

# Final Report for Video Streaming Django Project with Firebase Database

(Team Members Name and SRN)

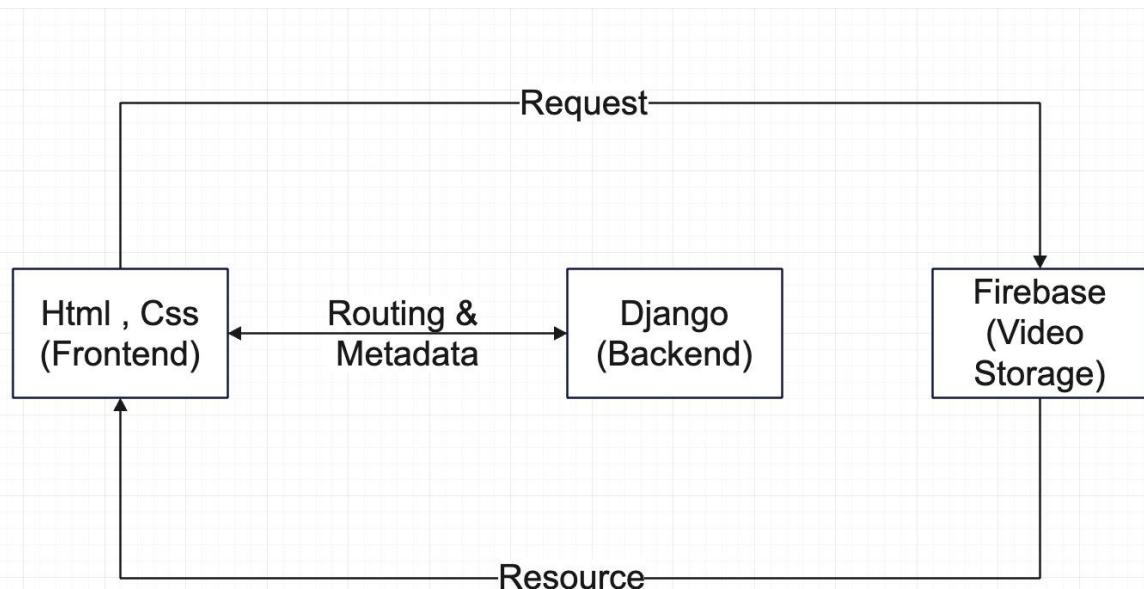
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## High Level Design of the Project



# Project Proposal: Video Streaming Testing Django Project with Firebase Database

## Executive Summary

In an era dominated by digital content, the need for a flawless video streaming experience is more critical than ever. We present a visionary project: a state-of-the-art Video Streaming Testing Django Project with Firebase Database integration. This groundbreaking initiative aims to elevate video streaming quality assurance, boasting features such as auto-quality adaptation, cross-browser compatibility, corrupt video detection, internet disconnection resilience, synchronised audio and video playback, and dynamic resizing.

## Project Objectives

- Auto-Quality Adaptation:** Implement an adaptive streaming mechanism to dynamically optimise video quality based on varying network conditions, ensuring users receive an exceptional viewing experience.
- Cross-Browser Compatibility:** Guarantee consistent video streaming performance across all major web browsers, expanding the reach and impact of the streaming service.
- Corrupt Video Detection:** Develop robust algorithms to swiftly identify and address corrupted video files, mitigating disruptions to the streaming experience.
- Internet Disconnection Detection:** Implement proactive measures to detect and handle internet disconnections during video playback, maintaining uninterrupted streaming sessions.
- Synchronized Audio and Video:** Achieve seamless synchronisation between audio and video elements, enhancing the overall quality and immersive nature of the viewing experience.
- Dynamic Resizing:** Dynamically resize video dimensions to adapt to a diverse array of devices and screen sizes, ensuring optimal visibility and engagement.

## Project Benefits

- Enhanced User Satisfaction:** The project will significantly improve the streaming quality, reducing buffering issues and elevating user satisfaction.
- Wider Accessibility:** Cross-browser compatibility ensures that the streaming service reaches a broader audience, regardless of their preferred web browser.
- Proactive Issue Resolution:** The incorporation of corrupt video detection and internet disconnection handling enhances the system's resilience, proactively resolving potential disruptions.

- **Future-Proof Scalability:** Leveraging Django and Firebase enables a scalable and flexible solution, capable of adapting to future enhancements and growing user demands.

