



Electronic Voting System in the House of Representatives: History and Usage

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Summary

On January 23, 1973, 87 years after the first legislative proposal to use an automated system to record votes was introduced, the House of Representatives used its electronic voting system for the first time. The concept of automated voting dates back even farther to 1869, when Thomas Edison filed a patent for a vote recorder and demonstrated the system to Congress. Between the first legislative proposal for automated voting in 1886, and the passage of the Legislative Reorganization Act of 1970, which contained language authorizing an electronic voting system, 51 bills and resolutions were introduced to provide for automated, electrical, mechanical or electronic voting.

Following the passage of the Legislative Reorganization Act of 1970, the Committee on House Administration and House Information Systems worked to develop, install, and implement the electronic voting system. The electronic voting system was first used on January 23, 1973, to record a quorum call.

This report examines the legislative history of electronic voting in the House of Representatives, discusses the design and initial use of the electronic voting system, and examines the day-to-day operations of the system, including the process for conducting a vote electronically.

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As part of the Legislative Reorganization Act of 1970, the House of Representatives authorized an electronic means for recording floor votes.¹ The language in the 1970 act, however, was not the first legislative proposal to allow the use of an automated voting system in the House. Between 1886 and 1970, 51 bills and resolutions were introduced to bring automated, electrical, or mechanical voting to the House of Representatives. The current electronic voting system was first used on January 23, 1973.

History of Electronic Voting Before 1970

In 1869, Thomas Edison registered a patent for the first electric vote recorder.² Edison designed the system after learning that the Washington, DC, city council and the New York state legislature were considering systems to record votes automatically. In Edison's system "each legislator moved a switch to either a yes or no position, thus transmitting a signal to a central recorder that listed the names of the members in two columns of metal type headed 'Yes' and 'No'."³ Edison and his colleague Dewitt Roberts demonstrated the machine to Congress, where Edison recalled:

We got hold of the right man to get the machine adopted, and I enthusiastically set forth its merits to him. Just imagine my feelings when, in a horrified tone, he exclaimed: "Young man, that won't do at all! That is just what we do *not* want. Your invention would destroy the only hope the minority have of influencing legislation. It would deliver them over, bound hand and foot, to the majority. The present system gives them a weapon which is invaluable, and as the ruling majority always know that it may some day become a minority, they will be as much averse to any change as their opponents."⁴

In 1886, electric and mechanical voting was proposed for the House with the introduction of two separate resolutions. Representative Lewis Beach introduced a resolution in February directing the Committee on Rules to "inquire into the feasibility of a plan for registering votes."⁵ In June, Representative Benjamin Le Fevre submitted a resolution on the electrical recording of the yeas and nays.⁶ The resolutions were referred to the Committee on Rules. No further action was taken on either resolution.

During the 63rd Congress (1913-1914), Representative Allan Walsh introduced H.Res. 513, providing for an electrical and mechanical system of voting for the House of Representatives.⁷ A special subcommittee of the Committee on Accounts held hearings on an automated system where each Member would have a voting box with three or four buttons attached to a desk. Each

¹ P.L. 91-510, 84 Stat. 1140, October 26, 1970.

² Thomas A. Edison, "Improvement in Electrographic Vote-Recorder," U.S. Patent 90,646, June 1, 1869 <http://edison.rutgers.edu/patents/00090646.PDF>.

³ "Vote Recorder," The Edison Papers, <http://edison.rutgers.edu/vote.htm>.

⁴ George Parsons Lathrop, "Talks with Edison," *Harper's New Monthly Magazine*, vol. 80, no. 477 (February 1890), pp. 431-432. Available at <http://edison.rutgers.edu/NamesSearch/SingleDoc.php3?DocId=SC90012A>; and <http://cdl.library.cornell.edu/cgi-bin/moa/moa-cgi?notisid=ABK4014-0080-47>.

⁵ U.S. Congress, House of Representatives, *Plan to Register Votes, Etc.*, 49th Cong., 1st sess., Mis.Doc. 98, Serial Set 2415 (1886), p. 1.

⁶ U.S. Congress, House of Representatives, *Electrical Recording of Yeas and Nays*, 49th Cong., 1st sess., Mis.Doc. 315, Serial Set 2418 (1886), p. 1.

