

A VIDEO STREAMING WEB BASED PLATFORM

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Abstract— The project basically focuses on covering major gaps which are not covered by web streaming platforms currently in usage such as there is no option for users to limit screen usage time for themselves as well as their dependents. There is a major module called Screen time module which we have covered where users can set screen time limit per day. This module helps user to track usage of dashboard and protect their dependent activity per day. Through our conclusion we also find out that during covid times usage of web streaming platforms increased a lot and hence resulting in risking user health.

Keywords— Video, Video Streaming, Platform

1. INTRODUCTION

The idea of receiving a stream of video contents dates back to the invention of television in the early years of the 20th century. While building up a video streaming web platform, ensuring that the platform is safe and secure is very important. At first websites were simple pages of text with maybe an image or two. Today, however, anyone with a fast enough Internet connection can watch high-definition content which is widely available over internet. This is possible just due to a technology simply known as streaming. Streaming is the continuous transmission of audio or video files from a server to a client. In simpler terms, streaming is what happens when consumers watch TV or listen to podcasts on Internet-connected devices. What happens actually during streaming is that the media file which is being played on the users' device is stored remotely, and is transmitted a few seconds at a time over the Internet.

Internet video services have been available for many years. Basically the source content is saved in the cloud and streaming servers can read the content directly in the cloud and thus the content is shown to the users. The client logs into the portal and the content is fetched from the server and the video is played. In the proposed work, a real time database (Google Firebase) has been used to fetch the videos. Whenever someone clicks on "Play" button, a video gets opened and the video starts playing in the YouTube player itself. Cloud Storage for Firebase is built for developers. Basically, the sole purpose is to store files or links. Cloud Storage for Firebase is an open source service built for Google scale. Whenever the existing user signs into the platform, the credentials are cross checked and the user gets the access accordingly.

In the proposed work a user is signed in to the dashboard. These days, users create a playlist for them with all the favorites so there's a "Watch list" feature that every user will see on their wall, this is a separate module which allows

users to create their customized playlists based on some genre or their personal choices. Thus "Watch list" module is somewhat similar to "Watch Later". Along with addition of the videos, it also allows the users to delete the videos from the customized watch list that they create. Coming to our next module – "Age Limit Restriction Module"; it ensures that no user is watching the content which is not made for that age group. However, Screen Time Limit keeps a check on every user that no one is spending more time on the platform than the per day Limit.

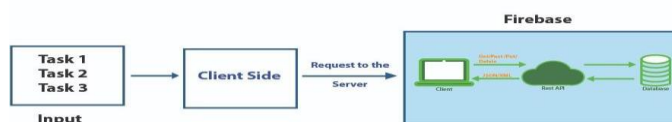


Fig 1. Architecture of firebase cloud

The flow of proposed work somehow works like firstly, the client/end user performs an action (such as Logging in/ Logging out etc.) which in turn sends a request to firebase server and stores the users information in the firebase database. Also, in turn when a user requests to fetch info related to a particular module, using an API call, firebase fetches the information from the Google servers and displays it.

Firebase isn't just any ordinary database. As a real-time, scalable back end, we provide the tools you need to quickly build rich, collaborative applications that can serve millions of users. Firebase sits between the server and clients. Servers can connect to Firebase and interact with the data just like any other client would. In other words, the server communicates with clients by manipulating data in Firebase. Clients will connect both to server and Firebase and will utilize Firebase to power your real-time features, without interfering with the rest of our application.

2. RELATED WORK

Yingfeng Zhenget al. [2] They formulated that some basic behavioral change can significantly reduce eye strain in students/children. The studies have depicted how the age groups' eyes are being affected and how it can be controlled. Xiangbo Li et al. [4] Although cloud services have been useful in resolving many technical challenges of video streaming, there are still areas that either remain intact or require further exploration by researchers and practitioners. Ching-Ling Fan et al. [6] has formulated the variety of 360 degrees video streaming cameras in the market mainly categorizing them on the basis of price, Image Resolution, OS Support, Lenses etc.

