

RALPH BROWN
Secretary of the Senate

The Senate
STATE OF IOWA
STATE HOUSE
Des Moines, Iowa 50319
October 9, 1973

TELEPHONE
515/281-5307

MEMORANDUM

TO: Administration Committee of the Legislative Council
RE: Electronic Voting System in the Iowa Senate

Pursuant to the action of the Administration Committee on August 15, 1973, I have pursued the possibilities of installing an electronic voting system in the Iowa Senate in time for the convening of the 66th General Assembly in January of 1975. I have contacted the major electronic voting system firms in the United States; have prepared specifications for a proposed system in the Iowa Senate; and am asking two firms to submit bids for consideration by the Legislative Council.

Aelred J. Kurtenbach, President of Daktronics, Inc. in Brookings, South Dakota, was in Des Moines on September 28 to discuss his firm's voting system. Mr. Kurtenbach also visited Carroll Lane last November and submitted a letter briefly describing Daktronics' installation. A very basic system was estimated to cost \$62,500.

Copies of Mr. Kurtenbach's letter of November 28, 1972; my letter to Mr. Kurtenbach of October 9, 1973; and my proposed specifications are attached hereto. I have also attached copies of the South Dakota roll call sheet produced by a Daktronics system; a survey of state legislatures on the use of electronic voting systems conducted by Hamilton McWhorter, Secretary of the Georgia Senate; and a clipping from the May 26, 1973 edition of the Minneapolis Tribune.

As you will note from Mr. McWhorter's survey, International Roll-Call Corporation of Richmond, Virginia, is the largest manufacturer of roll call systems, having been in business since 1919. Daktronics, Inc. was organized in 1969 and has installed seven systems as indicated on the attached summary sheet.

International Roll-Call did not respond to my letter seeking information about their system. The firm was not contacted by my predecessor in 1972 after the Legislative Council requested information on voting systems. However, I have contacted by telephone Mr. William Pitts of that firm who has agreed to travel to Des Moines next week to discuss that firm's system and to submit a proposal.

Last spring Mr. Bruce B. Brown, President of the OMIS Corporation in Chicago which manufactured the CEECO legislative roll call system, called upon me to discuss this firm's system. I have learned from my colleagues in other states that CEECO has now gone out of business, leaving only Daktronics, Inc. and International Roll-Call Corporation to compete.

Most companies require 5 to 6 months to install a voting system. With respect to Daktronics, the sooner a contract is signed the less expensive will be the final cost, since they will not be so rushed to construct the system.

I anticipate having bids from Daktronics, Inc. and International Roll-Call Corporation prior to the November meeting of the Legislative Council. The bids could be discussed at that time, and a contract entered into at the December meeting.

Very truly yours,



RALPH R. BROWN
Secretary of the Senate

Attachments:

- (1) Specifications for electronic voting system
- (2) November 28, 1972, letter from Daktronics, Inc.
- (3) October 9, 1973, letter to Daktronics, Inc.
- (4) South Dakota House of Representatives roll call sheet
- (5) Minneapolis Tribune newspaper clipping
- (6) Summary of installations by Daktronics, Inc.
- (7) Survey of states using electronic voting systems
- (8) Daktronics, Inc. sales booklet
- (9) International Roll-Call Corporation sales flyer



RALPH R. BROWN
Secretary of the Senate

The Senate
STATE OF IOWA
STATE HOUSE
Des Moines, Iowa 50319

TELEPHONE
515/281-5307

October 8, 1973

SPECIFICATIONS FOR AN
ELECTRONIC VOTING SYSTEM
IN THE IOWA SENATE

It is important that any electronic voting system installed in the Iowa Senate perform tasks -- in addition to merely recording Senators' votes -- that will make the legislative process and the administration of the Senate easier for legislators and staff alike. Consequently, these specifications set forth numerous functions that should be expected from an electronic voting system.

