

# Ellen Theisen Communications



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## Document Design and Creation

To State decision makers:

I want to present, for your consideration, an alternative to purchasing optical scanners and election management software from any of the established voting system manufacturers.

The alternative is for the State to commission the development of an optical-scanning and election management system to be used throughout the State.

Companies, such as Agris-Schoen Vision Systems based in Virginia, and many individual machine-vision system consultants, such as Jim de la Houssaye (whose resume is attached) are very experienced in developing custom systems similar to what is needed in New York.

Advantages of this approach include:

- ◆ The cost savings would be substantial, initially, and in the future as well, since there would be no annual licensing or maintenance fees.
- ◆ The system could be customized specifically for the State, using commercial off-the-shelf (COTS) hardware programmed to provide all necessary functions and without those that are extraneous.
- ◆ The State would have complete control over the process and the deliverables.
- ◆ The system would be owned by the people of the State and maintained by technicians hired by – and accountable to – the state, counties, or cities, freeing these government entities from dependence on any vendor.

Based on my experience with scanner technology and my recent investigation of resources available now for fast development of precinct-based ballot scanners for use in voting, I am confident that this approach can provide a superior solution, independent from vendors, more open to the public, and at a fraction of the cost of any system offered by the manufacturers currently being considered.

Below is an estimate, prepared in consultation with Jim de la Houssaye, of the time and cost that would be needed by an experienced developer to construct a Proof of Concept, which is a prototype demonstration system that enables decision-makers to evaluate the project, clarify requirements, request changes if desirable, and make a “go-ahead” decision.

- ◆ Estimate of time: 3 months
- ◆ Estimate of cost: \$100,000

Respectfully submitted,

Ellen Theisen

# Verifying Voter Intent

## A Reliable, Accessible, Verifiable Election System

This paper suggests a starting place for designing an accessible paper-ballot voting system that allows voters to verify that their selections are being counted as they intended.

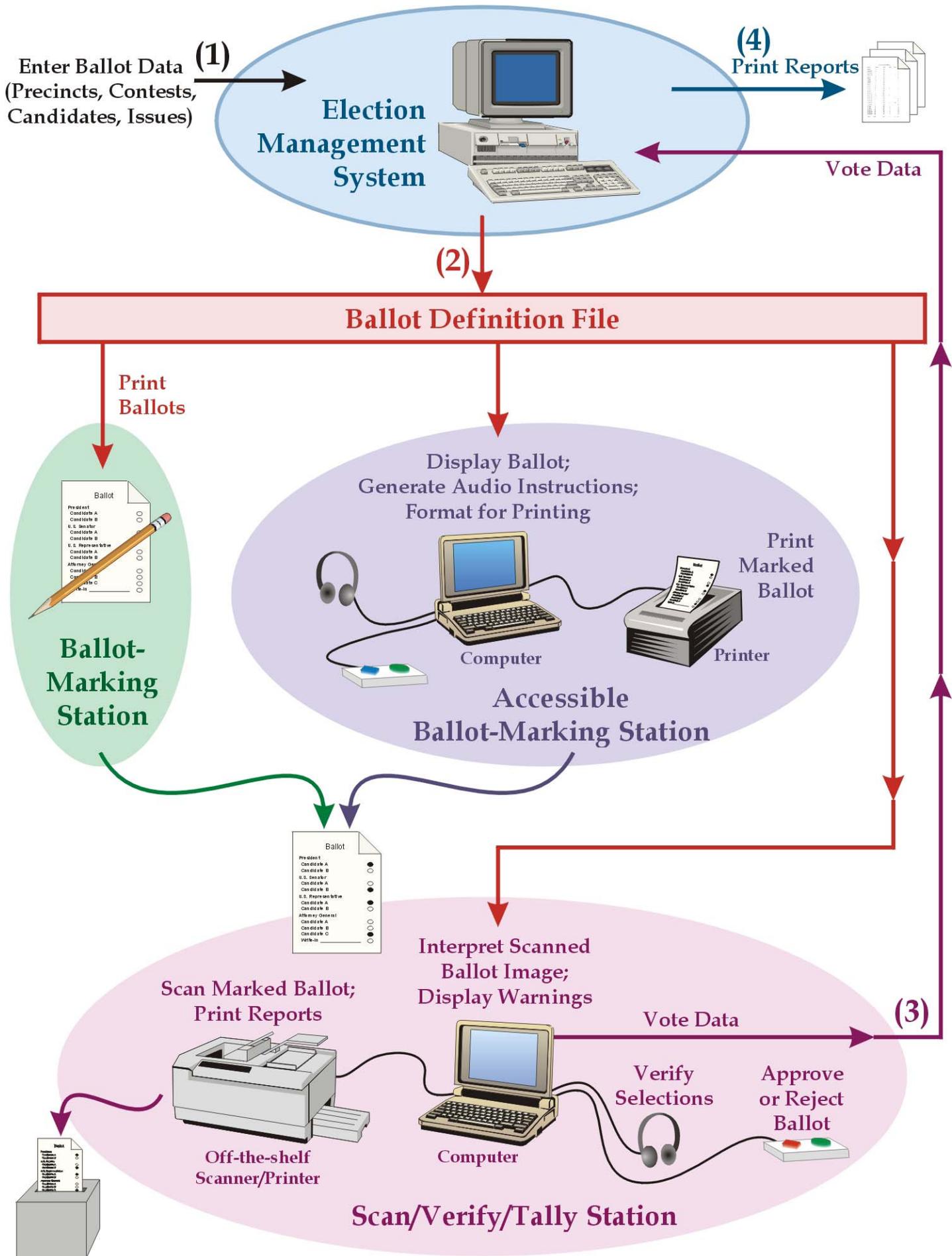
- (1) Data for each ballot style is entered into the Election Management System.
- (2) The Election Management System generates a ballot definition file with the data for all ballot styles. This file enables the voting system to perform all tasks related to each ballot style:
  - a. Print the paper ballots to be hand-marked by able-bodied voters.
  - b. At the Accessible Ballot-Marking Station:
    - ◆ Display the ballot on the screen of the computer
    - ◆ Generate audio read-out of the ballot so that voters with special needs can hear the ballot
    - ◆ Receive the voter's selections via rocker paddles or other accessible devices
    - ◆ Print the ballot with the voter's choices on the attached printer
  - c. At the Scan/Verify/Tally Station:
    - ◆ Interpret the marks on paper ballots to generate vote data
    - ◆ Generate audio read-out of the interpretations so voters with special needs can verify how their marks on the paper ballot will be counted.

