amazon

PhineasAndFerb

Team Members: Rishika Boinapally
Komal Pardasani

PROBLEM STATEMENT

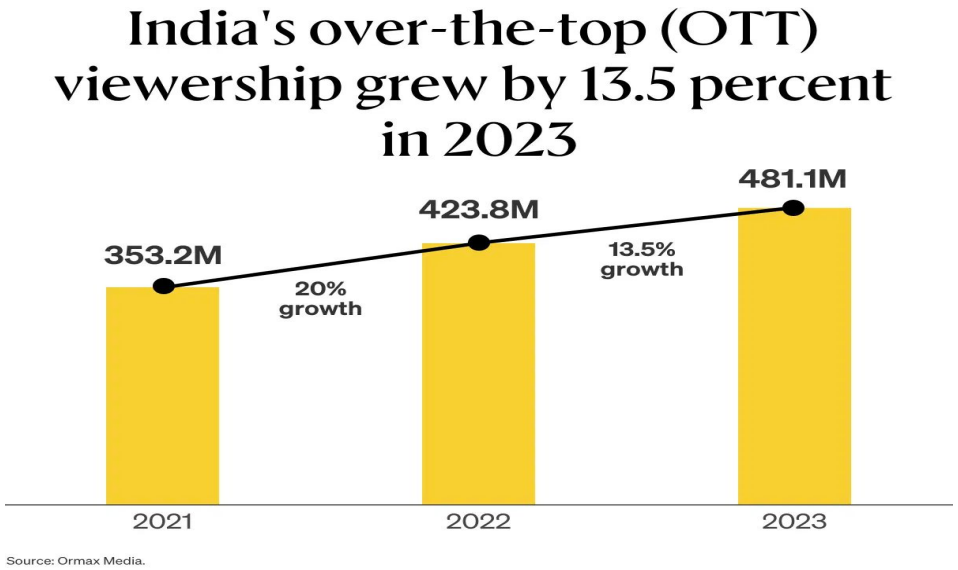
VISUAL AI AND ECOMMERCE

Develop an enhanced shopping experience by leveraging visual AI technology to improve product search, recommendations, and item identification in text, image or video content. Improve search functionalities and provide personalized product recommendations using image recognition and computer vision technology. The goal is to create a more seamless, personalized, and engaging shopping experience for customers by harnessing the power of visual AI and computer vision technologies.

- Consumer behavior is continuously evolving, driven by the influence of social media. People are constantly exposed to **new products, styles and trends** through various channels, including **social media platforms, movies, and everyday outings.**
- For instance, if a person sees a stylish piece of furniture in a film or might come across an Instagram reel where an influencer is wearing something they like, they often desire to purchase similar items. However, finding the **exact or similar products** can be challenging.
- This creates a significant opportunity for leveraging **visual AI and computer vision** technologies to transform the shopping experience by enabling users to **upload images** and receive immediate, relevant product suggestions on Amazon.

- The consumption of **video content is skyrocketing,** with over three billion internet users watching streaming or downloaded videos at least once per month in 2023, according to Statista. Platforms like **Amazon Prime Video** have become household staples, enabling viewers to enjoy their favorite shows, TV series, and movies from the comfort of their homes

- As the appetite for video content continues to grow, so does the desire among viewers to emulate the styles and surroundings of their favorite characters and actors. People are eager to purchase clothes, accessories, and furniture **seen in movies and TV shows.**



- Imagine sitting on your couch, engrossed in your favorite series, when the protagonist struts across the screen in a stylish jacket that catches your eye.By extending amazon x-ray feature,**you can purchase it instantly while streaming.**

SOLUTION-PART 1

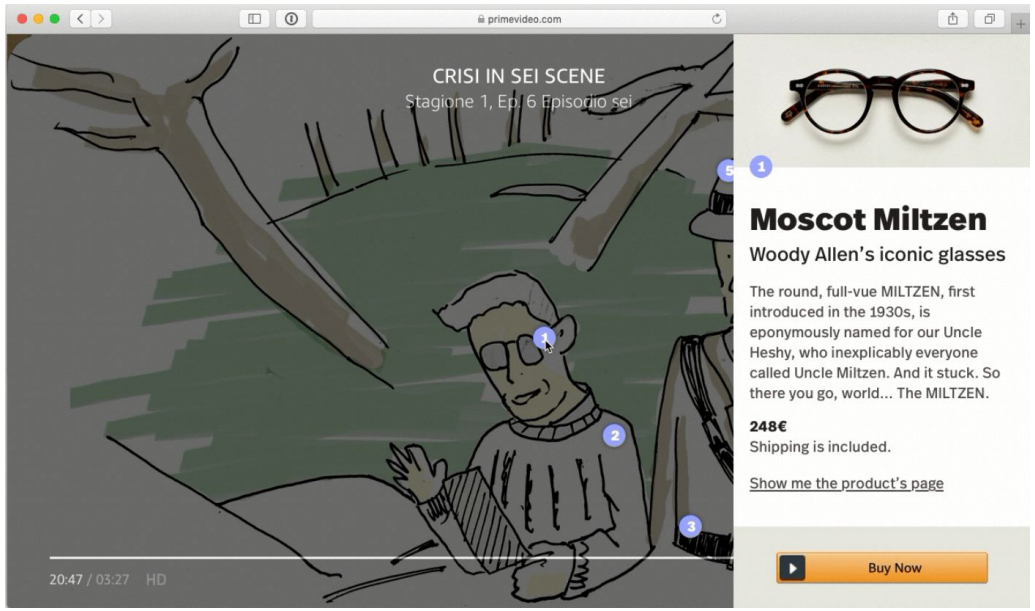
- The first part of our solution involves **integrating direct links to products** that users see **while watching Amazon Prime Video.** This innovative feature allows users to instantly purchase any product they like as they watch a scene.