⁷ U.S. Congress, House, Committee on Accounts, *Electrical and Mechanical System of Voting*, hearing on H.Res. 513, 63rd Cong., 2nd sess., July 31, 1914 (Washington: GPO, 1914).

voting box would have a unique key and each Member would be assigned to a box that only his or her key would operate. The votes would then be transmitted electrically and recorded mechanically by a machine installed on the clerk's desk, with votes displayed on boards throughout the chamber and in the cloak rooms.⁸ Following the subcommittee's hearing, no further action was taken on H.Res. 513.

A similar proposal, H.Res. 223, was introduced in the 64th Congress (1915-1916) by Representative William Howard. Hearings were held by the Committee on Accounts on the proposal and testimony was heard from outside experts, including representatives of the company then installing an electrical voting system in the Wisconsin legislature.⁹ H.Res. 223 was favorably reported by the Committee on Accounts, but was not acted upon by the House.¹⁰

During the hearings on H.Res. 513 and H.Res. 223, Members' statements and questions dealt with the length of time needed to vote in the House, the accuracy of such roll-call votes, and the cost of developing and implementing an electrical vote recording system. For example, during his testimony on H.Res. 513, Representative Walsh testified that "taking 45 minutes as the average time consumed in a roll call, the time consumed in the Sixty-second Congress in roll calls was 275 hours, or 55 legislative days."¹¹ Members of the Committee on Accounts, however, were concerned that shortening votes could "flood the country with legislation" as well as speed up the voting process, thus disrupting then-used delaying tactics resulting in "filibuster by means of roll calls."¹²

The hearings also addressed Members' concerns that voting mistakes could be made using an electrical and mechanical system. In the hearings on H.Res. 513, Representative Walsh testified that the voting system he envisioned would automatically cut off the circuit after a prescribed time to end a vote. In the instance where a Member missed a vote, Representative Walsh desired to let the Speaker decide whether the Member would be allowed to vote.¹³ Representative Howard's resolution, H.Res. 223, overcame this perceived deficiency and allowed for vote changes either through the mechanical system or through a more traditional paper method.

The issue of cost was also raised during the hearings. During the hearings on H.Res. 513, members of the Committee on Accounts expressed concern about the cost of development and installation of the electric voting system. Representative Walsh testified in the 63rd Congress that

⁸ *Ibid.*, pp. 4-6. The buttons on the voting box would indicate Yea, Nay, Present, and Paired. When a button was depressed, the appropriate light would come on next to the Member's name in the appropriate column.

⁹ U.S. Congress, House, Committee on Accounts, *Electrical and Mechanical System of Voting*, hearing on H.Res. 223, 64th Cong., 1st sess., May 15, 1916 (Washington: GPO, 1916). The electric roll-call voting system was installed in the Wisconsin Assembly chamber in 1917. The system allowed each member to vote from his desk and have the vote displayed on boards in the chamber. For more information on the Wisconsin electric voting system, see Christian A. Holst, *The Wisconsin Capitol: Official Guide and History*, 2nd edition (Madison, WI, 1919), p. 53; State of Wisconsin, *Wisconsin State Capitol Guide and History*, 24th edition (Madison, WI: Office of State Chief Engineer, 1946), pp. 44-45; and State of Wisconsin, "Facts about the Capitol's Architect," *History*, <http://www.wisconsin.gov/state/capfacts/history.html>.

¹⁰ U.S. Congress, House, Committee on Accounts, *Electrical and Mechanical System of Voting*, report to accompany H.Res. 223, 64th Cong., 1st sess., H.Rept. 940 (Washington: GPO, 1916).

¹¹ U.S. Congress, House, Committee on Accounts, *Electrical and Mechanical System of Voting*, hearing on H.Res. 513, 63rd Cong., 2nd sess., July 31, 1914 (Washington: GPO, 1914), p. 9.

