A DApp for e-voting using Blockchain-enabled Smart Contracts

A PROJECT REPORT

SUBMITTED IN PARTIAL FULFILMENT OF REQUIREMENT FOR
THE AWARD OF THE DEGREE
OF

MASTER OF TECHNOLOGY
IN
SOFTWARE ENGINEERING

Submitted By -
Ankush Mahajan
(Roll No. 2K17/SWE/03)

Under the supervision of
Prof. Rajni Jindal
(H.O.D, Department of Computer Science and Engineering)
Delhi Technological University

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
DELHI TECHNOLOGICAL UNIVERSITY

(Formerly Delhi College of Engineering)
Bawana Road, Delhi-110042

June, 2019

DECLARATION

I hereby declare that the thesis work entitled "*A DApp for e-voting using Blockchain-enabled Smart Contracts*" which is being submitted to Delhi Technological University, in partial fulfilment of requirements for the award of degree of Master of Technology (Software Engineering) is a bonafide report of Major Project-II carried out by me. The material contained in the report has not been submitted to any university or institution for the award of any degree.

Place: Delhi **Ankush Mahajan**

Date: **Roll No. 2K17/SWE/03**

CERTIFICATE

This is to certify that Project Report entitled "*A DApp for e-voting using Blockchain-enabled Smart Contracts*" submitted by Ankush Mahajan (roll no. 2K17/SWE/03) in partial fulfilment of the requirement for the award of degree Master of Technology (Software Engineering) is a record of the original work carried out by him under my supervision.

Place: Delhi

Date:

SUPERVISOR

PROF. RAJNI JINDAL

Head of Department

Department of Computer Science and Engineering

Delhi Technological University

Bawana Road, Delhi -110042

ACKNOWLEDGEMENT

I am very thankful to Prof. Rajni Jindal (Head of Department, Computer Science and Engineering Department) and all the faculty members of the Computer Science and Engineering Department of Delhi Technological University. They all provided us with immense support and guidance for the project.

I would also like to express my gratitude to the university for providing us with the laboratories, infrastructure, testing facilities and environment which allowed us to work without any obstructions.

I would also like to appreciate the support provided to us by our lab assistants, seniors and our peer group who aided us with all the knowledge they had regarding various topics.

ANKUSH MAHAJAN

Roll No. 2K17/SWE/03

M. Tech. (Software Engineering)

Delhi Technological University

ABSTRACT

Voting is one of the most prominent means to guarantee fair representation and equality during decision making. The larger the implication of each decision, the more the number of people engage in the process. As such, it can become challenging to correctly and efficiently keep a record of each participant's eligibility and legitimacy to participate. On top of this, there are also other concerns including potential corruption and lack of transparency, which inhibits many from voting at all. In this project, we are proceeding to develop a DApp for the general voting system using blockchain technology. This report starts by discussing some of the blockchain and smart contract issues. Blockchain technologies offer a vast range of applications benefiting from sharing economies.

In this report, we will illustrate how blockchain can be used to transfer votes to the candidates. We will also explain how blockchain technology employed in the voting system more reliably without the need for a central authority. We will also explain the limitations and problems of blockchain technology. We have examined many blockchain technologies, i.e., Multichain, Ethereum open today to apply in our voting system. More generally this report evaluates the ability of distributed ledger technologies by the analysis of a case study i.e., the method of an election and executing a blockchain-based decentralized application which enhances the security and lowers the cost of hosting a national election.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

1. CSV:	Comma-Separated Values
2. DLT:	Distributed Ledger Technology
3. P2P:	Peer-to-Peer
4. PC:	Personal Computer
5. NEM:	New Economic Movement
6. CSC:	Criminal Smart Contracts
7. TOD:	Transaction Ordering Dependence
8. US:	United States
9. FBI:	Federal Bureau of Investigation
10. DApp:	Decentralized Application
11. HTML:	Hypertext Markup Language
12. CSS:	Cascading Style Sheets
13. JS:	JavaScript
14. UI:	User Interface