One of the main reasons behind the boom of video streaming industry is the availability of consumer-grade hardware components, especially the 360° cameras and HMDs. Syed Muhammad Ehsan [8] surveyed the aspect of today's young generation on their view on watching the adult content without anyone's consent and what they actually like when talking about it in real. Being in this age group, they are highly likely to experiment and get themselves engaged in types of such risky acts that will affect their life. A rapid rise has been seen in playing of the content which is not made for some age groups. No restriction over the content being shown online has transformed this generation's attitude.

After going through the various papers related to the proposed work, two major undiscovered problem statements were figured out. Mainly consisting of Age and Screen time Issue. The proposed work mainly focuses on these two so as to restrict people from certain activities which are somehow affecting their age and mind in one way or the other. Largely, evidence indicates negative effects of prolonged screen time on health including mental health. Although digital technology provides avenues to connect socially, overindulgence or over use of digital devices can be harmful in the long-term. Promoting healthy digital habits and positive use of digital technology is in exorable to avert ill effects of excessive screen time. While it is important to adopt critical measures to cease the spread of COVID-19, it is necessary to assess and mitigate the impact of COVID-19 on screen-time and prevent potential negative consequences. Having visited the impact of screen time on health, it calls for individual as well as systemic level action. Adapting immediate, short-term and long-term strategic measures can help scrutinize digital use and screen time not only amidst the regulations of COVID-19 but also ahead, considering that digitalization is the way forward. Empowering individuals to make scientific-information based decisions is the need of the hour to mitigate these ill-effects. Building and imbibing healthy digital habits is a promising preventive measure conducive to health in the light of globally growing digitalization. It is inevitable to realize the need to be socially connected with one another which has also led to momentous increase in screen time during the COVID-19 induced lockdown.

Literature on screen time is reflective of both positive and negative consequences of screen time on (mental) health. Perhaps, digital technology offered a platform to deal with psychological reactions fuelled by COVID-19 if it were for a shorter period. However, the prolonged period of the pandemic has led the use of digital technology to culminate in to threat for people's physical as well as mental health. Literacy about digital habits and parental supervision on children's digital habits command attention. Increased use of games among youth is concerning. Indispensable to note is that digital habits must be balanced with the non-connected activities. It is important to be cognizant of what are the absolutes where one can depend on digital devices for convenience and betterment versus where one needs to pause and disconnect. Understanding the effect of a post on social media is beyond the cognitive grasp of a young mind, and any mistake or misjudgment cannot be wiped from the online slate thereby potentially effecting their future. Moreover, if a child

is targeted by harassers or predators, their limited ability to handle such a situation at a young age may put them in danger, both mentally and physically. Age restrictions on social media platforms are in place to keep kids safe. Unfortunately, violating these restrictions is simple and easy. When young kids falsify their age and use social media, they are often too young to understand the implications of their posts or effectively handle dangerous situations, and cannot be protected by laws directed at the safety of youth online. Luckily, parental control software, like Net Nanny's, social media protection feature is a proven method to restricting monitor your children's access to social media until they are responsible and ready.

3. SYSTEM ANALYSIS AND DESIGN

3.1 Flow Chart/ Activity Diagram

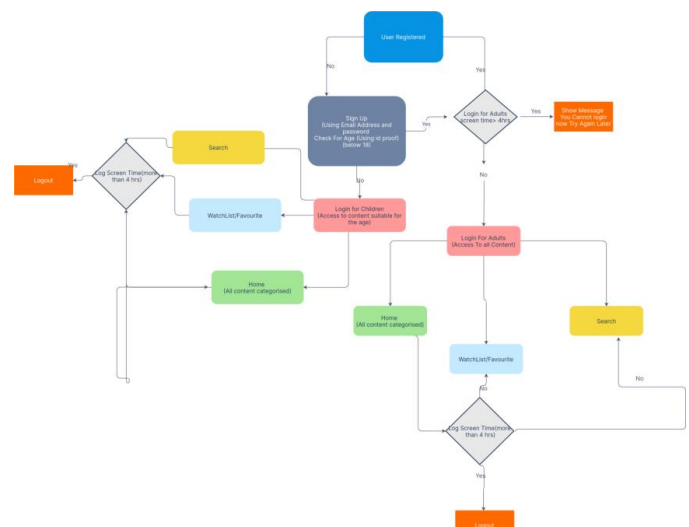


Fig2– Flow chart Diagram of the Project

The flowchart describes the working and interconnection of the modules that have been implemented in the project(proposed work). Also, it depicts the order in which the modules have been set up. Some of the major modules are Age Restriction, Screen time limit, Search, Watch list etc. The above flow chart depicts the video streaming system.

