



Senior Design Project

Design and Implementation of a Blockchain Enabled E-Voting Application to Prevent Multiple Voting Schemes

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Summer, 2021

Declaration

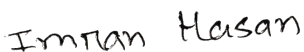
This is to declare that no part of this report or the project has been previously submitted elsewhere for the fulfillment of any other degree or program. Proper acknowledgement has been provided for any material that has been taken from previously published sources in the bibliography section of this report.



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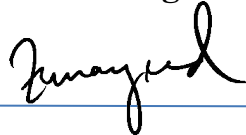


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Approval

The Senior Design Project entitled “**Design and Implementation of a Blockchain Enabled E-Voting Application to Prevent Multiple Voting Schemes**” by Iftekhar Mahmud Tahir (ID# 1520541642), Md. Sifaat (ID# 1632285042) and Md. Imran Hasan (ID# 1711460042) has been accepted as satisfactory and approved for partial fulfillment of the requirement of BS in CSE degree program on Summer, 2021.

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Abstract

In this report, we present a Blockchain-based e-voting application that can prevent voters from casting their votes multiple times. The first and foremost step in this system is to validate the identity of the voter. At first, the voter needs to download the e-voting application on their mobile, laptop, or other smart devices. After that, the voter needs to submit their identity information verified by the organization conducting these elections. The administrator will check the database of the registered voters and confirm if they are eligible to vote. Then all the information of the voter will be securely added to the Blockchain. After the voter's identity is verified, a smart contract will be executed to issue a ballot to vote and submit it to the ballot box in the application. The application will ensure that a user is not able to vote multiple times. When a user casts a vote, the administrator will check the Blockchain to ensure the voter has not already used up his vote. If the user's vote is valid, the administrator accepts their vote. In case the vote is found to be invalid, the administrator rejects their vote. Once a user casts a vote, it becomes a transaction and gets stored in the Blockchain in an encrypted form. Moreover, the vote cannot be modified because of Blockchain's innate immutable characteristics. The voter will be even provided with the option to print the receipt as proof of casting a vote. Through Blockchain, the voter will be able to verify that his vote has been cast and counted. The voter can even audit each ballot in the ballot box and confirm if the election results are accurate while retaining other voters' privacy.