A basic system is described in detail below. The base bid should be made on this basic system. In addition, several alternative items are detailed. A separate bid should be made on each numbered alternative, based on the assumption that it might become part of the final system.

VOTING STATION. The following buttons must be provided for each voting station at the desks of the 50 Senators: YES, NO, and PRESENT.

In addition, there should be a button the Senators would depress to signal the presiding officer of his or her desire to speak. There also should be a lock on the voting station, with a key provided each Senator. The voting station should be installed on each desk immediately below the microphone. Each Senator should have the flexibility of changing his or her vote after pressing one button, but before the voting is closed.

SECRETARY'S DESK. The Secretary should have the operational controls for the electronic voting system; i. e., controls to open and close voting, to enter bill numbers and amendment numbers, and to operate the printer. The bill number must have three alphabetical designations (S. F., H. F., S. J. R., H. J. R., S. C. R., H. C. R., and S. R.) and four numerical designations. With respect to the alphabetical designation of bill numbers, there should be no "space" between such letter combinations as S. F., H. F., and S. R. In addition, the amendment number should have a permanent alphabetical designation "S" and four numerical designations.

The Secretary's desk should have a miniature display of the Senate Chamber which will indicate -- during the time voting is open -- the Senators who have not yet voted. There also must be a "totalizer" to indicate totals for those voting YES, NO, or PRESENT and for those Absent.

Controls should be available to erase the board display. But it must be possible to store the information, such as for an additional print-out of the votes, until the next vote is taken.

The podium for the Secretary will have to be replaced with one larger in size to accommodate the necessary controls. As much as 48 inches in width would be available for use. The existing microphone, switch, and light must be incorporated into the new podium. Two of the three telephones will have to be moved. The flashing lights for the three telephones should be incorporated into the controls -- three different colors should be used for the lights and each light should be coded as to source of the line.

The carpenter work on the new podium should conform to the existing woodwork in the Well. The microphone should retain its present position, which would be the center of the new podium. The miniature display should be on the left, and the operational controls on the right.

ALTERNATIVE 1. The miniature display at the Secretary's desk would indicate how each Senator is voting as the votes are being cast.

LIEUTENANT GOVERNOR'S DESK. A miniature display of the Chamber layout should be installed on the smaller desk to the right of the Lieutenant Governor's desk. This display would indicate -- by color code -- whether a Senator desired recognition to speak, or whether he or she was casting a YES, NO, or PRESENT vote on a roll call vote. The lights could be raised -- there is no need for a plate glass cover, since such a cover might result in unnecessary glare.

It is important to note that the seating arrangement is not determined until the first day of the Session. Necessary personnel would have to be on hand during the first day every two years to make the necessary connections in order that the miniature display would be operational on the morning of the second day.

At the front of the Lieutenant Governor's desk would be located a display for the bill number and amendment number, as well as a totalizer. The totalizer would show vote totals for YES, NO, or PRESENT as they are cast and a total for those Absent when the voting is closed. In addition there should be two telephone flashing lights on the console -- lights of different color and coded as to source of the telephone line.

ALTERNATIVE 2. Controls should be available at the Lieutenant Governor's desk to enable the presiding officer to cast the votes of Senators who enter the Chamber after the voting is closed, but before the result of the vote is announced by the President. Individual controls would allow the printer to record the votes properly. Further, it would be necessary that the printer not print the roll call until the presiding officer announced the vote result, instead of as soon as the voting is closed. This procedure would allow Senators to cast votes without returning to their seats, and would allow a presiding officer other than the Lieutenant Governor to cast his or her own vote.

ALTERNATIVE 3. As an alternative to Alternative 2, there should be a voting station at the Lieutenant Governor's desk for use by a presiding officer other than the Lieutenant Governor. If this alternative is chosen eventually, the printed roll call and the display board would have to have a voting position for "Mr. President." The Lieutenant Governor never would use this voting station.

ROLL CALL PRINTER. The printer would be located under, and slightly to the left of, the Secretary's desk. NCR paper would be used in the printer and an original and four copies would be produced.

