

PROJECT REPORT
ON
ONLINE VIDEO/AUDIO STREAMING SERVICE
BASED ON DECENTRALIZED ARCHITECTURE

Submitted by

ISHAN JOSHI – B150388568

KISHLAYA KUNJ – B150388586

NEERAJ LAGWANKAR – B150388597

In partial fulfillment for the award of the degree

Of

Bachelor of Engineering

Of

Savitribai Phule Pune University

IN

INFORMATION TECHNOLOGY



MIT COLLEGE OF ENGINEERING, PUNE

2018-19

PROJECT REPORT ON

ON

**ONLINE VIDEO/AUDIO STREAMING SERVICE BASED
ON DECENTRALIZED ARCHITECTURE**

Submitted By

ISHAN JOSHI – B150388568

KISHLAYA KUNJ – B150388586

NEERAJ LAGWANKAR – B150388597

Guided by

ASST. PROF. SHAMLA MANTRI

DEPARTMENT OF INFORMATION TECHNOLOGY

MIT- COLLEGE OF ENGINEERING

Pune, Maharashtra, India.

SAVITRIBAI PHULE PUNE UNIVERSITY

2018-19



DEPARTMENT OF INFORMATION TECHNOLOGY

Certificate

This is to certify that,

B150388568: - ISHAN JOSHI

B150388586: - KISHLAYA KUNJ

B150388597: - NEERAJ LAGWANKAR

have successfully completed this project report entitled “**ONLINE VIDEO/AUDIO STREAMING SERVICE BASED ON DECENTRALIZED ARCHITECTURE**”, under my guidance in partial fulfillment of the requirements for the degree of Bachelor of Engineering in Department of Information Technology of Savitibai Phule Pune University, Pune during the academic year 2018-19.

Date: - 1ST June 2019

Place: - Pune

Asst. Prof. Shamla Mantri

Project Guide

Dr. Krishna Warhade

Head of Department

ACKNOWLEDGEMENTS

We take this opportunity to thank our project guide Asst. Prof. Shamla Mantri and Head of the Department Dr.Krishna Warhade for their valuable guidance and for providing all the necessary facilities, which were indispensable in the completion of this project report. We are also thankful to all the staff members of the Department of Information Technology of MIT College of Engineering, Pune for their valuable time, support, comments, suggestions and persuasion. We would also like to thank the institute for providing the required facilities, internet access and important books.

Ishan Joshi

Kishlaya Kunj

Neeraj Lagwankar

ABSTRACT

Over the last decade internet-based services have trended towards centralization. Today, a handful of companies control the platforms we use to search for information, store our personal data, manage our online identities, and communicate publicly and privately. Advancement in web technology has led to the concept of decentralized network, thus allowing the rise of peer to peer communication. The peer to peer communication circumvents this problem by relaying traffic through peers instead of a dedicated server. Our platform is built on decentralized architecture which overcomes the limitations posed by the conventional client server architecture. Since decentralized and distributed web is not controlled by any third party, it is extremely beneficial in solving the above mentioned problems. Furthermore, this will enable users from remote areas with low bandwidth internet to access the multimedia published on our platform in real time, thereby, enabling them to access multimedia content from all over the world. This project focuses on the development of a progressive web app to accomplish our goal of video and audio streaming on decentralized platform.

CONTENTS

LIST OF FIGURES	I
LIST OF SYMBOLS, ABBREVIATION AND NOMENCLATURE	II

S.NO	CHAPTER NAME	PAGE NO
1.	INTRODUCTION.....	01
1.1.	Need.....	01
1.2.	Basic Concept.....	02
1.3.	Application.....	05
2.	LITERATURE SURVEY.....	06
2.1.	Related Work Done.....	06
2.1.1.	Journal Paper.....	07
2.1.2.	Conference Paper.....	07
2.1.3.	Study Papers.....	08
2.2.	Existing Technologies.....	09
3.	PROJECT STATEMENT.....	13
3.1.	What is to be developed.....	13
3.2.	Technology Used.....	13
4.	SOFTWARE AND HARDWARE REQUIREMENTS.....	14
4.1.	Hardware and Software Specifications.....	14
4.1.1.	Hardware.....	14
4.1.2.	Software.....	14
5.	DESIGN.....	15
5.1.	Data Flow Diagrams.....	15
5.1.1.	Level 0.....	15
5.1.2.	Level 1.....	16
5.1.3.	Level 2.....	17
5.2.	UML Diagrams.....	18
5.2.1.	Use Case Diagram.....	18
5.2.2.	Class Diagram.....	19
5.2.3.	Sequence Diagram.....	20

5.2.4.	State Chart Diagram.....	21
5.2.5.	Activity Diagram.....	22
5.2.6.	Collaboration Diagram.....	23
5.3.	Planning and Scheduling.....	24
5.3.1.	PERT Chart.....	24
6.	RESULTS AND EVALUATION.....	25
6.1.	Login Page.....	25
6.2.	Sign Up.....	25
6.3.	Upload Video.....	26
6.4.	View Video.....	26
6.5.	Profile.....	27.
6.6.	Home Page.....	27
7.	CONCLUSION.....	28
	REFERENCES	29

LIST OF FIGURES

S.No	Figure Number	Name of the figure	Page Number
1	1.1	Blockchain	03
2	1.2	Forking and merging of git branches	04
3	2.1	Writing to an IPFS block	10
4	2.2	Reading an IPFS block	11
5	2.3	Read an object stored remotely	11
6	5.1	Data Flow Diagram Level 0	15
7	5.2	Data Flow Diagram Level 1	16
8	5.3	Data Flow Diagram Level 2	17
9	5.4	Use Case Diagram	18
10	5.5	Class Diagram	19
11	5.6	Sequence Diagram	20
12	5.7	State Chart Client Diagram	21
13	5.8	State Chart Server Diagram	21
14	5.9	Activity Diagram	22
15	5.10	Collaboration Diagram	23
16	5.11	PERT chart(A)	24
17	5.12	PERT chart (B)	24
18	6.1	Login Page	25
19	6.2	Sign Up Page	25
20	6.3	Upload Video Page	26
21	6.4	View Video Page	26
22	6.5	Profile Page	27
23	6.6	Home Page	27

LIST OF SYMBOLS, ABBREVIATION AND NOMENCLATURE

- 1. DDoS** : Distributed Denial of Service
- 2. DAG** : Directed Acyclic Graph
- 3. dApp** : Decentralized App
- 4. P2P** : Peer to peer
- 5. DHT** : Distributed Hash Tables
- 6. IP** : Internet Protocol
- 7. IPFS** : InterPlanetary File System
- 8. SFS** : Self-Certifying File System
- 9. Pow** : Proof of Work
- 10. DPoS** : Delegated Proof of Stake
- 11. PoA** : Proof of Activity
- 12. PoS** : Proof of Stake
- 13. LLL** : Lisp- like Language
- 14. HTTP** : Hyper Text Transfer Protocol
- 15. CSS** : Cascading Style Sheets
- 16. iOS** : Apple Operating System
- 17. QR** : Quick Response
- 18. JSX** : JavaScript Extended
- 19. URL** : Uniform Resource Locator
- 20. DFD** : Data Flow Diagram
- 21. UML** : Unified Modeling Language
- 22. PERT** : Program Evaluation Review Technique