Firstly a user enters and if they are registered they are further checked for the number of hours they have used their screen time and their age whether it is more than or less than 18. If their age is more than 18 or less, if they are over 18 they are redirected to the adult screen only if they have a screen time less than 4hours. Similarly if they are less than 18 they are directed to the kids section where they are again checked for screen time. If not they can continue streaming.

Furthermore we have three sections:

1. Search – This section allows users to scroll through the various videos that are available on the platform. Searching helps to find a particular video within a short span of time.
2. Watch list/ favourites – Creating a set of videos that can be watched later helps users to enjoy their selected content. Watch list section is somehow like a customized playlist.

- Home Section- It is a section where users can browse content based on category, save their favourite video for later and search for content they want.

4. RESULTS

Below are some of the images taken from the platform. These images show the various pages like dashboard, loading screen, Sign In and Sign Up. The new user needs to fill the details on the Sign Up page then the account gets created and it is redirected to the Sign In page showing that whether the user is below 18 or above it.



Fig.3 Dashboard Screen for a User whose Age is above 18

Once, the Aadhaar card is scanned from the user at the time of registration; it scans the DOB and finds the age of the user then loads it dashboard accordingly. This prevents children from watching content that is not made for their age. As the figure depicts, when the user enters time limit at the time of registration the timer automatically start when the user signs in and once the time limit is reached the user is logged out with a warning message.

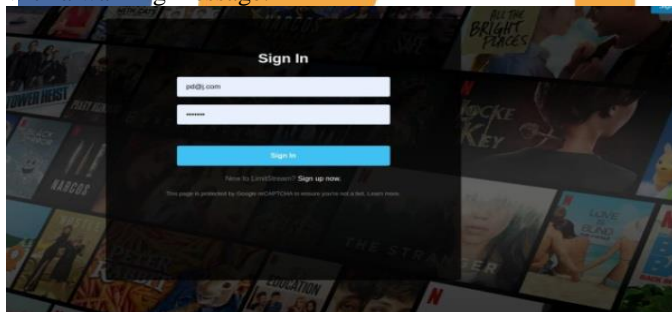


Fig.4 Figure showing Sign In page

Every time a user signs in the platform he/she needs to enter the credentials that were registered on Sign Up page at the time of registration. The credentials are checked from the database and the user gets access accordingly.

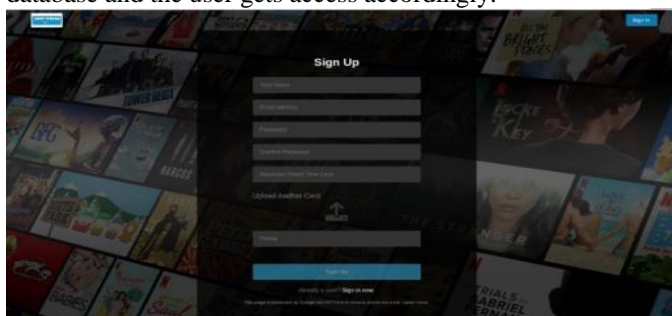


Fig.5 Figure showing Sign Up page

The figure shows all the fields that a new user has to enter at the time of registration. Also, the Aadhaar card needs to be

uploaded through which age and phone number will be calculated then an OTP is fired on the mobile and the dashboard gets loaded accordingly as per the age.