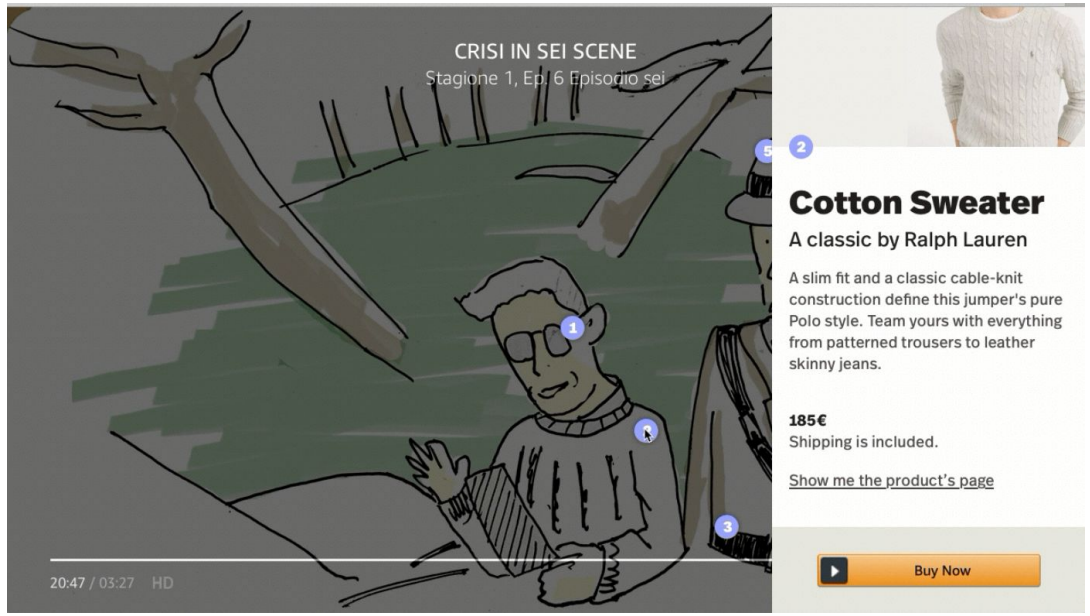
- By employing advanced technologies **like YOLO (You Only Look Once)** for real-time object detection and **CNN** (Convolutional Neural Networks) for image recognition, we can accurately identify and tag products featured in the video content.

- Unlike traditional object detection methods that apply the model to different regions of the image multiple times, **YOLO looks at the entire image in one go**. This **reduces computation time and increases efficiency.**

- This seamless integration not only enhances the viewing experience by **merging entertainment with shopping convenience** but also transforms passive viewing into an interactive and engaging activity, bridging the gap between content consumption and e-commerce.

- Pause the show
  The first thing to do to access this feature is pausing the show. Once paused you will see a marker for every purchasable item. **Hover on any item to see more informations.**





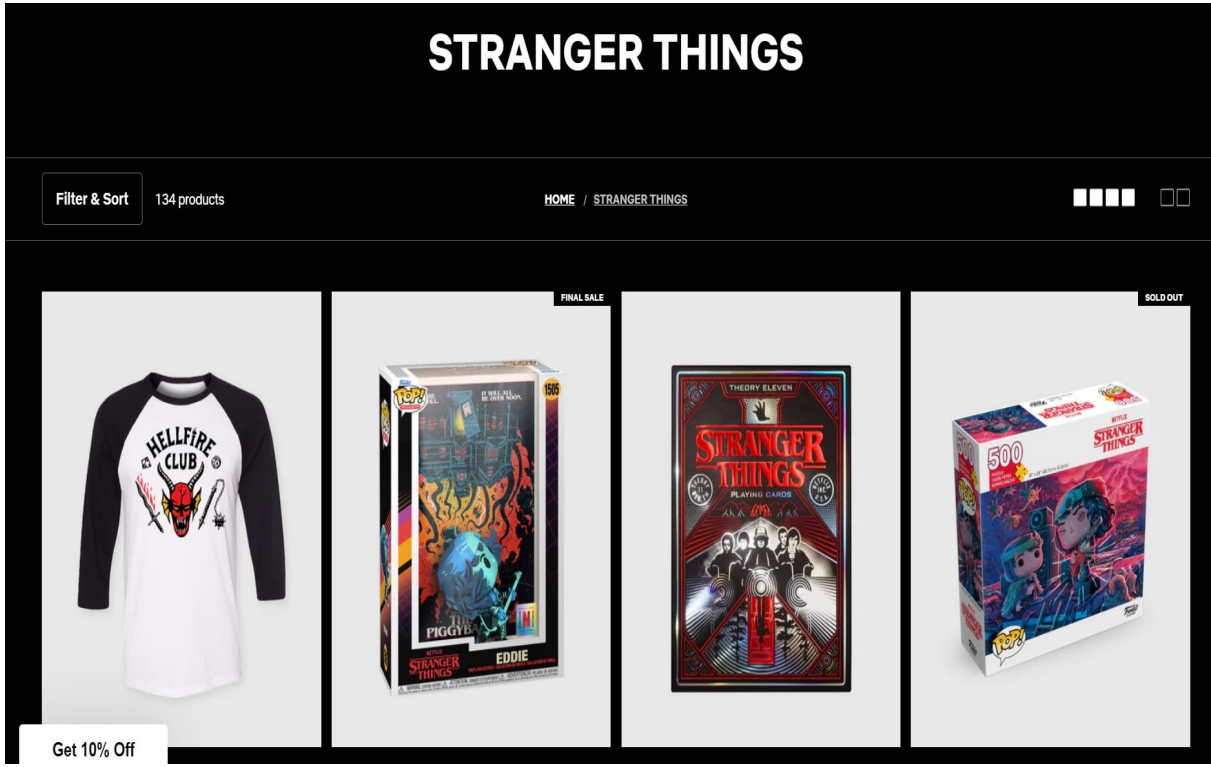
- Alright, did you see something that you like? Let's buy it, then! Just click on Buy Now and it's done: you are already logged-in with your Amazon account.

