



**CRAZY CODERS**

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# INDEX

Following points will be discussed in next slides :

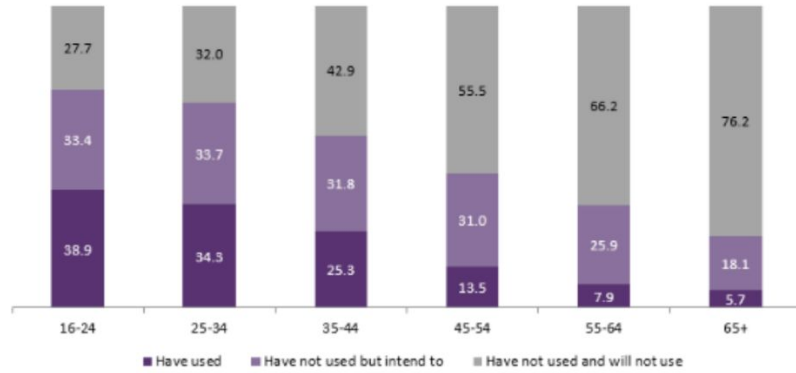
- a) Problem statement and define scope of your innovation
- b) Working backwards from customer and define who is your customer
- c) What are your success metrics and what's the impact of your solution
- d) Scope for scalability and marketplace domain expansion

# PROBLEM (theme2)

Using Visual AI technology to make amazon ecommerce more seamless, personalized, engaging more easier and flexible , allowing customer to search any buyable product by just capturing picture from mobile or directly choosing the product from video frame of amazon prime videos.

# SCOPE OF INNOVATION & IT'S CUSTOMERS ( a & b )

Online shoppers' usage of visual search tools, by age group



As per Clark Boyd survey more and more young customers are getting habitual for visual search for ecommerce which is current customers and will be customers of amazon in future also

**OUR CUSTOMERS :** millennials and youth who are more techies and are now always follows visual searches , age 20-35 have biggest attraction towards visual search

**9%**

Estimated compound annual growth rate (CAGR)

**\$14.7 B**

Estimated value of visual search by 2025 end

**85%**

Of consumers value visual information over text for fashion /furniture online surface

**62%**

Of millennials want visual search over any other new technology

**SOURCE :** IndustryARC | Visenze | The Intent Lab

# Solution Architecture

## USER / CLIENT



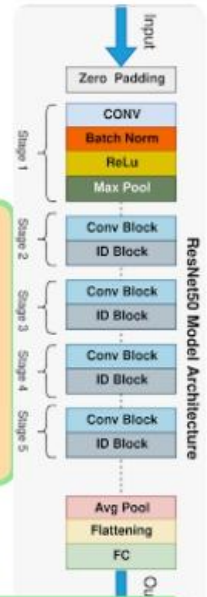
Capture or browse product image via **MOBILE**

**PREPROCESSING1** of frame from video when user clicked shop now, blurring & filter removed **OBJECT DETECTION BY YOLO MODEL** will give cropouts of buyable products



When user click image of product he is allowed to crop image so that he can exactly give a proper image prompt for search

**PREPROCESSING2** for enhancing clarity of choosen product by deblurring model . **feature map creation** of image by using advance DL model architecture like **RESNET50** ( have error % <3%)



YOLO will give cropouts of image so that no information is lost of individual product ,now this cropouts will be shown on side bar to user , she/he will select the one product which actually excited him to SHOP , let say mobile , so now the further process will be done only on that product (mobile)

## SERVER

we have extracted the products from ecommerce website with there links , images and brand information, for demo purpose 100 categories \* 1000 products = 100000 product's information

training with this data, using **RESNET model** and creating feature map for each product and storing the feature map linked with its amazon link and brand information in **MONGODB database**

### DATABASE

```
{ "_id": ObjectId("unique_id_1"),  
  "category": "mobile",  
  "map": [0.3, 0.4, ..., 0.9],  
  "text": "Samsung fold",  
  "color": "black"  
},  
{ "_id": ObjectId("unique_id_2"),  
  "category": "Curtains",  
  "map": [0.7, 0.5, ..., 0.6],  
  "text": "ikea",  
  "color": "black" }
```

as input for search in DB

**OUTPUT :** **FEATURE MAP** of the image + **METADATA** for product like **CATEGORY : mobile TEXT : samsung COLOR : black**