## Project Timeline

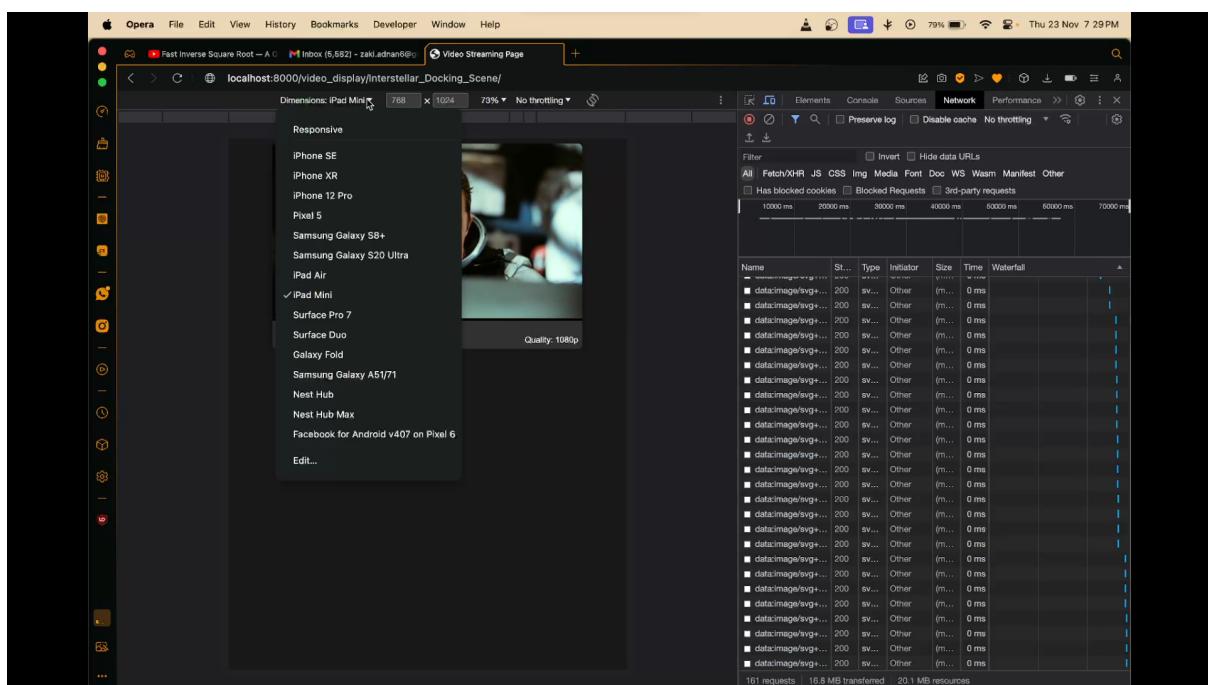
The proposed timeline for this project spans a month, encompassing critical phases such as design, development, testing, and deployment. The final product was demoed on 21st November.

## Test tools used to test the scenario

Browser development tools - Network Throttling & Control, Display Dimension Spoofing