The firm receiving the contract for the system would prepare a layout pattern for the roll call sheet which would in turn be reproduced by the State of Iowa. Within the printer would be a calendar -- set by the Secretary -- to print the date on each sheet. There would be a space between the month, date, and year.

Within the printer system there also would be a time-of-day clock, which would allow the printer to print the time of the vote on the roll call sheet. There should be an indication of "a. m." or "p. m."

The roll call would show bill number as well as amendment number. If one or more of the four spaces for numerical designation was blank, nothing would be printed in that space (as opposed to a "O.") Totals would be printed for YES, NO, and PRESENT votes, as well as for those Absent.

The printed form would list the names of the 50 Senators in alphabetical order. The names would be double-spaced in three columns. (If Alternative 3 is used, there would also be a listing for "Mr. President.")

ALTERNATIVE 4. The printer should be equipped with computer interface to permit the immediate transmission of roll calls to the State computer for storage and use in the legislative index data bank. The State of Iowa presently has an IBM 370/155 Computer, as well as a Collins Computer.

SOUND CONTROL OPERATORS' CONSOLE. A miniature display of the Chamber (with lights to indicate those Senators who had depressed their SPEAK buttons) would be placed to the right of the Control Operator's console. The Control Operator should have a control to turn off the light at the Control Operator's board, the Lieutenant Governor's desk, and the desk of the Senator recognized to speak.

MAIN DISPLAY BOARDS. There should be two identical display boards mounted on the balcony railing over the press boxes. The maximum space available would be 55 inches high by 93 inches wide. Note that the existing public address speakers are not to be moved.

The voting board would display the bill number and amendment number, as well as totals for those voting YES, NO, and PRESENT and the number of those ABSENT. These digits should be approximately 4 inches

in height. The lights of the digits should be four different colors. The numerals would be preceded by the appropriate alphabetical designation of the bill or the amendment.

The names of the fifty Senators would be displayed on the boards -- black letters on a white background -- the letters being at least $1\frac{1}{2}$ inches in height. (If Alternative 3 is used, there also must be a designation "Mr. President.") The names must be affixed to the boards in such a way that they may be changed or moved easily.

ALTERNATIVE 5. The letters for the names of the Senators would be 2 inches in height.

ALTERNATIVE 6. Rather than only alphabetical designations of S. F., H. F., etc. on the board, there would be an eight-sided drum in the boards. It would spell out Senate File, House File, Senate Joint Resolution, House Joint Resolution, Senate Concurrent Resolution, House Concurrent Resolution, and Senate Resolution on seven sides. The eighth side would be blank for votes on confirmations of Governor's appointments, rules, and ethics and lobbyist rules.

ALTERNATIVE 7. There would be a designation "Voting Open" on the boards to indicate the system is in readiness to receive Senators' votes.

CENTRAL EQUIPMENT. The central equipment for the system would be located in one corner of the Senate Lounge, inside and to the right as you enter from the Chamber. All wiring to the desks would be under the floor from the central equipment to each desk. The existing conduit for the bill number board may be used to carry the wires to the main boards on the balcony.



P.O. BOX 289

BROOKINGS, SOUTH DAKOTA 57008

TELEPHONE (605) 692-6146

November 28, 1972

RECEIVED
SENATE
STATE OF IOWA

Mr. Carroll A. Lane
Secretary of the Senate
General Assembly
State House
Des Moines, IA 50319

NOV 29 1972

Dear Mr. Lane:

I appreciated the opportunity to present our Electronic Voting System for your consideration. Our basic installation includes the following:

