**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

[](https://www.google.co.in/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=2ahUKEwi40qvxmJzaAhUFrY8KHYGvAkEQjRx6BAgAEAU&url=http://college4u.in/maeers-mit-college-of-engineering-mitcoe-pune/&psig=AOvVaw2bWPUwVY3K979USKAzO623&ust=1522779239670638)

**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

PROF. SHAMLA MANTRI

DEPARTMENT OF INFORMATION TECHNOLOGY

MIT- COLLEGE OF ENGINEERING

Pune, Maharashtra, India.

SAVITRIBAI PHULE PUNE UNIVERSITY

2018-19

[](https://www.google.co.in/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=2ahUKEwi40qvxmJzaAhUFrY8KHYGvAkEQjRx6BAgAEAU&url=http://college4u.in/maeers-mit-college-of-engineering-mitcoe-pune/&psig=AOvVaw2bWPUwVY3K979USKAzO623&ust=1522779239670638)

**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

Prof. Shamla Mantri Dr. Krishna Warhade

Project Guide Head of Department

**ACKNOWLEDGEMENTS**

We take this opportunity to thank our project guide 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. Need…………………………………………………………….01
   2. Basic Concept…………………………………………………..02
   3. Application……………………………………………………..05
2. **LITERATURE SURVEY…………………………………………….06**
   1. Related Work Done…………………………………………….06
      1. Journal Paper………………...…………………………07
      2. Conference Paper………………………………………07
      3. Study Papers……………………………………………08
   2. Existing Technologies………………………………………….09
3. **PROJECT STATEMENT……………………………………………13**
   1. What is to be developed………………………………………..13
   2. Technology Used………………………………………………13
4. **SOFTWARE AND HARDWARE REQUIREMENTS…………….14**
   1. Hardware and Software Specifications………………………...14
      1. Hardware……………………………………………….14
      2. Software………………………………………………..14
5. **DESIGN……………………………………………………………….15**
   1. Data Flow Diagrams…………………………………………...15
      1. Level 0…………………………………………………15
      2. Level 1…………………………………………………16
      3. Level 2…………………………………………………17
   2. UML Diagrams………………………………………………...18
      1. Use Case Diagram……………………………………..18
      2. Class Diagram………………………………………….19
      3. Sequence Diagram……………………………………..20
      4. State Chart Diagram..…………………………………..21
      5. Activity Diagram………………………………………22
      6. Collaboration Diagram………………………………...23
   3. Planning and Scheduling………………………………………24
      1. PERT Chart…………………………………………….24
6. **RESULTS AND EVALUATION…………………………………….25**
   1. Login Page……………………………………………………..25
   2. Sign Up………………………………………………………...26
   3. Upload Video…………………………………………………..26
   4. View Video…………………………………………………….27
   5. Profile…………………………………………………………..27.
   6. Home Page……………………………………………………..28
   7. Evaluation……………………………………………………...29
7. **CONCLUSION……………………………………………………….30**

**REFERENCES 31**

**LIST OF FIGURES**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sr. 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 | 26 |
| **20** | 6.3 | Upload Video Page | 26 |
| **21** | 6.4 | View Video Page | 27 |
| **22** | 6.5 | Profile Page | 27 |
| **23** | 6.6 | Home Page | 28 |
| **24** | 6.7 | Time Comparison | 29 |

**I**

**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

**II**