Methods Assignments: M3

Redesigning Youtube Recommendation System

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Abstract. We all want to design things that touch our lives somewhere so that we can interact with them better. I want to design a better intuitive recommendation system for the Youtube mobile application. Specifically, I want to focus on the task of playing with the recommendations of videos in the mobile application like it's a child's play to remove recommendations, to add recommendations, to mark/block videos from recommendations.

Brainstorming Plan

The core objective of my brainstorming lies in the objective of my task: *"Helping users to control their video recommendations in their mobile youtube application".* The activity will be performed by me as an individual activity over multiple sessions with intermittent breaks to allow new ideas to form. I have the plan to schedule each brainstorming session to last for 20 minutes with break time from 30 minutes to 1-2 hours. The session will continue until I have 20 written ideas in a piece of paper. The design alternatives can be short and descriptive and raw as well. The target is to generate as many ideas as possible. They should not exclude any potential ideas constraining from physical and other financial constraints, however, they should roughly include:

1. Various forms of interactions like voice-based, gesture and touch.
2. Various types of audiences from novices to expert users.
3. Various interfaces from smart-phone to augmented reality capabilities

Brainstorming Execution

The brainstorming session was executed successfully. The result of the session can be seen in figure 1.

OBJECTIVE
Lets Do this

YOUTUBE RECOMMENDATION SYSTEM REDESIGN

How one can control recommendations on his other youtube mobile application

VIDEO

IDEAS :-

Tasks
1. Remove a recommendation
2. Add an interest
3. Preview a video to make easier recommendation.

① :- swipe left for removing a video from recommendation. & swipe right for telling Youtube to add the video in recommendation list

② add a small button on the top right of the video like (+) to denote add to recommendation list and (-) to remove

(-) (+)

③ After watching a video an icon or bubble pop-up to show whether you are more interested in such videos or not (Maybe use smiley's as button).

④ Use gestures in the screen to denote the interest on a video like drawing (✓) on the screen means you are interested in similar. (X) drawing means you are Not interested in it anymore.

⑤ adding voice-based geetore like "OK GOOGLE, REMOVE ~~RIHAN~~ JUSTIN BEIBER VIDEOS FROM MY RECOMMEDATION LIST', or " OK GOOGLE! NEVER SHOW ME "THIS" CHANNEL VIDEOS AGAIN" or "OK GOOGLE! I LIKE TO ADD MARTIN GARRIX IN MY RECOMMENDATION FOR NEXT WEEK'

⑥ Use of Bubble shapped Icons just below the videos to know the interest of a user after he watches a video. In this way he can tag a video for himself ~~on~~ to a particular way.

⑦ Maybe we can have Buckets where we drop videos like Never watching again, "OK", "very nice" and just drag a video after watching into Buckets to control the recommendations.

