

SPECIFY THE BUSINESS PROBLEM

TEAM ID:	NM2023TMID04404
PROJECT NAME:	ELECTRONIC VOTING SYSTEM

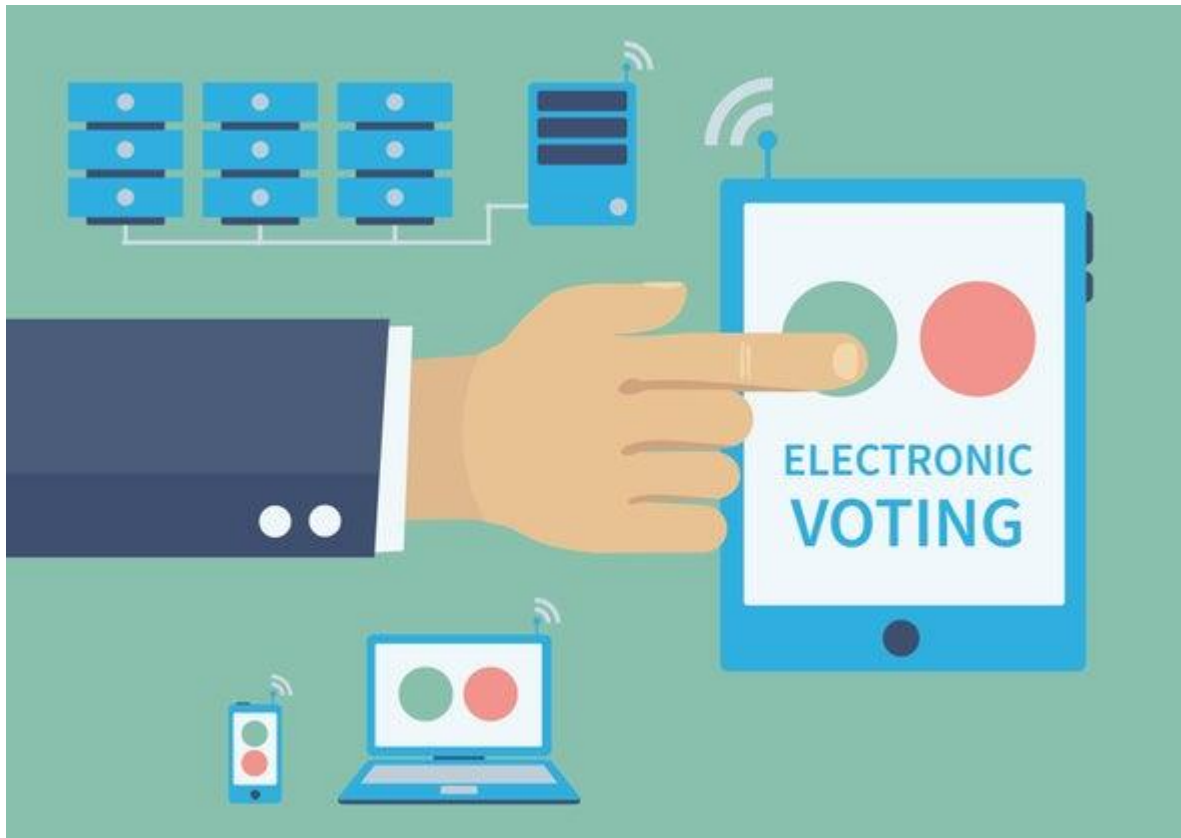
INTRODUCTION:

Lever voting machines were first used in 1892 in New York, and were slowly adopted across the country. Typically, large urban centers began to use them first, and in states such as Iowa, a few smaller rural counties never abandoned paper ballots.

In other states, particularly where there were serious charges of election fraud in the first half of the 20th century, lever voting machines were installed statewide. This happened in Louisiana, for example, in the 1950's.

Lever voting machines were so pervasive by the mid 20th century that those of us born in midcentury generally grew up assuming that all voting machines were and would always be lever machines. Today, although they have been out of production since 1982, these machines are still in extremely widespread use. They completely eliminate most of the approaches to manipulating the vote count that were endemic a century ago, and they can easily be configured to handle a complex general election ballot.