PART-2

- Many fans **love to have the names of their favorite series,** shows, or movies on their T-shirts, games, bags, shoes, and other merchandise. However, they often struggle to find these items.

- To address this, we propose an **e-commerce webstore** that allows consumers to sort, filter, and purchase products based on their favorite shows.

- Furthermore, it would be even more beneficial to have a **dedicated product section** for all popular series, displayed below the video content when viewers watch their favorite shows.



Catering to Fans' Desire for Show-Related Merchandise

01

By offering a wide range of merchandise related to popular TV shows, Amazon can tap into fans' passion and loyalty, providing them with exclusive and personalized products.

Creating a Seamless and Engaging Interaction between Viewers and Products

03

By integrating shopping directly into the viewing experience, Amazon can create a cohesive and interactive platform where viewers can explore, purchase, and engage with show-related merchandise in real-time, fostering a deeper connection with the content.

Capitalizing on Convenience and Impulse Buying Potential

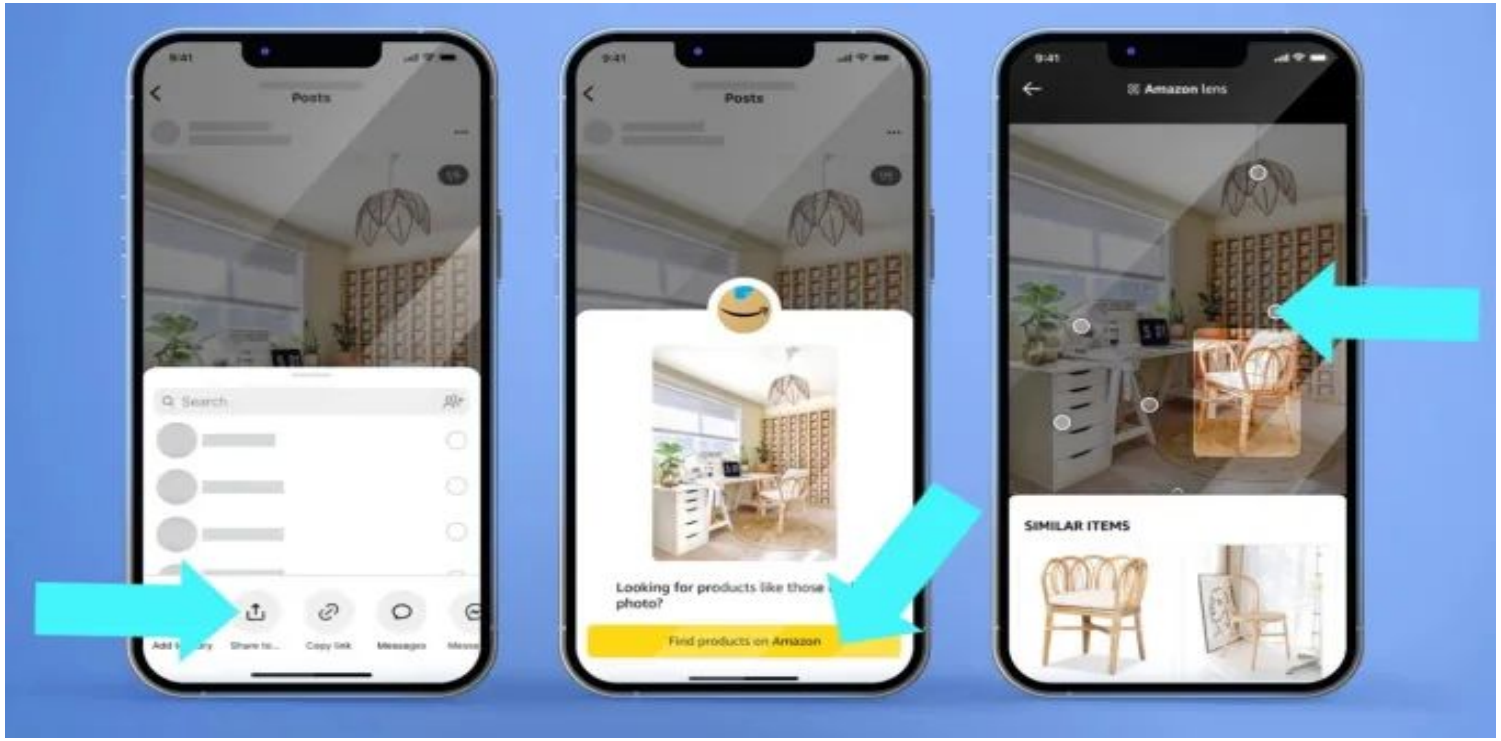
02

Through seamless integration of shopping features, viewers can easily purchase merchandise while watching their favorite shows, leveraging impulse buying opportunities and enhancing overall convenience.

