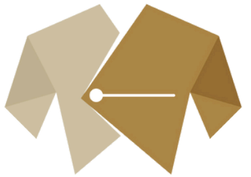
StyleMate



Virtual Wardrobe and Shopping Assistant

AI outfit suggestions, AR try-on, digital wardrobe, custom clothing generation

Project giude

Mrs Saranya N

Abstract

The "Virtual Wardrobe and Shopping Assistant" simplifies fashion management with AI outfit tips, AR try-on, and digital closet organization. Users can categorize their clothes digitally and get personalized outfit ideas based on weather, occasion, and style. It also creates custom clothing designs users can try on virtually before printing at local stores. Developed with Figma, React Native, Node.js, AWS, ARCore, Firebase, and Open CV, this app aims to make shopping easier by merging digital wardrobe management with real-world clothing options.

project overview

StyleMate

project overview

Introduction

Introducing the "Virtual Wardrobe and Shopping Assistant" app, your ultimate companion for seamless fashion management. Organize your closet digitally, get personalized outfit recommendations tailored to weather and style preferences, and virtually try on clothes using AR for a perfect fit. Explore AI-generated designs for custom clothing, locate nearby stores, and enjoy curated shopping suggestions.

Stay informed with exclusive deals and trends, and connect with a vibrant fashion community for inspiration and tips. Whether you're refining your everyday look or preparing for special occasions, empower your style journey with innovative technology and personalized fashion solutions, right at your fingertips.

project team

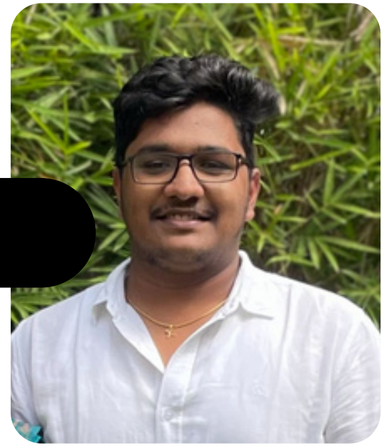
project manager

Dharanidharan

App developer

Dhiyaneshwar

Balaji



ui / ux designer

StyleMate

Base paper details

Conference Paper

Developing a smart wardrobe system

February 2011

February 2011

DOI:10.1109/CCNC.2011.5766478

Source · IEEE Xplore

Conference: Consumer Communications and Networking Conference (CCNC), 2011 IEEE

Authors:

Kim Nee Goh **Yoke Yie Chen** **Elvina Syn Lin**

project schedule

01

Design and Prototyping

- Conduct market research and user requirement analysis.
- Create detailed wireframes and interactive prototypes.
- Perform user testing and gather feedback.
- Finalize UI/UX design in Figma.