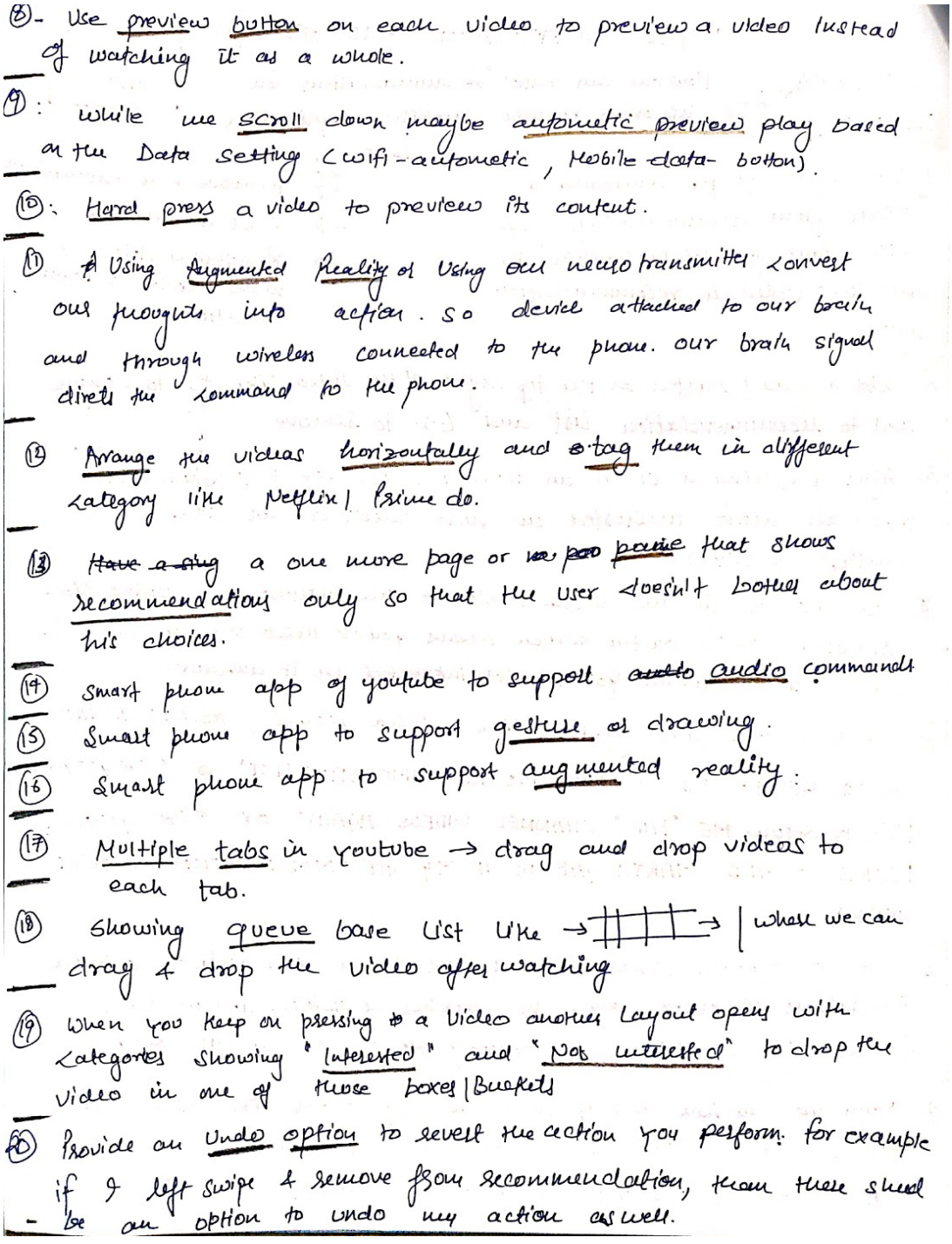

Figure 1: Brainstorming session execution results

Selection Criteria

- The design should be **simple and easy to use with** support for users with low technical knowledge as well as experts.
- The design should be **accessible** to the users in different contexts, whether they are browsing the videos or watching the videos.
- The design should be **efficient** to provide the users the control to remove or add videos from their recommendations list.

Keeping in mind the above criteria, I have selected the following 3 design alternatives for prototyping:

1. The application should support adding or removing a video to the recommendations list using **swipes**. Also, it should be able to add bubbles to let the user tag or match their video interest after watching a video to mark it to a particular category to improve the list.
2. The application to be supported using the **voice-based commands** to let the user add or remove a video from the recommendation list.
3. Integration of the **virtual reality** to control the recommendation with **zero cognitive loads**.

Prototype 1: Wireframes

The first design alternative states the functionalities to provide a user to control the videos on the mobile application so that he/she can add or remove videos from the recommendation list. The below diagrams are the snapshots of the wireframes built.

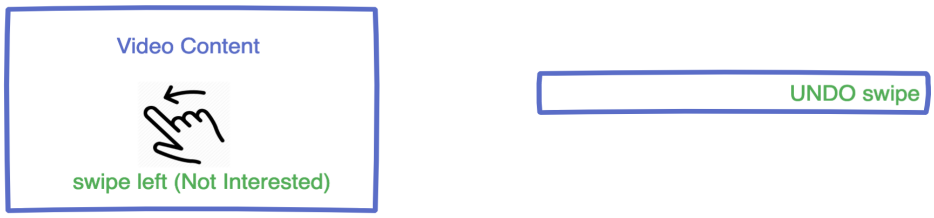

Figure 1: The left figure showing a left swipe to remove a video from the recommendation list. The right figure shows the "UNDO" operation after left swipe.

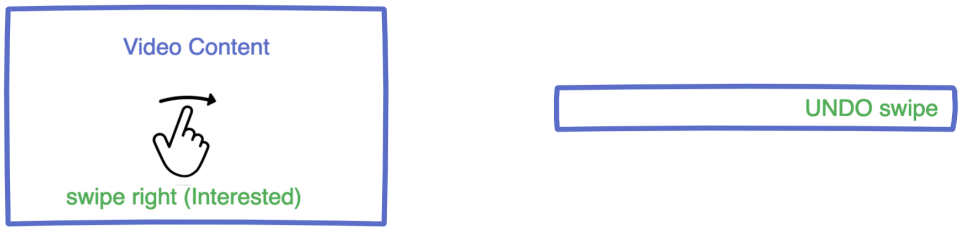

Figure 2: The Left figure shows the right swipe to add a video to mark as "interested" and the right figure shows the "UNDO" operation after doing a right swipe.