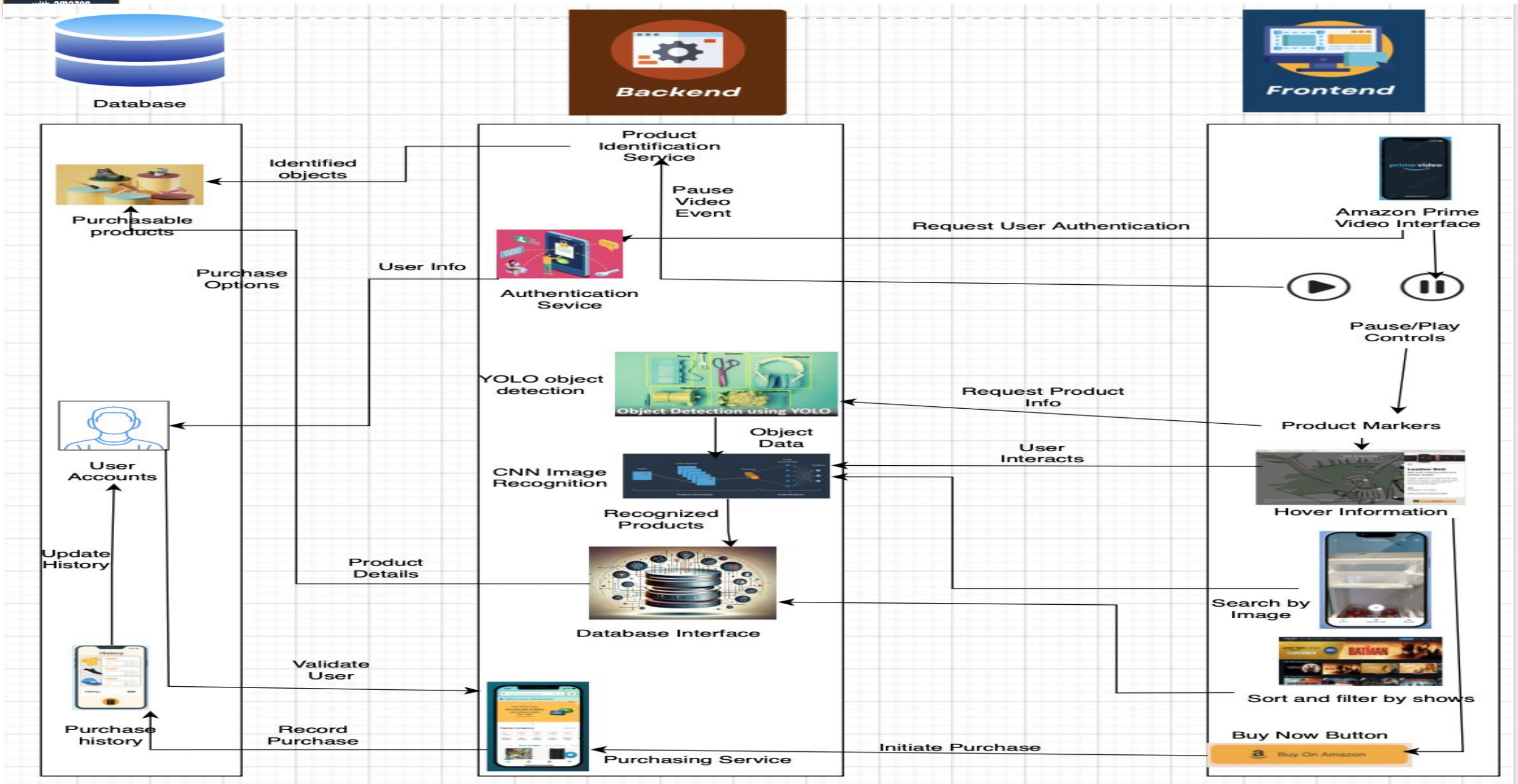
PART-3

- In today's world, social media usage has surged, with people frequently discovering fashion inspiration from influencers on platforms like Instagram reels or spotting stylish outfits on the street.

- To cater to this growing demand, we propose a solution that allows users to upload images of the clothes or products they admire. Our platform will use **Convolutional Neural Networks** (CNN) to analyze these images and provide suggestions for similar items available for purchase