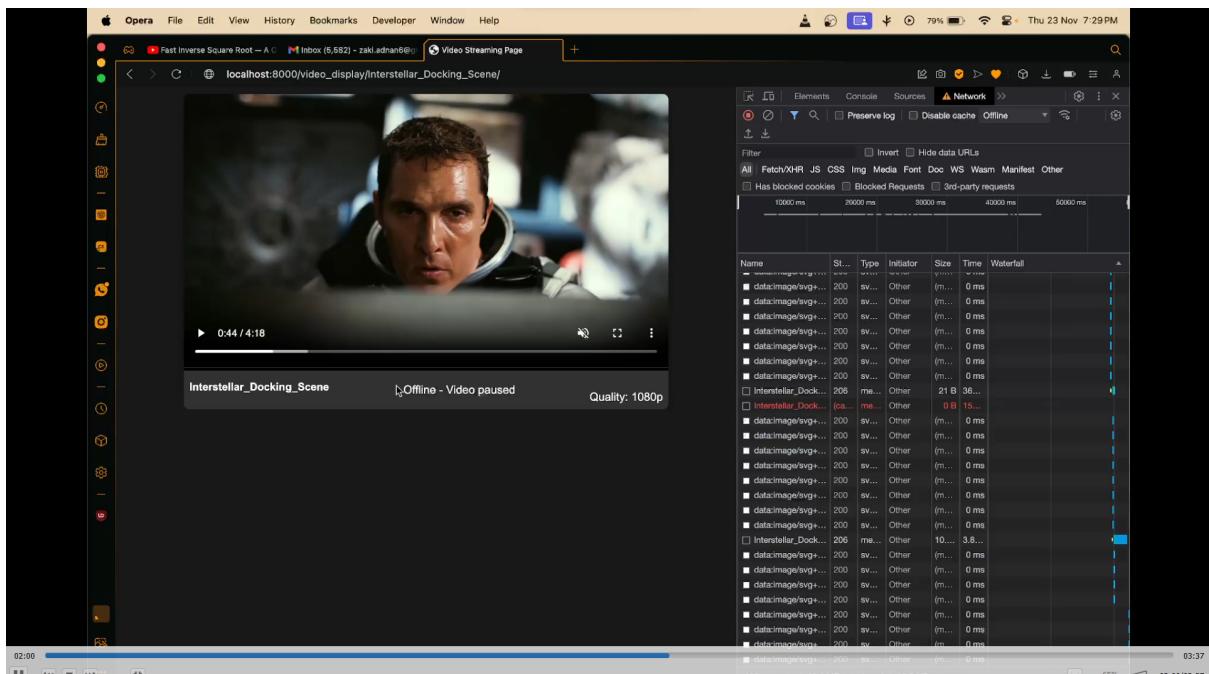
## A Look at the Project

### *Dynamic resizing*



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### Auto quality adaptation



The screenshot shows the Opera browser interface with a video player window. The video frame displays a close-up of Matt Damon's face from the movie "Interstellar". The video player controls show a play button, a progress bar from 0:44 to 4:18, and a volume icon. Below the video frame, the text "Interstellar\_Docking\_Scene" and "Quality: 1080p" are visible. To the right of the video player is the browser's developer tools Network tab, which is monitoring requests. The requests list shows numerous small image files (data:image/svg...) being loaded, all with a status of 200 and a size of approximately 200 bytes. One request for "Interstellar\_Docking\_Scene" is listed with a status of 206 (Partial Content) and a size of 0 B. The Network tab also shows a bandwidth usage graph at the bottom.

