

## **EXP NO: 2A NON-FUNCTIONAL REQUIREMENTS FOR ONLINE VOTING SYSTEM**

### **AIM:**

To perform analysis of the given problem statement for listing the non-functional requirements

### **PROBLEM STATEMENT:**

#### **i) Current offline voting system status:**

Today, only about 1 percent of the population votes at polling places on hand counted paper ballots, but this figure is misleading. There are many elections conducted on optical mark-sense ballots that are actually hand counted, and many jurisdictions that use lever voting machines process absentee ballots by hand.

#### **ii) New technology:**

Today, an increasing fraction of the direct-recording electronic voting machines on the market include provisions to network all of the voting machines in one polling place. This allows each machine to store vote totals in the memory of the others, and at the close of the polls, it allows a single report for the entire precinct to be created instead of one report for each machine.

### **ONLINE VOTING SYSTEM:**

Online voting systems protect the integrity of the vote by preventing voters from being able to vote multiple times. As a digital platform, they eliminate the need to gather in-person, cast votes using paper or by any other means. Online voting is a digital platform which allows the groups to conduct voting securely, High quality systems balance ballot security, accessibility, and overall requirements.

### **NON-FUNCTIONAL REQUIREMENTS:**

#### **Voter Authenticity:**

Ensure that the voter must identify himself (with respect to the registration database) to be entitled to vote. If voting other than at his home precinct, the voter may be asked to show some legal identification document.

**Accuracy:** The system shall record and count all the votes and shall do so correctly.

**Uniqueness:** No voter should be able to vote more than once.

**Audit ability:** It should be possible to verify that all votes have been correctly accounted for in the final election tally, and there should be reliable and demonstrably authentic election records, in terms of physical, permanent audit trail (which should not reveal the user's identity in any manner).

#### **Voter Anonymity:**

Ensure that votes must not be associated with voter identity.

#### **System Integrity:**

Ensure that the system cannot be re-configured during operation.

#### **Data Integrity:**

Ensure that each vote is recorded as intended and cannot be tampered with in any manner, once recorded (i.e., votes should not be modified, forged or deleted without detection).

#### **Reliability:**

Election systems should work robustly, without loss of any votes, even in the face of numerous failures, including failures of voting machines and total loss of network communication. The system shall be developed in a manner that ensures there is no malicious code or bugs.

**Availability:**

Ensure that system is protected against accidental and malicious denial of service attacks. Also, set up redundant communication paths so that availability is ensured.

**System Disclosability:**

The core of the system, especially the vote-casting equipment, shall be open source, so that it can allow external inspection and auditing.

**Simplicity:**

The system shall be designed to be extremely simple, as complexity is the enemy of security.

**Testing and Certification:**

The system should be tested by experts with respect to all of the security considerations, so that election officials have the confidence that the system meets the necessary criteria.

**System Accountability:**

Ensure that system operations are logged and audited.

**Personnel Integrity:**

Those developing and operating the voting system should have unquestionable records of behavior.

**Operator Authentication and Control:**

Ensure that those operating and administering the system are authenticated and have strictly controlled functional access on the system.

**Distribution of Authority:**

The administrative authority shall not rest with a single entity. The authority shall be distributed among multiple administrators, who are known not to collude among themselves (e.g., different political parties).

**RESULT:**

The given problem statement is analysed and various non-functional requirements are listed.