

Project Proposal

Problem or Idea

Traditional keyword searching has a variety of limitations (e.g. hard to describe) and is found inefficient for online shopping. We propose to create *PicBuy*, an image recognition application for shopping purpose, to address the issues of current shoppers.

Analysis of Problem

Keyword search is the starting point and the cornerstone of searching engines. With the development of keyword analysis technologies, it has been accepted as an intuitive way of searching and used in a lot of fields including E-Commerce. For products like electronics and books, keyword search works well in identifying the specific item you want to buy. In those fields, keyword search will remain as a major tool.

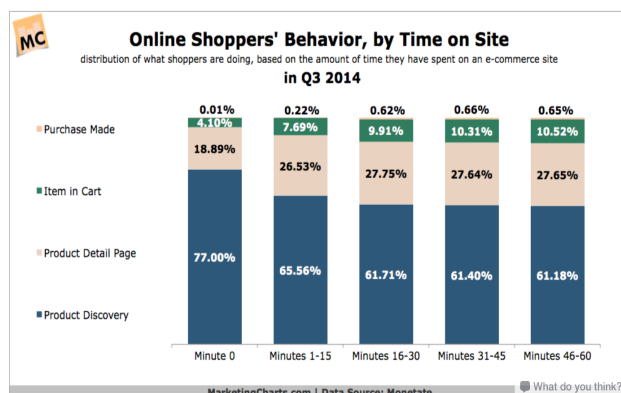
However there are still some scenarios where keyword search can be problematic:

1. When a person walks on the street, reading magazine, or browsing social network, and find someone else wearing a clothing/bag she likes but can't find it easily online
2. When a person finds an item she likes, but it's out of stock or there's unsatisfactory with the item, and she expect to find similar item or similar style
3. When a person want to search an item in a foreign shopping websites

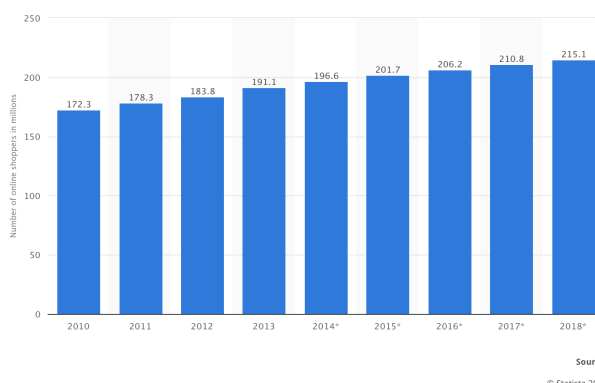
From the scenarios described above, we can see that it is often a problem for online shoppers that doesn't know how to describe the items they want to search. From figure 1 below, we can also see that online shoppers often spend more than 60% of their time seeking for their ideal products. To solve this problem, we think of image searching, which contains more information than keyword searching.

Major search engines including Google and Baidu have already integrated image search functionality that helps users to find similar images. In E-Commerce industry, Taobao by Alibaba Inc. recently launched their image search engine that enables buyers to search for clothes and bags on their platform. However we hope our PicBuy can integrate items from all platforms and not just limited to one source.

From figure 2 below, we can see that online shoppers and the market size are increasing every year, which means if we can improve the user experience using our image search, we can benefit a great amount of people.



(Figure 1)



(Figure 2)

Suggested Solution

Our solution is that making a mobile app which allows users to take a picture of the item they desire, then we do image recognition and use 3rd party image search api(eg. Google Image) to get a bunch of results. At last, we filter

out unrelated results and provide users with a list of recommended items along with the shopping link.

As we imaged, in 10 years, when we take a picture, every item in that picture will show its own title, price, and shopping link (just like the right figure).

Experiment

1. Independent Variables

- Searching method (keyword/image search)
- Searching item category (clothing, accessory)

2. Dependent Variables

- Searching time consumption,
- Times of Searching
- Results Satisfaction
- Ease of Use

3. Participants

- A total of 30 participants (15 females) with online shopping experience, their ages vary from 15 to 45 (average 30)

4. Method

Ask participants to search for several given products by text and image searching (samples are listed in right images)

- After the first search, ask them how much they are satisfied by the returned result
- Let them keep searching until they feel satisfied. Measure how long does the whole process take and how many times they searched
- According to their final results, ask them how many percentage of items would they like to open and take a further look (in both keyword and image search method)
- Ask them which one is more convenient
- Ask them which one would they like to use in the future



5. Results and Discussion

We expect that:

- After the first search, it's easier to get satisfied results by image search
- Users will spend much more time to get satisfied results by keyword search
- Image search will provide more precise results
- Image search is more convenient
- Users would like to use image search in the future

With such results, our product is expected to improve the shopping experience for users.

However, there may be some negative results caused by the following reasons:

- the quality of the image (eg. background / lighting / etc.)
- the ranking algorithm of image search engine
- participants with rich shopping experience get used to using keyword search and are easier to find satisfied results

Group Contributions

Jing Dai: problem analysis, market research (25%) Julie Huang: suggested solution, experiment design (25%)

Xiaoyang: problem analysis, experiment method (25%) Yanjing: suggested solution, experiment discussion (25%)