Architecture Diagram



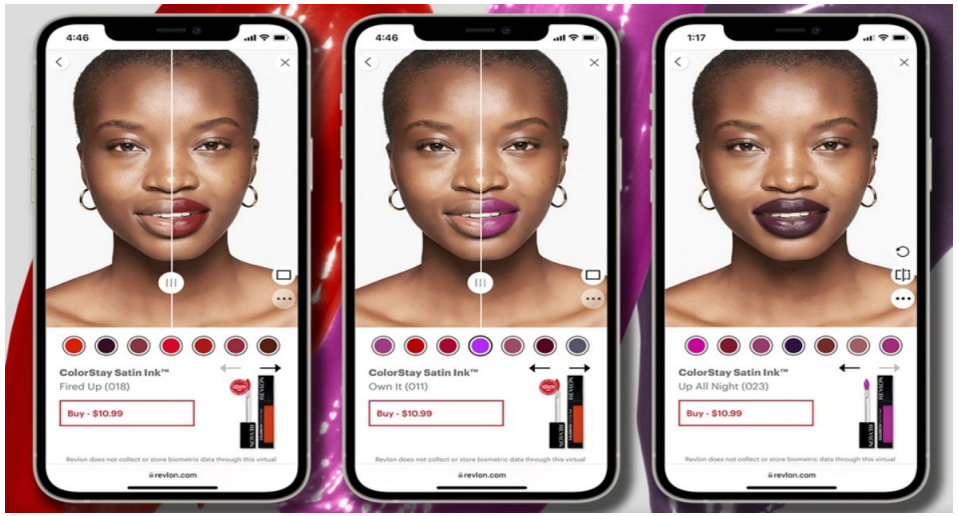
PART-4

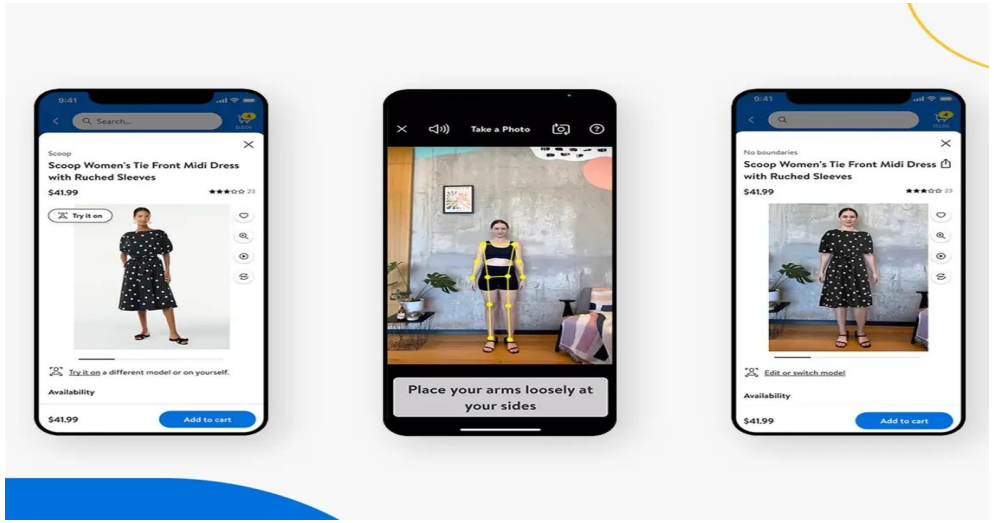
89% Match

- Providing a feature that shows the **percentage match of a product** to a user's previous purchase history offers a unique and highly personalized shopping experience on the Amazon website.
- This feature allows users to see how closely new products align with their tastes, making it easier for them to discover items they are likely to enjoy.
- To implement this feature we will use **combination of collaborative and content based filtering** based on on the preferences of similar users and the user’s past preferences.
- This not only enhances the discovery process but also builds trust in our recommendations, as users can see the specific similarities to their past viewing habits.

PART-5

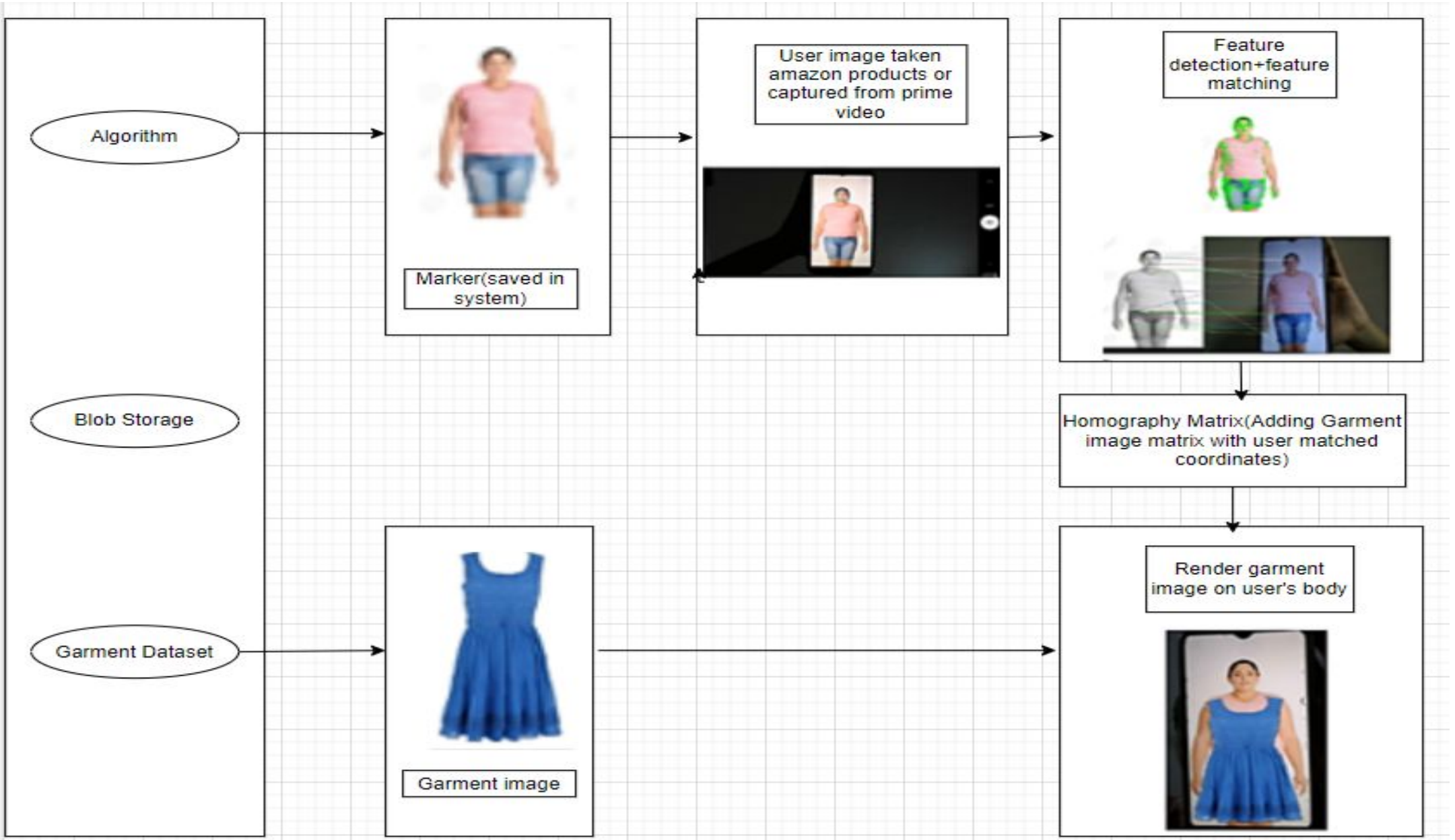
- Despite the rise of online shopping, many customers still prefer shopping offline because it allows them to **try on clothes** and see how they look and fit. This technology enables users to visualize how clothes will look on them and **assess whether the garments suit their complexion and style** and offers engaging shopping experience to customers.