¹² *Ibid.*

¹³ *Ibid.*, pp. 10-11.

his proposed voting system was estimated to cost no more than \$25,000.¹⁴ In the 64th Congress, however, in the report recommending adoption of Representative Howard's resolution, the Committee on Accounts estimated that the electrical voting system would cost \$106 per unit, with a total cost of approximately \$125,000.¹⁵

Although the report on H.Res. 223 recommended the resolution's adoption, there was still division in the Committee on Accounts over the desirability of such a voting system. A majority found that an electrical and mechanical system could help Members save time and avoid the practice of reading each name twice for every roll-call vote and quorum call:

From the statements of the experts before the committee it is evident that such a device can be constructed. From a view of the working model of one device, it is evident that a practical voting system can be instituted, and from the statements of various Members of the House, it is evident that there is a very strong desire for some means of saving the time of Members.... Believing that a system can be adopted which will save time, encourage the regular attendance of Members, and insure absolute accuracy in registering and recording the votes of the Members, the adoption of this resolution is recommended.¹⁶

A minority opposed the concept of an electronic system and the potential loss of floor time to review proposals before casting a vote:

It must be frankly admitted that the proposed device, if properly installed in the House, will rapidly record the vote if all Members are present. Voting, however, is the most important function of a Member of Congress, and we seriously question the wisdom of hurrying this branch of the work. It frequently happens under the present system that Members are required to vote before they have fully formed their judgment. The time taken in voting is obviously time of deliberation, of conference, of quiet discussion, and of interchange of views. Often, under the present system, before the voting has closed, Members change their votes. It is not an unreasonable thing to require a half hour or more to take the votes of 435 men who, as frequently happens, have been engaged in debate on an important question for weeks.... Speed is not the most necessary thing in legislation.¹⁷

While no action beyond committee reports occurred for either H.Res. 513 or H.Res. 223, proposals to install automatic, electrical, or mechanical vote counting systems continued to be introduced. In 1923, Representative Melville Kelly introduced H.Res. 497, "providing for the purchase and installation of an electromechanical voting system in the House of Representatives."¹⁸ Referred to the Committee on Accounts, H.Res. 497 was reported by the committee on February 28, without recommendation. In the report, the committee noted that similar resolutions were favorably reported by the committee in the 63rd and 64th Congresses and "that all Members could vote simultaneously, if so desired. It was also shown that a great saving

¹⁴ Ibid., p. 12.

¹⁵ U.S. Congress, House, Committee on Accounts, *Electrical and Mechanical System of Voting*, report to accompany H.Res. 223, 64th Cong., 1st sess., H.Rept. 940, part 2 (Washington: GPO, 1916), p. 4.

¹⁶ U.S. Congress, House Committee on Accounts, *Electrical and Mechanical System of Voting*, report to accompany H.Res. 223, 64th Cong., 1st sess., H.Rept. 940, part 1 (Washington: GPO, 1916), p. 2.

¹⁷ Ibid.

¹⁸ H.Res. 497 (67th Congress), introduced January 29, 1923. See also, "Public Bills, Resolutions, and Memorials," *Congressional Record*, vol. 64, part 3 (January 29, 1923), p. 2678.

in times could be affected [sic] in the calling of the roll in the House by the use of one of these voting machines.”¹⁹

With the exception of H.Res. 513 introduced by Representative Walsh in 1915, H.Res. 223 introduced by Representative Howard in 1916, and H.Res. 497 introduced by Representative Kelly in 1923, none of the bills or resolutions subsequently introduced received committee or floor attention. Each was introduced, referred to committee,²⁰ and not acted on. The **Appendix** lists each of the proposals to install automatic, electrical, or mechanical voting in the House of Representatives.²¹

The cycle of introduction and non-action for automated voting bills continued into the 1950s. At that time, Representative Charles Bennett,²² a longtime proponent of automated voting, wrote an article for *U.S.A. The Magazine of American Affairs* advocating that the House of Representatives should adopt modern technology to vote and that not doing so proved how antiquated the House of Representatives was compared with state and foreign legislatures:

There once was a congressman who, when notified that a vote was to be taken, would race to the legislative chamber in time to beat the final rap of the gavel—from his home 19 miles away! He’d usually make it, too, because the taking of a record vote in the House of Representatives requires about 45 minutes the way it is done now.²³

Not until the 91st Congress (1969-1970) was further action taken by the House to advance proposals on automated voting. In 1969, during the Democratic Caucus’s organizational meeting for the 91st Congress, Representative C. Melvin Price introduced a resolution on vote recording procedures in the House of Representatives. The resolution stated:

RESOLVED: That it is the sense of the caucus that the Speaker of the House shall immediately proceed to take such steps as may be necessary to improve the vote recording procedures in the House of Representatives.²⁴

¹⁹ U.S. Congress, House Committee on Accounts, *Providing for the Purchase and Installation of an Electromechanical Voting Machine in the House of Representatives*, report to accompany H.Res. 497, 67th Cong., 4th sess., H.Rept. 1739 (Washington, GPO, 1923), p. 1. See also, “Numbered Gallery Seats Urged in House Resolution,” *The Washington Post*, December 11, 1923, p. 11.