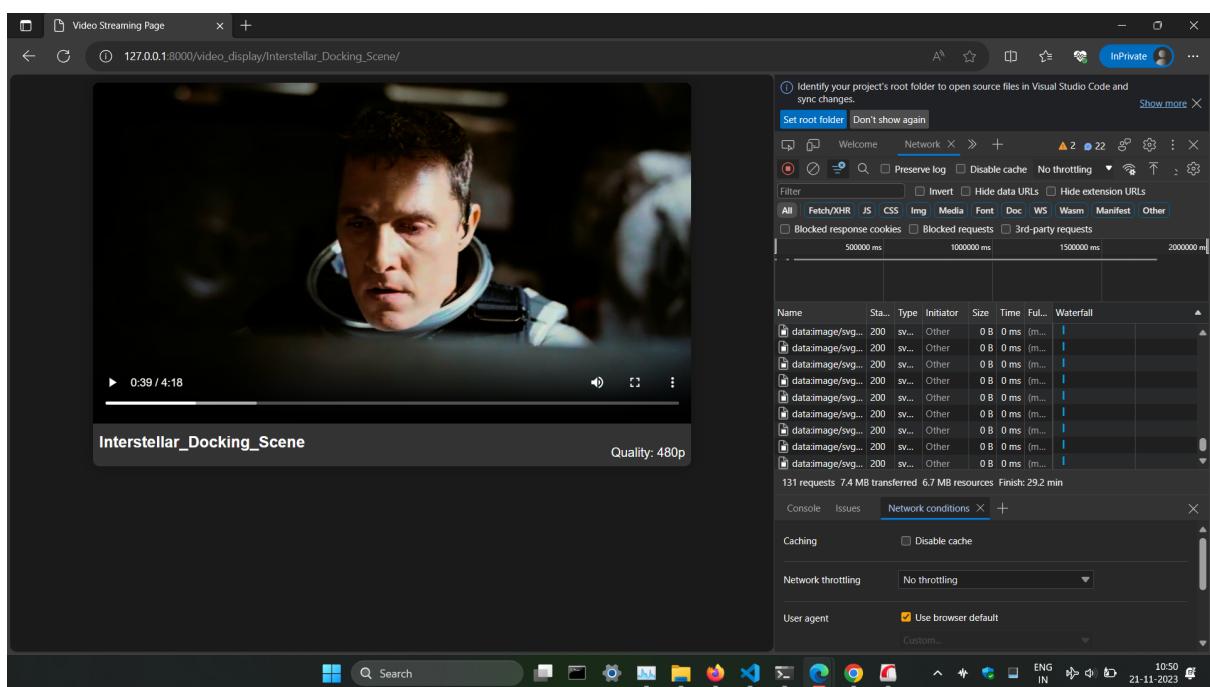
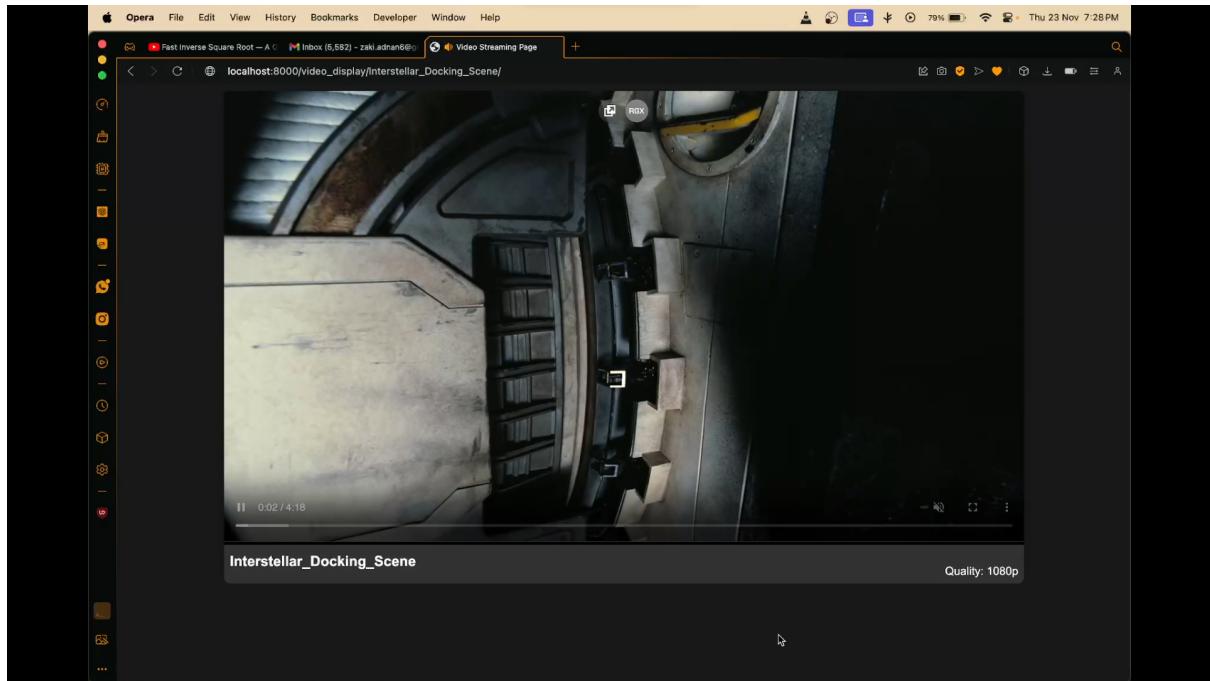
Opera Developer Tools Network Tab (1080p Quality):

Name	Status	Type	Initiator	Size	Time	Waterfall
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
Interstellar_Dock...	206	me...	xhr	0 B	Pe...	

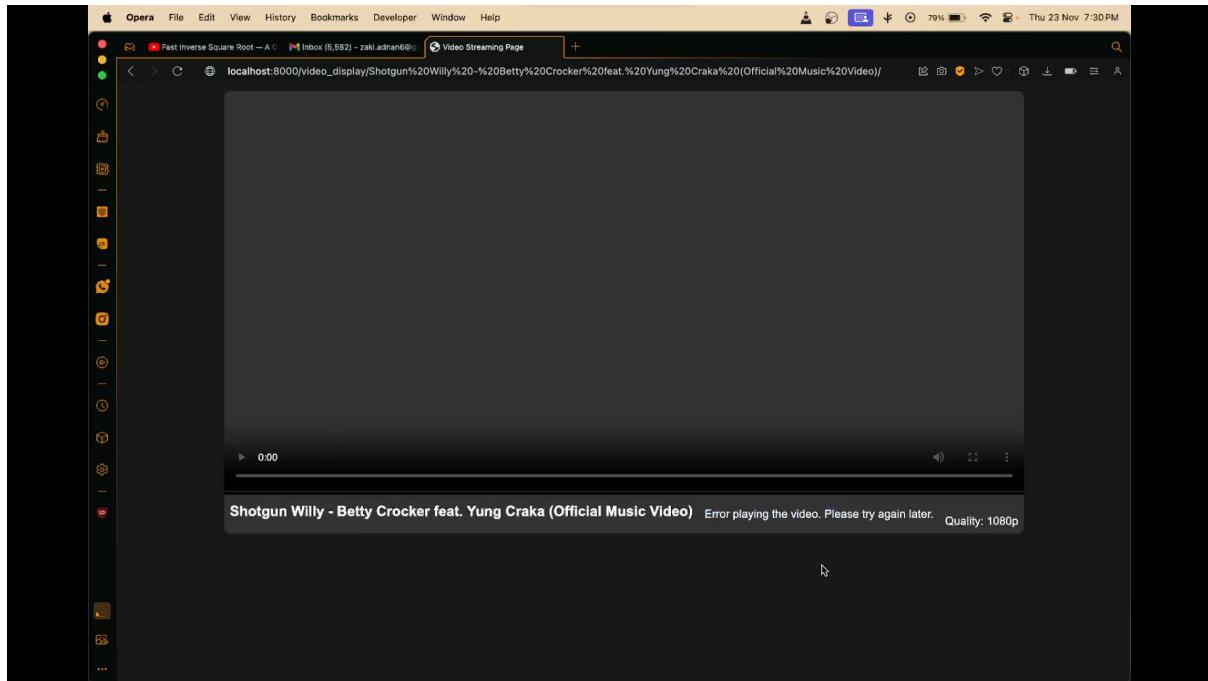
Opera Developer Tools Network Tab (164p Quality):