- We will use **computer vision image processing algorithms and OpenPose** for pose detection to implement this feature.

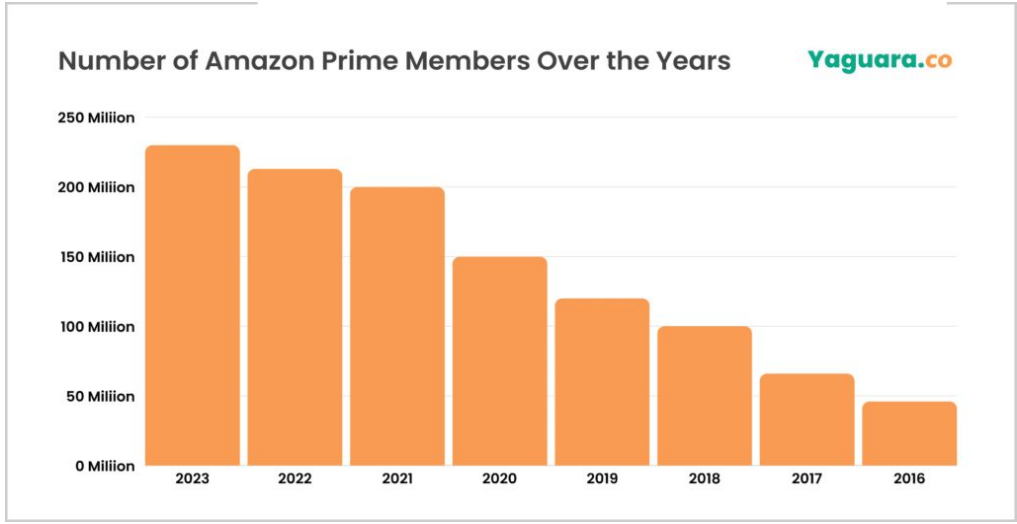
Architecture Diagram(Virtual try-on)

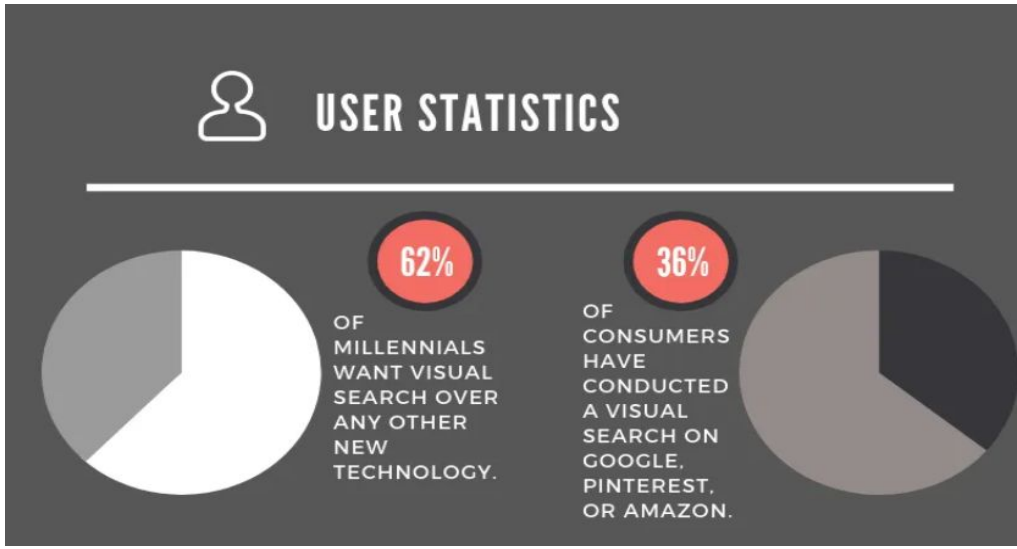


TARGET CUSTOMERS

Our target customers include several distinct groups, each with unique needs and preferences:

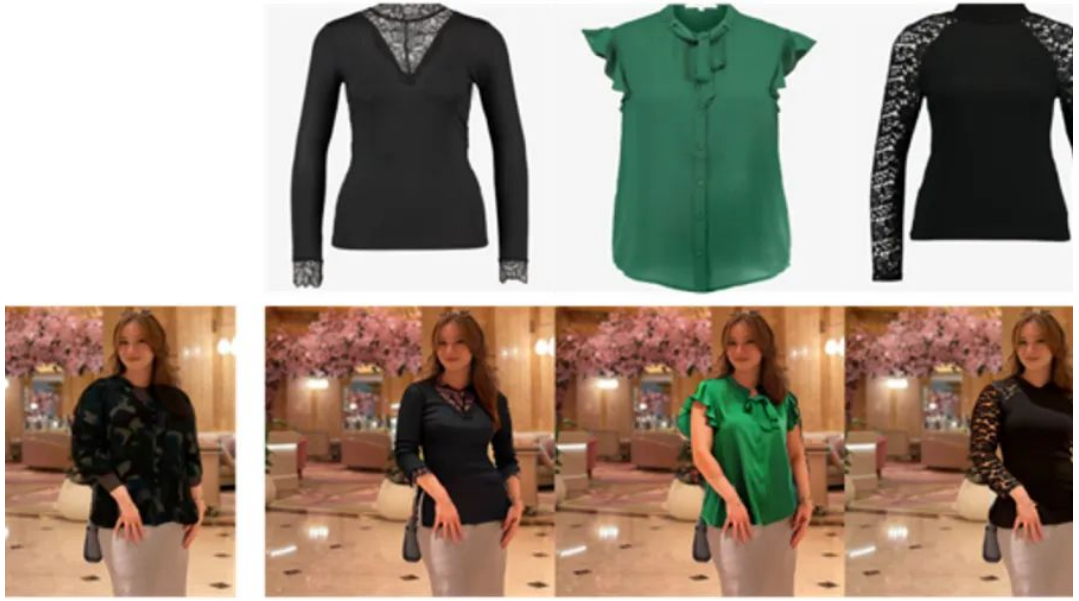
- **Amazon Prime Subscribers**: These customers **can purchase products directly from the series and movies** they watch on Amazon Prime Video. By integrating product links within the viewing experience, we offer Prime subscribers a seamless and engaging way to shop for items they see on screen.
- **Amazon Website Users**: This group encompasses all Amazon users, regardless of whether they have a Prime subscription. These customers **can upload images of products** they like—whether spotted on social media, worn by influencers, or seen in everyday life—and receive suggestions for similar items available on Amazon.