The computer at the Accessible Ballot-Marking Station provides visual display and/or audible read-out of the ballot, which enables voters to see and/or hear the ballot. The computer has a dual-switch port for rocker paddles, sip-and-puff devices, and other attachments that assist people with dexterity impairments to indicate their votes. Voters with visual impairments can use the keyboard or other attached devices to indicate their votes. When the voter is ready to print the ballot with the votes marked on it, the computer formats the completed ballot and sends it to the printer for printing.

At the Scan/Verify/Tally Station, an off-the-shelf scanner scans the marked ballot and passes the image to the computer. The computer interprets the selections on the scanned ballot, displays warnings to voters who over- or under-voted, provides audio read-out for voters with special needs to verify that the computer's interpretation of their votes is correct, and tallies those votes.

If the scanner has print capabilities, it can be used to print precinct reports. Otherwise, an additional inexpensive COTS (Commercial Off The Shelf) local printer would be used for these functions.

- (3) Vote data from each Scan/Verify/Tally Station is transmitted to the Election Management System. This can be done by poll workers reading the information over the telephone from tally printouts, followed by delivery of tally printouts, along with write-once CDs if desired.
- (4) The Election Management System generates precinct-level reports and summary reports of the results.



# James L. de la Houssaye

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1110 Drake Street  
Vienna, Virginia 22180

## **SUMMARY OF RELEVANT QUALIFICATIONS**

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Clearance: **TS**. Recent application experience includes VB6, C#.NET, VB.NET, ADO.NET, complex SQL Server queries, and XML / XSD / XSL. Over 30 years experience in applying Wintel/Unix networked computer solutions to technical and business requirements, including project management, solution configuration engineering, system integration, proposal development, technical writing, 9 years technical management of up to 14 programmers, Applications and Systems Programming (including Operating Systems and Compiler internals), cross functional team leader, and teaching University Computer Science courses. This includes 6 years experience with a small high tech startup, 7 years as an independent consultant, plus experience with two *Fortune-100* computer companies, and a large university. Recent experience includes designing, building, integrating, and delivering hardware / software systems implementing Computer Vision solutions for factory / quality control application, including a water mark quality grading system for US paper currency, and development of custom communication modules for a Network Management Framework.

## **RECENT EMPLOYMENT HISTORY**

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<b>JAMES L. DE LA HOUSSAYE, CONSULTANT</b> , Vienna, VA	(Oct '06 - Present)
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*Independent Consultant*

Provide freelance consulting (see examples below).