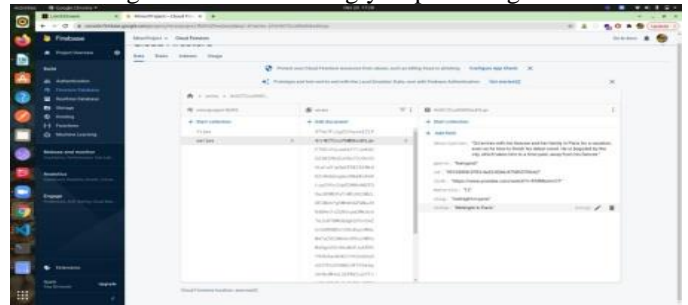


Fig.6 Figure showing the Fire base collection: users

The above figures of Fire store shows information regarding the movies and series data that has been stored. The data shown above has been stored using key Value pairs. The Keys being Genre, ID, You tube links, maturity rating, description and title of the movie.

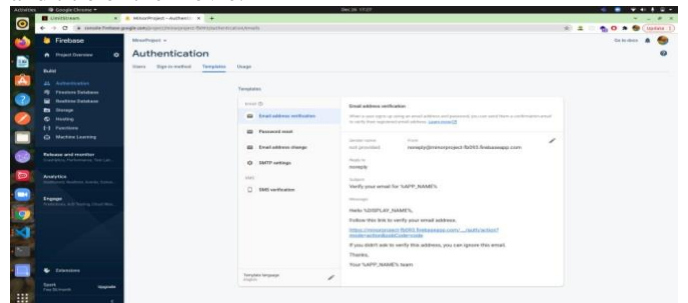


Fig.7 Figure showing the Fire base Dashboard

The other collection that has been stored is of series which stores data in the similar way of popular TV shows. fire store has a capacity of storing 1 GiB. with field size being Maximum size of a field name 1,500bytes .It uses flexible, scalable No SQL cloud data base to store and sync data for client-and server-side development.

No SQL databases (aka "not only SQL") are non-tabular databases and store data differently than relational tables. No SQL data bases come in a variety of types based on their data model. The main types are document, key-value, wide-column, and graph. They provide flexible schemas and scale easily with large amounts of data and high user loads.

5. CONCLUSION

Fire base provides a very scalable as compared to other cloud service where there is no as such limit on the number of concurrent recording or streaming sessions. For a low monthly fee, organizations can empower select or all staff with cloud recording & streaming. The Fire base Admin SDK is a set of software tools that are used for interacting with Firebase products, including Real time Database, Authentication, and Cloud Messaging, Cloud functions have been used to implement back end logic. One is the infrastructure that is deployed, the other is a software tool that is used to build application software. Cloud Functions for Firebase, which triggers Google Cloud Functions based on events in Firebase.

The Servers are keeping a check and somehow controlling the screen time limit by recording the time spent on the portal.

The survey of 150 people concluded that average screen time of around 22.7% people increased up to 25% whereas 35.3% people has an increment between 26 to 50%. 51 to 75% increment is reported by 28.7% and 8% people reported more than 75%.5% of total responses stated that it has not been affected much. The health survey also proved that resolution of images does have effect on the medical health of human. Hence, the screen limit module helps in countering such issues. Another gap which was focused was the Age-restriction, it is seen generally that many users watch such content which is not suitable for their age hence we came in with an idea of restricting user with providing them content suitable to their age. Through our research, we also came up that Aadhaar card is most suitable for age extraction and hence it is successfully used and after age extraction different dashboard is loaded according to the user's age.

6. FUTURE WORK

Firstly, the platform is authenticating user identity through user name and password and hence it may happen that other user login through user name and password of another user hence we are focusing on introducing web cam at sign in or introducing otp at sign in to make platform more authentic and secure.

Secondly, after introducing new major changes which we have discussed above, we can shift to an e-commerce based platform to generate revenue through user subscription money. Users will get premium content as we can tie up with major service providers for content related work. Users will choose our platform over others because of additional facilities which are not therein other platforms such as screen time limit and age restriction.

Thirdly, When it comes to Platform performance, page speed is of the utmost importance. To reduce the bounce rate and increase visitor engagement, it's essential that the platform load quickly and seamlessly. A platform that is optimized for speed not only enhances the user experience(UX) but can also help to boost the search engine rankings.

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