02

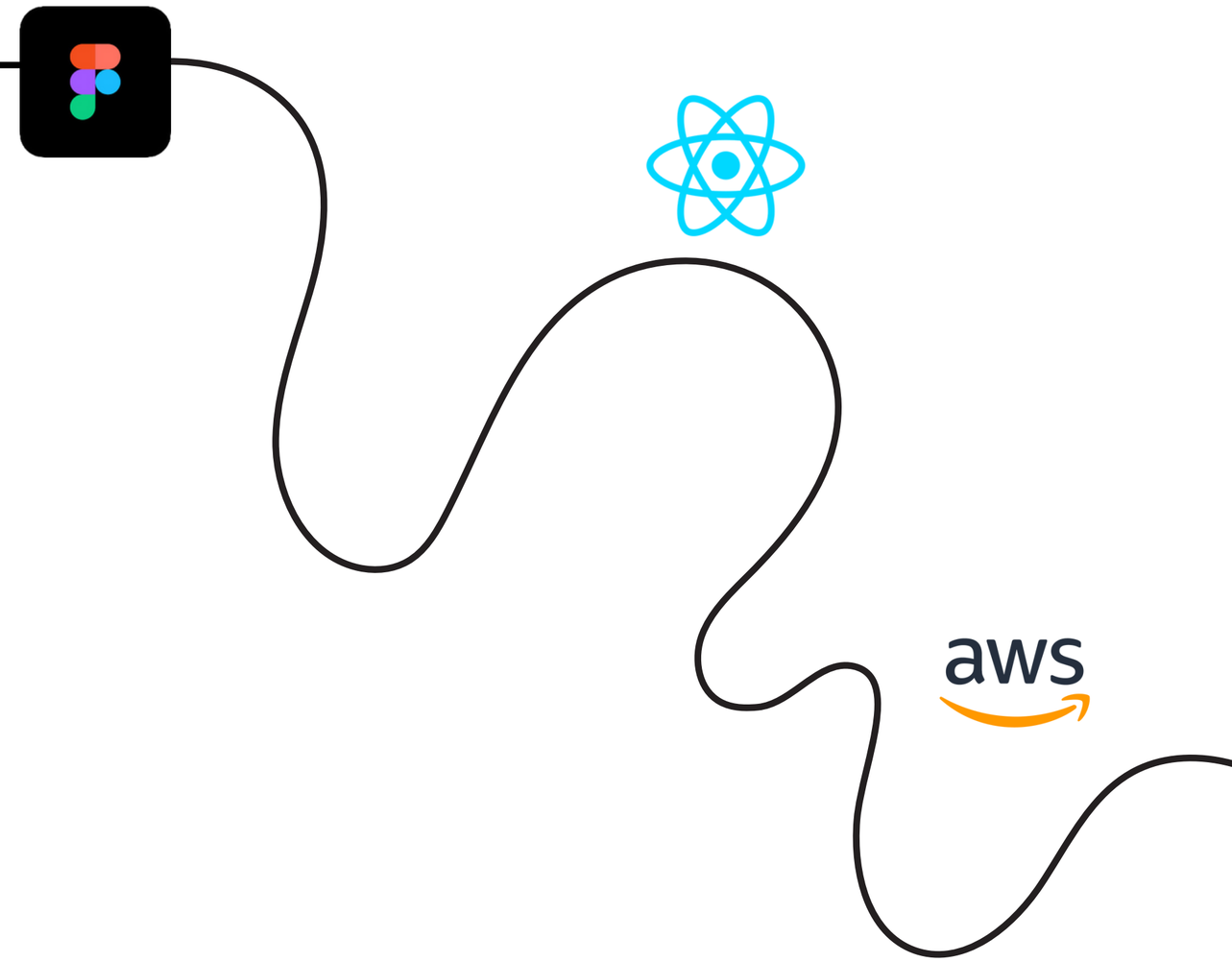
Development

- Set up the development environment and tools.
- Develop front-end using React Native.
- Develop back-end using Node.js.
- Integrate cloud services (AWS) and Firebase for authentication.
- Implement AI (TensorFlow) for outfit suggestions and image generation.
- Integrate AR features using ARCore.

3

Testing and Deployment

- Conduct extensive testing and bug fixing.
- Perform performance optimization and security checks.
- Prepare deployment pipeline and release strategy.
- Launch the app on App Store and Google Play.
- Monitor initial user feedback and make necessary adjustments.



Problem Definition

- Users find it challenging to organize and categorize their extensive wardrobe collections efficiently.
- Difficulty in keeping track of clothing items, leading to clutter and disorganization.
- Lack of a centralized platform for storing and accessing wardrobe information easily.
- Frustration with finding specific items quickly, especially during busy mornings or urgent occasions.
- Inability to manage seasonal rotations and storage effectively.

- Users face difficulty in selecting outfits that align with weather conditions and current fashion trends.
- Overwhelmed by the variety of choices available in their wardrobe, leading to indecision.
- Challenges in coordinating outfits for different occasions, such as work, casual outings, or formal events.
- Lack of personalized recommendations tailored to individual style preferences and body types.
- Stress associated with repetitive fashion choices and feeling uninspired by current wardrobe options.

Objectives

- Provide a user-friendly interface for easy digital cataloging and categorization of clothing items.
- Enable efficient search and retrieval functionalities to locate specific wardrobe pieces quickly.
- Introduce features for seasonal wardrobe rotation and storage management.
- Offer options for custom tags and labels to organize items by color, material, occasion, etc.
- Ensure seamless synchronization across multiple devices for accessibility and convenience.

- Utilize machine learning algorithms to analyze user data and provide personalized outfit suggestions.
- Incorporate natural language processing (NLP) techniques to understand and respond to user queries effectively.
- Continuously train and update AI models based on user feedback and evolving fashion trends.
- Implement deep learning techniques to enhance the accuracy and relevance of outfit recommendations over time.
- Integrate reinforcement learning methods to optimize user interaction and satisfaction with the app.

Innovation and Methodology Employed in the Project

- AI-Powered Recommendations: Utilize machine learning algorithms to deliver accurate and personalized outfit suggestions.
- Augmented Reality Integration: Implement AR for virtual try-ons, enhancing user engagement and shopping satisfaction.
- Custom Design Generation: Employ AI to create bespoke clothing designs based on user inputs, revolutionizing personal fashion creation.
- Data-Driven Insights: Analyze user behavior and preferences to continuously refine and improve the app's functionality and recommendations

- Implement generative AI models to create custom clothing designs based on user preferences and specifications.
- Provide intuitive design tools and interfaces for users to customize fabric patterns, colors, and garment styles.
- Partner with local dress printers and manufacturers to enable on-demand production of custom-designed clothing.
- Ensure scalability and flexibility in design generation processes to accommodate diverse user requests and preferences.
- Offer options for previewing and refining custom designs before finalizing and printing them.