- i) An all solid state central unit using integrated circuits for all counting, multiplexing, and logic functions.
- ii) Voting stations including YES, NO, and PRESENT switches as shown on the enclosed drawing. The switches include indicators as an integral part of their assemblies. The indicators display the vote as stored in the system. A keyed switch can be provided to secure the voting station while the Senator is away from his desk.
- iii) Two identical Main Display Boards as shown on the enclosed drawing. Proposed locations are to the right and left of the speaker just above the present bill number display. The bill number will be incorporated into the new main displays. Each board will be approximately 37 inches high, 90 inches wide, and six inches deep. The periphery is to be hard wood finished to match the existing decor.
- iv) Control console at the Secretary's desk to turn the system on, enter the bill number, display vote totals, and control the printer.
- v) Control console at the President's desk to control the system during the voting period and display the bill number and vote totals.
- vi) Printer located on the Secretary's dias or elsewhere in the Senate chamber or offices as accessible.
- vii) Central logic and control unit located in the adjoining room at the rear of the chamber. Only solid state circuitry is used.

The YES and NO totals may be displayed as voted or stored for delayed display. Voting by the individual Senators may be displayed as voted or stored for display when the voting is completed. Note that the totals are available before a printed copy is made.

November 28, 1972

Our system uses low voltage at all voting stations. This eliminates a shock hazard due to spilled coffee, etc. The voting station will be raised slightly above the surface of the desk. In making our installation we will route the cables in an orderly fashion below the floor. All wiring will be done in accordance with the National Electric Code.

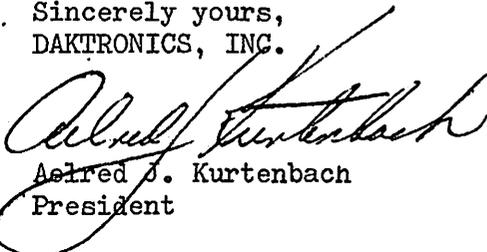
The system as described can be installed and operational within 150 days after receipt of contract and notice to proceed. A considerable amount of work including the design and fabrication would be completed in our plant. Actual installation can be accomplished in approximately 30 days. Total cost to the State of Iowa for the installed, operating system with a two year guarantee is approximately \$62,500.00. Because of our seasonal work load we offer a price reduction if we can commence work prior to May 1. Lease and Lease/Purchase plans are available.

I am sure that you are aware of the improved reliability that solid state electronics provides. Consequently, the number of outages is reduced significantly. However, if an outage should occur, the printed circuit board construction and back up capability allow for immediate repair. We will train a local representative for emergency maintenance and send a man from the factory out for preventative maintenance between regular sessions. Maintenance charges for each two years subsequent to the guarantee period are \$1,250.00 subject to inflationary adjustments.

I invite you to contact the legislators and staff in Utah, Montana, and South Dakota for their comments. Mr. Glen Swenson, Director of the Utah State Building Board, and Mr. James Soderberg, a member of the board, were our contacts there. Mrs. Rose Weber, Executive Director of the Legislative Council, was our contact in Montana. Mr. Mike Ortner, Director of the Legislative Research Council, is our contact in South Dakota. We are presently completing the fabrication of a system to be installed in the Illinois House next fall. Mr. Fred Selcke, Chief Clerk, is our contact there.

Please call Dr. Duane Sander or myself collect if you have questions. Our home phone numbers are (605) 692-6979 and (605) 692-6023, respectively.

Sincerely yours,
DAKTRONICS, INC.



Alfred J. Kurtenbach
President

AJK/pb

Enclosures



RALPH BROWN
Secretary of the Senate

The Senate
STATE OF IOWA
STATE HOUSE
Des Moines, Iowa 50319

TELEPHONE
515/281-5307

October 9, 1973

Mr. Aelred J. Kurtenbach
President
Daktronics, Inc.
P. O. Box 299
Brookings, South Dakota 57006

Re: Electronic Voting System
Iowa Senate

Dear Al:

Attached you will find an outline of specifications for an electronic voting system in the Iowa Senate. I believe all of the important features of a system are covered. Please submit your bid on the basic system, as well as an additional bid on each of the seven numbered alternatives.

The system described is essentially the one we talked about during your visit to Des Moines on September 26, with the exception of Alternatives 2 and 3. I think it important to have the capability to record the votes of Senators who enter the Chamber between the time the voting is closed and the time the presiding officer announces the vote, or those who do not have the time to return to their seats to vote prior to the time voting is closed.