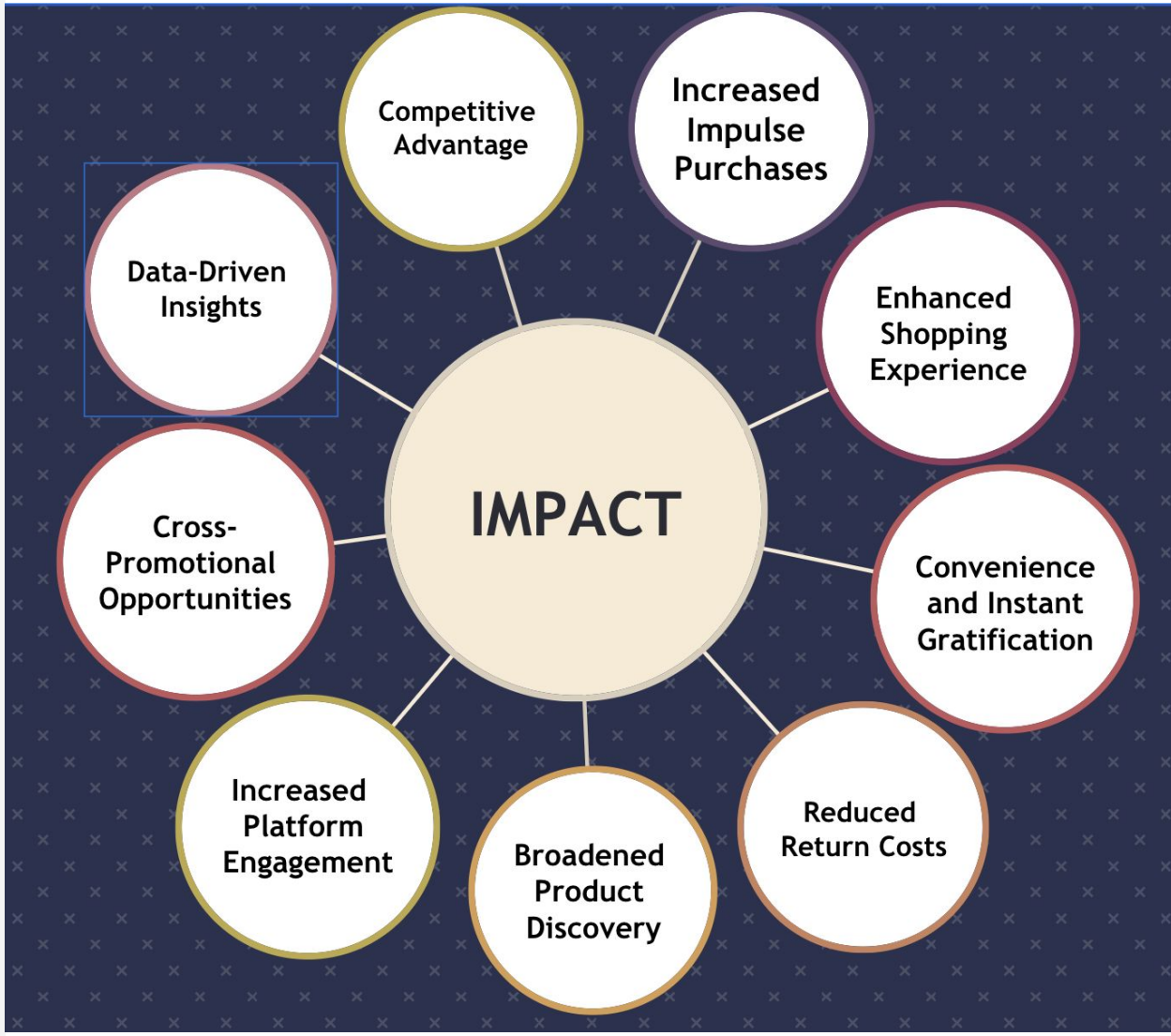


- **Customers Preferring Virtual Try-Ons**: These customers **value the ability to try on products before buying.** Our virtual try-on feature allows them to visualize how clothes will look on them, ensuring a fit and style that suits their preferences.

