Overview

This proposal seeks funding for the Virtual Election Witness (VEW), a series of tools designed to improve voter confidence and provide the general population with a method of viewing and verifying an election. The core of the product is a web based portal for the public to observe the results, verifications, and audits of an election in real time. The project aims to serve as a method of observing an election remotely by providing as much direct data from citizens participating in the election as possible.

The team expects that the VEW project will help combat the persistently increasing public distrust in both the government and the media by providing an outside validation of election results. VEW will also provide the public with data that could be used to better identify if an election has been tampered with. Not only will the public have access to a traceable history of an election, but they will also have the capability of performing and sharing audits of the election results. In the United States, each state is in charge of their own election process, but VEW would allow for a standardized comparison of each state's election results.

Intellectual Merit

This Small Business Innovation Research Phase I project seeks to develop a lightweight yet secure record of election results open to the public. In order to do so, the research team will need to develop a method of preserving and displaying the timeline of election results and verifications as the data is released. This timeline must include an immutable history of the election result updates, so that viewers can clearly distinguish the change in results from one record to the next, while maintaining confidence that earlier records have not been altered. The team will need to handle accepting, processing, and publishing election data in a manner that is secure and preserves integrity.

The team will also implement methods of verifying details of the election data through neutral, trustworthy sources. One of these methods will be a distributed time verification system, which will verify the time of a timeline update with neutral, third-party organizations. Additionally, the team intends to provide a robust system for performing custom audits on existing election data.The team will also develop a method to allow election observers and voters to verify data online, allowing the rest of the public to see that someone has vouched for the posted results.

Broader Impact

The commercialization of VEW will provide a way for election results to be verified individually and for regions' election procedures to be evaluated. VEW serves as a platform to increase voter turnout by improving voter confidence. By allowing voters to verify election result in real time, voters should be ensured that their votes are valid and, if not, will be flagged and corrected. VEW is also a tool to notify the public on the varying standards of elections with the capability to run several audits on election results with a goal of having higher election standards in all states. Not only will VEW help increase voter confidence by proving election results, if there was a case where elections were being tampered with, VEW would help alert the public to this breach. By allowing the public to analyze public records of election results, the elections would be open to vetting by many different sources. If the VEW system itself was attacked, the public would be able to tell due to inconsistencies in the timeline of results, and in turn they would be alerted to the fact that there is an attack on their election system.

While the main goal of VEW is to provide the public with increased oversight over their elections, several of its core technologies have valuable outside use cases as well, specifically the public timeline record and the time verification system. These tools, when extracted from the project, would have a wide variety of use cases, as they serve to solve common problems.