Literature survey

In recent years, data-rich approaches have emerged, benefiting from large-scale, automatically harvested data. Hu et al. (2015) introduced a functional tensor factorization method to model interactions between users and fashion items, leveraging data from Polyvore. McAuley et al. (2015) employed a framework to model human visual preferences for object pairs, using CNNs to extract visual features and uncover visual relationships from the Amazon co-purchase dataset.

He and McAuley (2016) incorporated visual signals into predictors of people's opinions through matrix factorization, further enhancing recommendation accuracy. Li et al. (2017) used a multi-modal and multi-instance deep learning system to classify outfits as popular or not, considering contextual information like titles and categories.

Song et al. (2017) employed an auto-encoder to exploit latent compatibility space and Bayesian personalized ranking for pairwise preferences between tops and bottoms.

Features

Digital Wardrobe Management

- Add Clothing Items: Easily add clothing items by taking photos or uploading images.
- Categorization: Organize clothes into categories like tops, bottoms, dresses, outerwear, and accessories.
- Tags and Labels: Tag items with attributes such as color, material, brand, and season.
- Closet Organization: Create custom categories and subcategories for better organization.

Features

AI-Powered Outfit Suggestions

- Personalized Recommendations: Get outfit suggestions tailored to user preferences, past choices, and trends.
- Weather-Based Suggestions: Receive outfit recommendations based on current and forecasted weather conditions.
- Occasion-Based Outfits: Suggestions for specific events like work, casual outings, parties, and formal events.
- Style Preferences: Customize style preferences to get suggestions that match personal taste.

Features

Shopping Recommendations

- Matching Items: Recommendations for items that complement existing wardrobe pieces.
- Trending Fashion: Discover trending fashion items and new arrivals.
- Deals and Discounts: Get notifications about sales, discounts, and special offers from favorite brands.
- Local Store Integration: Find nearby stores that have recommended items in stock.

Features

Custom Clothing Design

- AI Image Generation: Use AI to design custom clothing items based on user preferences.
- Virtual Design Studio: Customize designs, colors, patterns, and fabrics.
- Local Dress Printer Integration: Send custom designs to nearby dress printers for production.

Wardrobe Analytics

- Usage Statistics: Track how often each clothing item is worn.
- Outfit History: View and revisit previous outfits.
- Closet Insights: Get insights on wardrobe usage, most worn items, and style preferences.

Features

User Profiles and Social Sharing

- Profile Customization: Create and customize user profiles with preferences and personal information.
- Social Sharing: Share favorite outfits, custom designs, and fashion finds on social media.
- Fashion Community: Join a community of fashion enthusiasts to share tips, trends, and inspiration.

Business Model

Freemium Model and In-App Purchases

Freemium Model:

- Free Tier Features: Includes digital wardrobe management, basic outfit suggestions, limited virtual try-on capabilities, and basic shopping recommendations.
- Premium Tier Features (Subscription): Offers advanced AI-powered outfit suggestions, unlimited virtual try-on with AR technology, custom clothing design and local dress printer integration, advanced wardrobe analytics, and an ad-free experience.
- Subscription Pricing: $x.xx/month or $xx.xx/year.

In-App Purchases:

- Custom Clothing Design Packages: Starting from $9.99 for creating and printing custom clothing designs.
- Additional Storage: $x.xx for 10GB of extra storage.
- Exclusive Fashion Collections: $x.xx per collection for access to exclusive fashion items.

Business Model

Advertising Revenue and Affiliate Marketing

Advertising Revenue:

- Ad Types: Includes banner ads, interstitial ads, and sponsored content from fashion brands.
- Ad-Free Option: Users can pay a one-time fee or subscribe to the premium plan to remove ads.

Affiliate Marketing:

- Affiliate Partnerships: Collaborate with fashion retailers and brands to feature their products and earn commissions on sales.
- Affiliate Programs: Partner with programs like Amazon Associates, ShareASale, and Rakuten Marketing to monetize shopping recommendations.

Business Model

Partnerships, Data Analytics, and Branded Merchandise

Partnerships and Collaborations:

- Fashion Brands: Collaborate on exclusive collections, sponsored content, and promotions.
- Local Dress Printers: Partner with local printers to offer custom clothing printing services.
- Retail Stores: Integrate with local stores for real-time inventory and location-based shopping recommendations.