost Per Store : < ₹10k
- Response Time : < 5sec

8.1 Environmental & Social Impact

- Promotes local shopping
- Reduces overproduction via smarter inventory push

8.2 Recommendation

StyleBot should move to pilot testing with 2–3 small stores and iterate based on user feedback. Minimal cost, strong need, and practical feasibility make it a strong MVP candidate.

9.0 References & Resources

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