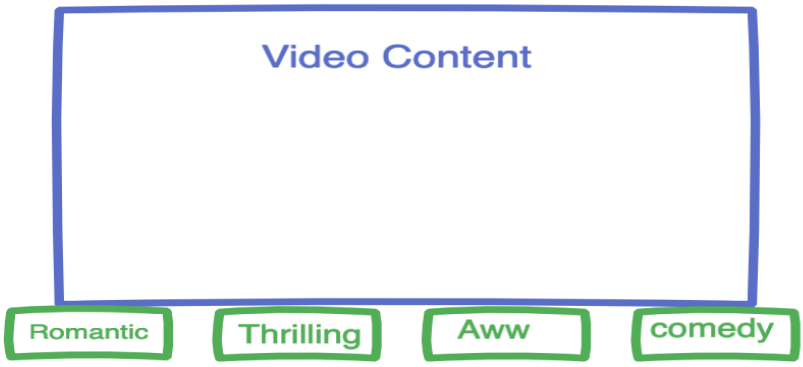

Figure 3: Wireframe to add suggested "bubbles" after watching a video to tag a video to a category to improve the video recommendation.

Figure 4: This figure shows the marking a video as interested and not interested for an expert user by drawing gestures on the screen in the form of tick right("Interested") and tick wrong("Not interested")

P1 Design Evaluation

The above design takes into account the **simplicity** marked earlier as it has a minimalistic design to mark a video as "Interested" and "Not Interested". Swiping left and right makes things easier in various other interfaces in comparison to clicking, as it is much easier to swipe than to click, without needing any precision or accuracy.

Prototype 2: Wizard of Oz

This prototype is to fulfill the 2nd design alternative to support the voice-based commands in the interface for controlling the recommendations of videos in the app. The user will be introduced by the brief explanation of the application with commands for each function. The audio command can be activated using the inbuilt google command as youtube is a Google product, so make sense of integrating with google voice command.

Command	**Function**
Ok Google	Activate the voice-based command interface
Mark this video as "Not interested"	Make the currently watched video as "Not interested"
Mark this video as "interested"	Make the currently watched video as "Interested"
Mark this video as "Action" or "ANY Category"	Marking the currently watched video as the tagged value "Action" or Any category user says.
Remove channel "X" permanently	Remove the channel from recommendations permanently so that the user won't be showcased video from that channel

Remove channel "X"	Remove the channel from the recommendation temporarily until the user won't explore the channel.
Add this channel(or channel "X") to my list	Add the named channel or channel "X" to the recommendation list so that videos from the channel will be showcased to the user while browsing.
Show me more such videos(or show me more like video "X)	Add the current watched video or video "X" to the recommendation list more often.

P2 Design Evaluation

The design intends to include all the tasks a user wish to add in prototype 1. The design and commands are written into the consideration to cater the needs of the expert and novice user, however, the main concern in this prototype is that what if the user forgets the command or misspoke the command then it will result in the frustration of the user. In such case it better to design the voice-based interface to ask user to confirm the command like for example if the user misspoke to mark a video as "Interested" than it will be useful to ask the user mean "Did you mean to mark this video as Interested " as the feedback loop to improve the voice interface.

Prototype 3: Textual

This very prototype will include the virtual reality and I would like to add it as a textual prototype to better describe my intentions while designing the 3rd design alternative:

*"Integration of the **virtual reality** to control the recommendation with **zero cognitive loads**"*

How can I achieve zero cognitive load

Imagine a wearable device like neurable[1] which is made of electrodes to measure your brain activity. The purpose of this device will be to measure your brain

[1] http://www.neurable.com/

neuro-signal to determine a user's intention or mood while watching a video, like for example if while watching a video I am feeling good that the device should be able to capture the brain signals and accordingly mark that video or channel as "Interested" or "Not Interested". The device will use the dry electrodes to record the brain activity via EEG(electroencephalography[2]) and then a software can be used to determine the activity or mood of the person and according to the software will add or remove the video from the recommendation list. The user has to literally do nothing except watching a video thereby reducing the cognitive load to zero as the user now will not have to remember his interest or whether he like or not liked the video the device will start improving quickly as it will consider the brain activity.

P3 design evaluation

As per the needfinding results from the m2, it was evident that a user is not happy with the current system of recommendation from youtube. This prototype is designed to help the user to forget all his worries while watching a video and let the virtual reality handles the recommendation for him. One problem here that i see here is that what if a user today is in the romantic mood or in a mood to watch "scary" videos, how will the wearable device knows that. To handle this challenge, I think it is better if we give an option to the user when he opens the apps to know his mood today for example, when a user opens the application he can be greeted to know what kind of emotion is prefers today:

Hello user, how are you feeling today:

- Funny
- Adventurous
- Romantic
- Serious

One of the thing to evaluate here is to learn from users action or behavior to know how often a particular emotion resides inside him. If the user is feeling sad for long then the application should be smart enough to suggest some motivational content to the user.

[2] https://en.wikipedia.org/wiki/Electroencephalography