In any event, as indicated in Alternative 3, there must be a voting station at the Lieutenant Governor's desk to be used by a presiding officer other than the Lieutenant Governor.

I have been advised by Verne H. Tanner, Jr., Director of the State of Iowa's Data Processing Division that the State presently has an

Mr. Aelred J. Kurtenbach
October 9, 1973
Page 2

IBM 370/155 Computer, as well as a Collins Computer. You may wish to visit with Mr. Tanner about the necessary computer interface to connect the voting system with the State's computer. His telephone number is 515/281-5503.

It was a pleasure seeing you and I look forward to hearing from you soon.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Ralph R. Brown", with a long horizontal flourish extending to the right.

RALPH R. BROWN
Secretary of the Senate

RRB:kmt
cc: Verne H. Tanner, Jr.

STATE OF SOUTH DAKOTA
HOUSE OF REPRESENTATIVES

FORTY-EIGHTH LEGISLATIVE SESSION - 1973

VOTE TABULATION

1 14 73

GENE N. LEBRUN
SPEAKER OF THE HOUSE

HJR2781A

LEGISLATIVE DAY 04

70 MEMBERS

22 YEA

19 NAY

4 EXCUSED

25 ABSENT

A Anderson, Burton
Y Anderson, O.L. (Larry)
Y Barkley, Edwin K.
N Barnes, Richard
Y Barnett, Joe
A Bibby, John E.
Y Cheney, F. Julian
A Clay, Charles E.
Y Curran, Michael
A Danekas, Willis E.
E Edelen, Mary B.
Y Ellingson, Bertrum E.
Y Endres, James
A Groseth, Joe M.
Y Gross, Benny J.
A Gunderson, Albert
A Halling, Beverly
A Hansen, Lowell C.
A Hauschild, Wayne A.
A Hersrud, James
N Hogen, Marvis T.
N Hunking, Loila
N Jelbert, James D.
Y Jensen, Ingeman A.
N Jensen, William M.
E Johnson, Roy M.
A Johnson, Stan
N Jorgensen, Donald M.
E Kaufman, Fred
N Kaufman, LeRoy J.
Y Kauth, Kenneth (K.O.)
N Kelly, Robert W.
A Kesling, James W.
A Kleven, Les J.
N Knudsen, Henry I.

A Knutson, Robert J. Jr.
Y Kolbo, Jack
Y Kolker, Richard L.
A Kopecky, Bernie
N Lebrun, Gene N.
N Lovell, Gordon D.
N Lyons, Robert E.
A McFarland, Dennis C.
N Mehlhaff, Dean O.
N Mensch, Lyle D.
A Miller, Linda Lea
Y Miller, Walter D.
A Millett, Harold
Y Mortimer, G. F.
A Nelson, James S.
A Nepstad, Dorothy
Y Olson, Maurice A.
Y Piersol, Lawrence L.
Y Pommer, Merle C.
Y Radack, Jerome D.
Y Robbennolt, Gene
A Rothstein, James L.
E Sieh, Harold
A Sivertson, Robert
N Stalheim, Larry
Y Songstad, Sheldon R.
Y Stoesser, Bernard
A Swenson, Duaine V.
A Testerman, Philip
N Tschetter, Menno
Y Vigen, David C.
A Walter, Merwyn H.
N Weber, Robert R.
N Wiese, Andrew J.
N Wood, Royal J. (Bud)

Speaker Lebrun

Voting in Legislature short-circuited

By Robert Franklin
Staff Writer

Senate Majority Leader Nicholas Coleman wasn't very happy about the Minnesota Senate's new electronic-voting machines.

"The best thing that happened to those boards was when a guy drove a fork-lift truck into one of them," the St. Paul DFLer said this week. "Maybe we can get him back."

The \$16,000 voting system—which hasn't been paid for yet—broke down periodically throughout the 1973 session.