<b>COMPUTER SCIENCES CORPORATION</b> , Chantilly, VA	(Mar '05 – Sep '06)
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*INMS System Analyst / Software Developer*

NeuralStar BCL module (VB6) and stand-alone application Development for the INMS Project. In addition to applying 8 years of VB 5/6 experience for updating BCL customization modules and to develop a Database schema analysis utility, also learned VB.NET, C#.NET, and ADO.NET, and developed several applications using C# / ADO. Also learned and applied knowledge of XML / XSD / XSL standards to use both with BCLs in VB6, and with the C# applications. Also did some simple VB.NET Web Page exercises.

<b>JAMES L. DE LA HOUSSAYE, CONSULTANT</b> , Vienna, VA	(Jun '04 - Mar '05)
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*Independent Consultant*

Provide freelance consulting (see examples below).

<b>AGRIS SCHOEN VISION SYSTEMS</b> , Fairfax, VA	(Oct '98 - Jun '04)
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*Sr. Vision Systems Engineer*

System Integration including determine customer requirement, design, assemble, program, deliver, install, and train customer on custom Vision Systems. Successfully implemented MS Wintel systems for factory automation, and for off-line quality control. Programs implemented in VB, C++, and Delphi using XCaliper, Sherlock, and WiT vision libraries, including Client/ Server and other networked applications. Also assisted with other personnel with their projects, assist with corporate programming and documentation standards, and some business development. Conducted formal Vision System programming training courses for programmers from 6

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# James L. de la Houssaye

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companies. Participated in Vision System research projects, such as one determining fish species and counting them in waterway barrier bypasses (fish ladders).

## PREVIOUS EMPLOYMENT

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**JAMES L. DE LA HOUSSAYE, CONSULTANT**, Vienna, VA

(Jan '92 - Oct '98)

*Independent Consultant*

Provide freelance consulting including RFP proposal technical writing, marketing consulting and sales materials development, technical support of network/data communications, of hardware/software for DOS/Windows client / Unix server POS systems and of applications such as solution architecture development, image interchange standards development, and document interchange test system development.

**DIGITAL EQUIPMENT CORPORATION**, New England and DC areas

Various responsibilities, including Software Maintenance management (14 programmers), project management for a large multi-million dollar project for a key customer, team leader for a cross functional network team responsible for total network design and wiring plant / software implementation, application engineering, and various other technical sales / sales support responsibilities for major projects such as both Space Telescope and Landsat control rooms, and other Federal Government (classified) projects.

**LOUISIANA STATE UNIVERSITY IN NEW ORLEANS (LSUNO, NOW UNO)**, New Orleans, LA

Taught the two introductory Computer Science courses. Consulted with computer users and assisted them in program development, provided seminars, and coordinated local use of computer systems. Supervised Operation and Systems Programming staff, and some research projects, including Operating Systems, DataComm, Compiler, Real Time and Graphics Display development. Prior to joining the University Faculty / Staff, while in Grad School, taught Physics Lab courses and graded homework/exams for Physics Lecture courses.

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## AFFILIATIONS/SPECIAL QUALIFICATIONS

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- DOD Security Clearance: Top Secret.
  - Member, Association for Computing Machinery (ACM) [past local chapter officer]
  - Member, Computer Society of the Institute of Electrical and Electronic Engineers (IEEE)
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## EDUCATION/SPECIALIZED TRAINING

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Louisiana State University in New Orleans (LSUNO, now UNO), New Orleans, LA:

- Graduate: Satisfactorily completed course work for M.S. Physics (Thesis incomplete)
  - Undergraduate: B.S. Physics
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### **My Background**

I have been writing, illustrating, and editing technical and business communications since 1983. In 1989, I moved to the Pacific Northwest and became an independent consultant, writing and illustrating documentation for software systems and combined software/hardware systems. I have created over 300 technical manuals, online help files, and marketing documents, ranging from a one-page data sheet to a 1450-page programmer's reference guide. My client list includes over 40 companies in the United States and Canada.

In 2003, I began working with Verified Voting, an organization founded by Dr. David Dill, Professor of Computer Science at Stanford University, to work toward verifiable elections in the United States.

In 2004, I founded VotersUnite!, a national non-partisan organization dedicated to fair and accurate elections by focusing on distributing well-researched information to elections officials, elected officials, the media, and the public; as well as providing activists with information they need to work toward transparent elections in their communities. I am also the developer of the Vote-PAD, a non-computerized voter-assist device, which allows voters with disabilities to mark a paper ballot independently and privately.

One of my major clients from 1995 to 2005 was a company that produced image analysis software tools for machine vision applications and document processing applications. Over the last four years, as I became informed about computerized election equipment, what I learned from working on the systems I documented for this long-term client inspired the idea I am presenting in this letter.