Lever voting machines offer excellent voter privacy, and the feel of a lever voting machine is immensely reassuring to voters! Unfortunately, they are immense machines, expensive to move and store, difficult to test, complex to maintain, and far from secure against vote fraud. Furthermore, a lever voting machine maintains no audit trail. With paper ballots, it is possible to recount the votes if there is an allegation of fraud. With lever voting machines, there is nothing to recount!



Elections are a defining feature of democratic government, but all too frequently, we take the actual mechanics of the election for granted. We speak at length of such issues as who is allowed to vote, how campaigns are conducted, and how they are financed, but prior to the events in Florida last November, most people's understanding of the actual voting process was something like the following: "You go to the polls, cast your vote, and then they count it and they announce the winner."

Here, my focus is on how you cast your vote, who *they* are who count it, how *they* go about counting it, and how the winner is determined. I will begin by discussing this in a historical context, and then I will discuss the regulatory environment that controls this process, I will give examples of significant shortcomings in this regulation, and finally, I will discuss changes that might be made.

Some of the material here duplicates material that I presented in testimony before the United States Civil Rights Commission hearings in Tallahassee last January 11, but here, my focus will be on the relationship between the problems we have with today's voting machines and the current system of Federal and state standards that govern the use of these machines.

A VERY BRIEF HISTORY OF VOTING MACHINES:

PAPER BALLOTS:

When most people speak of voting on paper ballots, they imagine that they are speaking of an ancient technology, and in a sense, this is true. Hand written paper ballots were first used in Rome in 139 BCE, and their first use in America was in 1629, to select a pastor for the Salem church. These early paper ballots offered only modest voter privacy and they were fairly easy targets for various forms of election fraud.

The modern system of election using paper ballots was first used in 1858 in Australia. The great Australian innovation was to print standardized ballots at government expense, distribute them to the voters at the polling places, and require that the voters vote and return the ballots immediately. Today, the security against election fraud this provides seems obvious, but in the 19th century, it was not obvious to most observers, and it was not until 1888 that this ballot was used in the United States.