²⁰ Bills and resolutions introduced before 1947 were referred to the Committee on Rules or the Committee on Accounts. Beginning in 1947, bills and resolutions were referred to the Committee on Rules or the Committee on House Administration, the successor committee to the Committee on Accounts.

²¹ The **Appendix** includes the Congress in which a bill or resolution was introduced, the date of introduction, the bill or resolution number, and the sponsor. From 1886 to 1969, 21 different Representatives introduced 51 proposals to install some type of automatic, electrical, or mechanical voting system in the House of Representatives. The sponsors of these measures included 10 Democrats and 11 Republicans. Members who introduced more than one bill or resolution were also evenly divided along party lines. Representative Winfield Denton of Indiana introduced six bills between 1951 and 1965, Representative Glenn Davis of Wisconsin introduced five bills between 1949 and 1969, Representative John Jarman of Oklahoma introduced four bills between 1951 and 1959, Representative Charles Bennett of Florida introduced four bills between 1949 and 1969, and Representative Milton Glenn of New Jersey introduced four bills between 1958 and 1963.

²² Representative Bennett served in the House of Representatives from the 81st Congress (1949-1951) until the 102nd Congress (1991-1993).

²³ Congressman Charles E. Bennett, “Yeas and Nays Waste Time: Today we’re in an era of pushbuttons, but Congress is still in the horse-and-buggy age with its voting procedure,” *U.S.A. The Magazine of American Affairs*, vol. 1, no. 2 (April 1952), p. 59.

²⁴ Meeting, Records of the House Democratic Caucus, Minutes of January 9, 1969, container 2, folder 5, Manuscript (continued...)

The resolution was agreed to by the Caucus and sent to the Speaker of the House. In response to the resolution, Speaker John McCormack sent a letter to the Committee on House Administration asking it to examine automated voting. In his letter, Speaker McCormack indicated that he was sure, while the resolution was adopted by the Democratic Caucus, “that all of our Republican colleagues would approve of the same.”²⁵

The Committee on House Administration formed a special subcommittee on electrical and mechanical office equipment, which held a hearing in April 1969 on electrical and mechanical voting.²⁶ During the hearing, Representative Fred Schwengel, the ranking member, summarized the subcommittee’s desire for an electronic voting system: “On electronic voting, I think this is something we can do now which will improve the effectiveness and efficiency, particularly the efficiency, of our operations. So I am all for moving forward as fast as we possibly can to the consideration of the matter.”²⁷

At the hearing, Clerk of the House W. Pat Jennings testified that to anticipate the approval of an electronic voting system, he included a request to support the development and installation of an electronic voting system in his proposed operating budget. Jennings estimated that the system would cost between \$80,000 and \$600,000, with \$500,000 considered adequate to install a comprehensive system.²⁸ The special subcommittee did not report on the Democratic Caucus’s resolution.

Creation of Electronic Voting, 1970 to 1973

As part of the Legislative Reorganization Act of 1970, the House agreed to develop an electronic voting system. As design and development of the system neared completion, the House amended its rules to accommodate the system. On January 23, 1973, the House used the electronic voting system for the first time.

The Legislative Reorganization Act of 1970

In the 91st Congress, Congress debated and passed the Legislative Reorganization Act of 1970. As introduced and reported in the House, the Act did not mention electronic voting.²⁹ In an attempt to add electronic voting to the Act, Representative Robert McClory offered a floor amendment to

(...continued)

Division, Library of Congress.

²⁵ U.S. Congress, Committee on House Administration, Special Subcommittee on Electrical and Mechanical Office Equipment, *Computer System-Vote Recording Procedures*, unpublished hearing, 91st Cong., 1st sess., April 1, 1969, p. 4.

²⁶ In the 86th Congress (1959-1961), the Committee on House Administration renamed the subcommittee on office equipment as the special subcommittee on electrical and mechanical office equipment. The subcommittee on office equipment had been created during the 84th Congress (1955-1956).