There are some other fea-

tures of the voting machines used by the Senate and House that do not expedite the legislative process. And they contributed to the dispute over high-pressure tactics that arose last Sunday morning when the voting was kept open for 35 minutes in the House and two hours in the Senate while DFL leaders were trying to get enough votes to pass a controversial highway and transit bonding bill.

By contrast, the South Dakota House of Representatives, which installed its very first electronic-voting system for this year's session, doesn't have the same kind of problem. Here's why:

■ In South Dakota, no representative can tell how another voted until after the tally is complete. Only then do the lights show on a board how each legislator voted.

■ South Dakota representatives normally take only 30 seconds to vote. Then the vote is counted automatically. The chief clerk can tell if someone fails to vote — but not how he voted — and can have the tally delayed momentarily while the person's name is called. Late votes generally are cast

within seconds, officials said.

■ There's no "scanner" to show anybody what the vote totals are while the voting is still open. The system came with a scanner for the speaker's desk but was removed before the session began.

In Minnesota, each legislator's vote shows up on a board for all to see as soon as he pushes his voting button, and that leads to all kinds of political gamesmanship.

For instance, legislators from the minority party will delay voting to force the majority into passing its own bill. And one senator switched his vote at the last second to provide the one-vote majority for a key amendment to an important bill this session. The Minnesota Senate has a "scanner" to show the vote publicly while some senators are still making up their minds. The House scanner provides totals only at the desk of Speaker Martin Sabo.

All of that, plus the fact that legislators sometimes are away from their desks when voting starts, makes for delays in completing the vote. And it opens the

way for the kind of lobbying that took place during last Sunday's voting on the bonding bill.

The South Dakotans appear satisfied with their machine, a product of Daktronics, Inc., Brookings, S.D.

Since it replaced an oral roll call, it has "provided for a lot more independence in voting," says Speaker Gene Lebrun, D-Rapid City.

Members may change their votes in the few seconds after the tally, but usually do so only to get on the prevailing side of an issue so they can move to reconsider it later.

"Each individual legislator makes his own decision," says Mike Ortner, director of the Legislative Research Council. The South Dakota Constitution requires every member present to vote, he adds, "and I have not seen anyone running to leave the chamber to avoid voting."

But then what else would one expect of a legislative body that managed to organize its business smoothly despite the fact that it had a 35-35 tie vote between Democrats and Republicans?

BID TABULATION

LEGISLATIVE OFFICES AND MEETING ROOMS

STATE CAPITOL BUILDING

DES MOINES, IOWA

October 9, 1973

Bidder	Bid Security	Base Bid Leg. Service	Alt. 1 NE & SE	Alt. 2 NW & SW	Completion Time
Bergstrom Constr. Inc. 1725 Hull Des Moines, Iowa	\$15,000	\$81,780	\$71,880	\$57,310	120 days (occupied) 120 days (unoccupied)
Elview Constr. Co. Inc. 806 Ankeny Blv'd. Ankeny, Iowa	\$15,000	\$84,480	\$73,566	\$57,619	100 days (occupied) 150 days (unoccupied)
Garmer Constr. Co. 1620 E. University Des Moines, Iowa	\$15,000	\$104,620	\$78,542	\$59,642	120 Cal. days (occupied) 180 Cal. days (unoccupied)
King-Bole, Inc. 404 Shops Building Des Moines, Iowa	\$15,000	\$78,920	\$69,063	\$54,887	120 Cal. days (occupied) 150 Cal. days (unoccupied)
W. H. Jamison & Co. 7013 Douglas Urbandale, Iowa	\$15,000	\$108,430	\$84,800	\$76,700	150 Cal. days (occupied) 150 Cal. days (unoccupied)
Lovejoy Constr. Co. 1547 Michigan Des Moines, Iowa	\$15,000	\$87,570	\$75,015	\$59,375	120 Cal. days (occupied) 180 Cal. days (unoccupied)