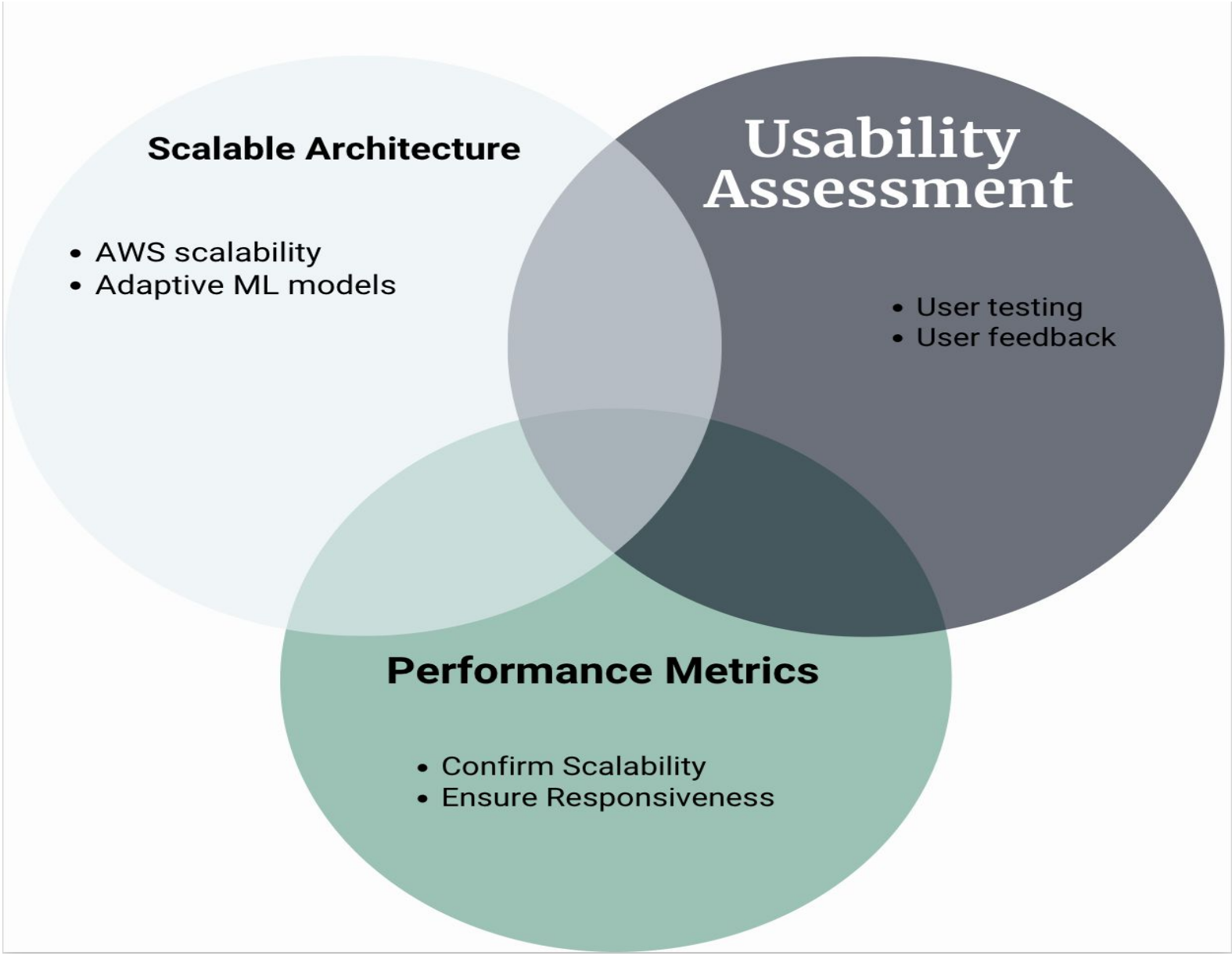
- Elevating the Shopping Experience with AR Augmented reality isn't just a gimmick; it's a game-changer for online retail. By integrating AR try-on experiences, Amazon can enhance customer engagement, reduce returns, and foster a deeper sense of connection with products.



Success Metrics And the impact of solution



SCALABILITY/USABILITY



Marketplace Domain Expansion

Shop What You See: Instant Purchase from Live Displays:	Snap and Shop: Capture and Buy Any Product Instantly:	Virtual Try-Before-You-Buy: Visualize Products in Your Space Before Purchase:
Attract New Customers: Integrating shopping with streaming draws in avid viewers who aren't frequent online shoppers, broadening Amazon's customer base	Appeal to Visual Shoppers: Attracts customers who prefer visual browsing, engaging previously inactive online shoppers.	Reduce Purchase Uncertainty: Visualizing products in their own space helps customers reduce uncertainty
Increase Engagement: Instant purchasing during streaming enhances viewer interaction with content and products.	Enhance Convenience: Snap and Shop simplifies finding real-life products, encouraging new and frequent shopping.	Boost Confidence: Virtual try-before-you-buy increases shopper confidence and market adoption.
Capitalize on Impulse Buying: Instant purchasing taps into impulse buying, boosting sales and market expansion.	Expand Product Discovery: Allows product finds from images, expanding discovery and opening new niche markets.	Cater to Trends: Offering AR-based virtual try-on features aligns with evolving consumer preferences, capturing market share and expanding Amazon's presence in various categories.

FUTURE SCOPE

Federated Learning for Privacy: Enhance recommendations with decentralized, private user data.

Enhanced Interactivity: Allow users to book hotels, restaurants, or travel shown in movies directly through the streaming platform.

Advanced Image Recognition: Use Capsule Neural Networks (CapsNets) to improve product recognition and context understanding.

Predictive Shopping: Use AI to suggest items based on viewed content, boosting impulse buying.

Social Sharing: Enable users to share favorite finds from shows on social media, boosting engagement and sales.

Room Customization Tools: Let users virtually redecorate rooms with multiple items.

Sustainability Filters: Let users filter search results by eco-friendly and ethical criteria.

AI-Powered Style Advice: Use AI to suggest outfit combinations based on the user's wardrobe and fashion trends.

Multi-Armed Bandit Algorithms: Optimize recommendations with real-time user interactions using multi-armed bandit algorithms.