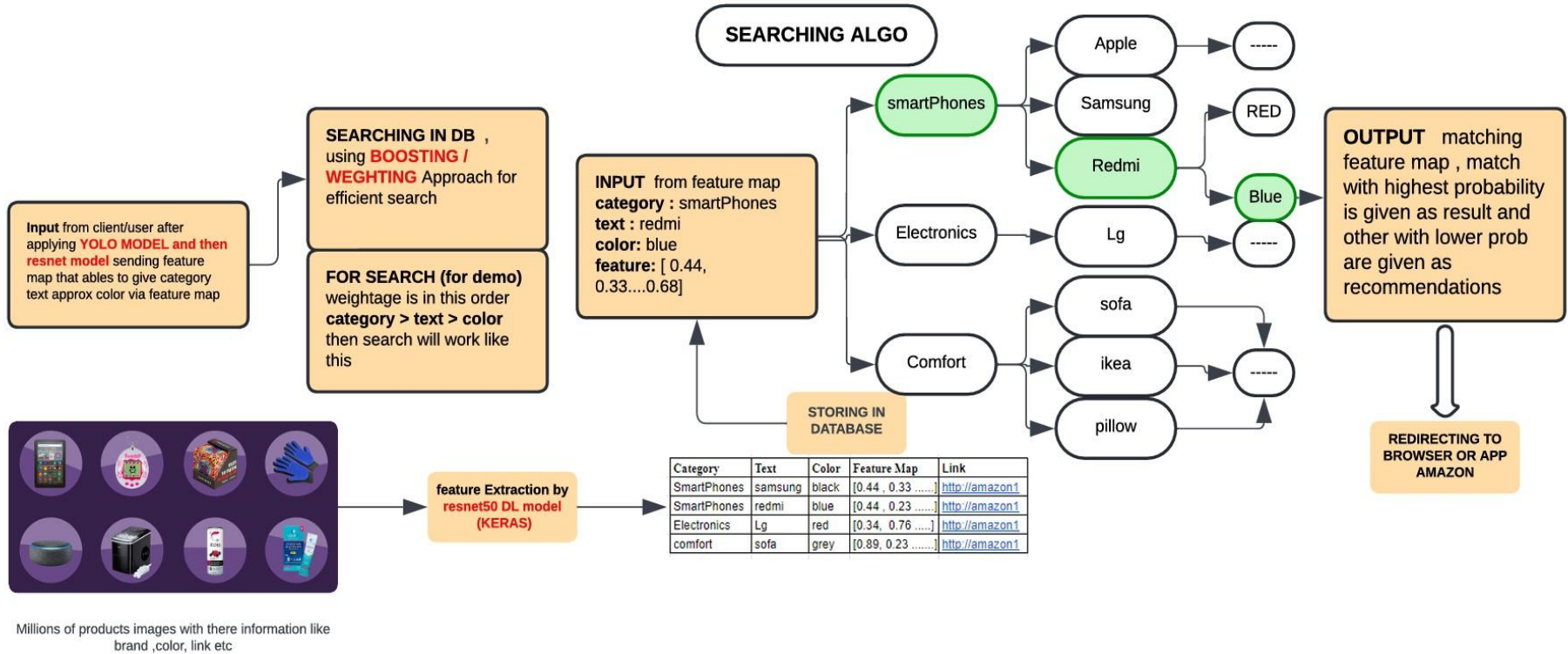
redirect to amazon link

**OPTIMIZED SEARCH :** first metadata like category and text ( brand name ) will be used and then feature maps will be matched to give best results





# Depth of Server Side & Search Algorithm



# IMPACTS OF SOLUTION (c)

## IMPROVED CUSTOMER EXPERIENCE

A model that accurately identifies and suggests products enhances the shopping experience, making it easier and faster for customers to find what they need. This can lead to higher customer satisfaction and loyalty..

## INCREASED SALES & CONVERSION RATES

Efficient product discovery through accurate image recognition can lead to higher conversion rates as customers are more likely to find and purchase products quickly.

## REDUCED RETURN RATES

Accurate product identification can reduce mismatches and incorrect orders, leading to fewer returns and exchanges, which can save costs and improve customer trust.

## COMPETITIVE ADVANTAGE (NEED OF HOUR )

Advanced image recognition capabilities can differentiate an e-commerce platform from its competitors, attracting more customers and increasing market share.

# SUCCESS METRICS OF SOLUTION (c)

In our solution approach we are using advance deep learning models like yolo v50 , resnet50 well this model have been trained on millions of images but we have to tweak some parameters of the model so that it can work in most efficient way for our case that is for ecommerce image search , other important point to consider is searching the solution must be able to handle a lot of traffic as the customer base for the case is very big , **following metrics will help to measure the success of our solution .**

ACCURACY

PRECISION & RECALL

MEAN AVG PRECISION

TOP K ACCURACY

F 1 SCORE

CUSTOMER SATISFACTION



# SCALABILITY & MARKETPLACE EXPANSION (d)

## Cloud Integration

For demo we will be using extracted 10000 images. For scaling we can utilize cloud platforms (AWS) to scale compute resources up or down based on demand.

## Automated Pipelines

Establish continuous integration and continuous deployment pipelines for seamless updates and model improvements.

## Data Management

Implement data lakes for centralized, scalable storage of structured and unstructured data.

## Data Augmentation

Applying automated data augmentation techniques to continuously expand and diversify training datasets.

## MARKETPLACE :

**SELLING APIS:** Once amazon gets peak at providing the visual product search facility the apis for searching can be made available with monetization .

**SHOPPING RECOMMENDATION BY WATCH HISTORY :** we can personalize recommendation by providing user ads of the buyable products in last movie she/he watched



# Thanks!

**TEAM : CRAZY CODERS**

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