Name	Status	Type	Initiator	Size	Time	Waterfall
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
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data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
data:image/svg...	200	sv...	Other	(m...)	0 ms	
Interstellar_Dock...	206	me...	xhr	0 B	Pe...	

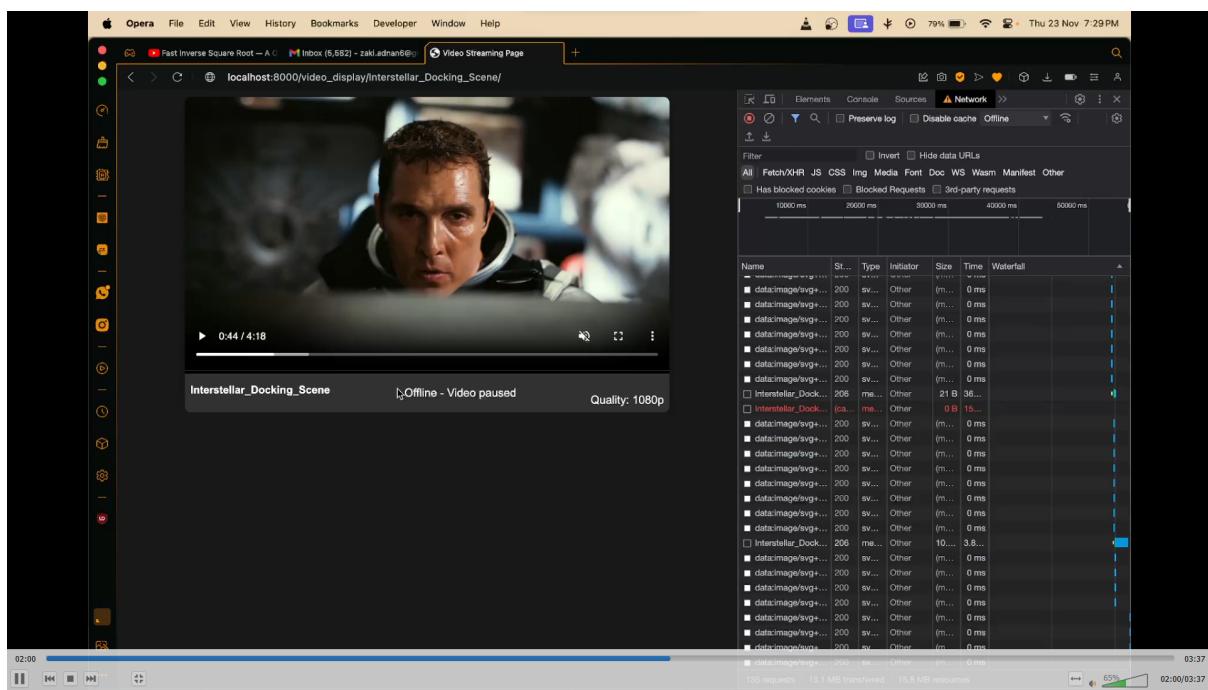
## Cross browser compatibility



## Corrupt video detection



## Internet disconnection detection



## References

Django official documentation

Firebase documentation

## Peer Evaluation

**Adnan - PES1UG21CS337 - 5/5**

**Nagasaketh - PES1UG21CS355 - 5/5**

**Zulqarnain - PES1UG21CS340 - 5/5**