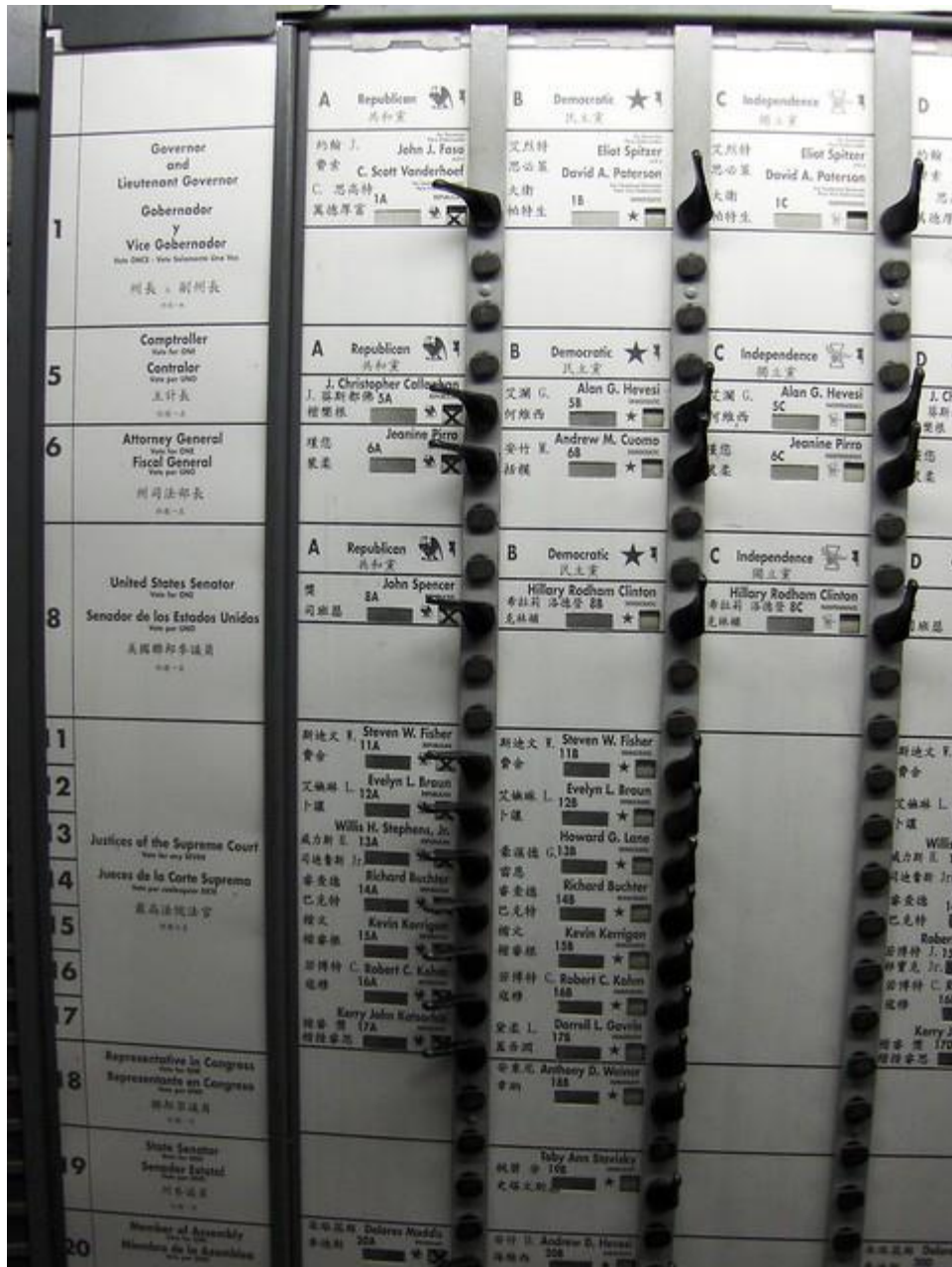
The first new technology to effectively challenge lever voting machines was the now infamous Votomatic voting machine. Punched card data processing dates back to the 1890's, but IBM did not introduce the Votomatic punched card voting system until 1964. The Votomatic ballot and the more recent mark-sense ballot both represent a return to the Australian secret ballot, but with the added benefit of an automated and, we hope, impartial vote count produced using tabulating machinery.

With this return to paper ballots, we gained the ability to recount the vote in the event there is a challenge, but we also introduce the question of how to interpret marginal votes. Almost everyone is an expert at interpreting marks on paper. We have been making and interpreting such marks since kindergarten. As a result, we can easily distinguish intentional marks from smudges or defects in the paper. This expertise is a key element in our ability to conduct a hand recount of paper ballots, and it fails utterly when the time comes to recount punched cards. With a punched card, a piece of dangling or pregnant chad is the analog to a smudge or an accidental pencil tick. None of us have the wealth of experience interpreting chad that almost all of us have with marks on paper!

LEVER VOTING MACHINES:

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From a legal perspective, a ballot is an instrument, just like a deed or a check. When the ballot is deposited in the ballot box, it becomes anonymous, but just prior to the moment when the ballot is deposited, it ought to be possible to hand the ballot to the voter and ask "does this ballot properly represent your intent?". Votomatic punched card ballots fail this simple test! While the ballot is in the Votomatic machine, the voter can punch holes in it but is unable to see the ballot itself. Once removed from the machine, the voter can see the holes, but without the ballot labels printed on the machine, the voter is unable to tell what those holes mean.



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CONCLUSION:

Electronic voting (also known as e-voting) is voting that uses electronic means to either aid or take care of casting and counting ballots. Depending on the particular implementation, e-voting may use standalone electronic voting machines (also called EVM) or computers connected to the Internet.