²⁷ U.S. Congress, Committee on House Administration, Special Subcommittee on Electrical and Mechanical Office Equipment, *Computer System-Vote Recording Procedures*, unpublished hearing, 91st Cong., 1st sess., April 1, 1969, p. 7.

²⁸ *Ibid.*

²⁹ U.S. Congress, House Committee on Rules, *Legislative Reorganization Act of 1970*, report to accompany H.R. 17654, 91st Cong., 2nd sess., H.Rept. 91-1215 (Washington: GPO, 1970).

authorize the development of an electronic voting system and to amend then House Rule XV to allow the system to be used to conduct votes and quorum calls.³⁰ The amendment, agreed to by voice vote, was contained in Section 121 of the act. Section 121 states:

Sec. 121. (a) Rule XV of the Rules of the House of Representatives is amended by adding at the end thereof the following new clause:

“5. In lieu of the calling of the names of Members in the manner provided for under the preceding provisions of this Rule, upon any roll call or quorum call, the names of such Members voting or present may be recorded through the use of appropriate electronic equipment. In any such case, the Clerk shall enter in the Journal and publish in the Congressional Record, in alphabetical order in each category, a list of the names of those Members recorded as voting in the affirmative, of those Members recorded as voting in the negative, and of those Members voting present, as the case may be, as if their names had been called in the manner provided for under such preceding provisions.”

(b) The contingent fund of the House of Representatives shall be available to provide the electronic equipment necessary to carry out the purpose of the amendment made by subsection (a).³¹

Section 121 (b) of the Act authorized funding from the contingent fund of the House. Providing funding in this manner allowed work on the design and installation of the system to begin without an additional funding resolution. In a report by the Clerk of the House, the initial cost of the voting system was estimated as no more than \$600,000.³²

Coupled with later rules changes, the change to Rule XV made by section 121 (b) established the electronic voting system as the primary method for conducting a roll-call vote or quorum call, in the House and in the Committee of the Whole. In his floor speech in support of his amendment, Representative McClory, a Republican, acknowledged the work done on the subject of automated voting by other Members of both parties and the Committee on House Administration:

I should like to point out that a report on this subject was made by a member of the original Reorganization Committee, the gentleman from Missouri (Mr. HALL). It is also the subject of legislation at this session introduced by the gentleman from Florida (Mr. BENNETT), and the gentleman from Wisconsin (Mr. DAVIS). I know that the Committee on House Administration has already undertaken studies. I know that the Clerk has made recommendations to the Committee on House Administration, and I feel that this amendment is an expression of support of the House for the work of the Committee on House Administration and perhaps to emphasize the need to bring their recommendations to the floor of the House in the form of a more specific and detailed change at the earliest possible time. It does not specify a particular system.³³

President Richard M. Nixon signed the Legislative Reorganization Act of 1970 into law on October 26, 1970.

³⁰ Legislative Reorganization Act of 1970, *Congressional Record*, vol. 116, part 19 (July 27, 1970), pp. 25818-25829.

³¹ P.L. 91-510, 84 Stat. 1157, October 26, 1970. For an analysis of House precedents and rules changes related to voting, including electronic voting, see CRS Report RL34570, *Record Voting in the House of Representatives: Issues and Options*, by (name redacted), (name redacted), and (name redacted).

³² Legislative Reorganization Act of 1970, *Congressional Record*, vol. 116, part 19 (July 27, 1970), pp. 25823-25824.

³³ *Ibid.*, p. 25818.

Designing the Electronic Voting System

In December 1970, following the enactment of the Legislative Reorganization Act, the Clerk of the House contracted with Informatics Inc. to design the voting system. In addition, the House created House Information Systems (HIS) in 1971 to “satisfy the requirements for information, information technology, and related computer services of the Members, committees and staff of the U.S. House of Representatives.”³⁴ Among its responsibilities, HIS developed, implemented, and maintained the electronic voting system.

Guided by instructions from House Information Systems (HIS) and the House Administration Committee, Informatics set five objectives and guidelines for designing the system. They were as follows:

1. The system should significantly reduce the time required to vote and also meet the information needs of system users.
2. Each system user, Representative, Tally Clerk, press, etc., should have a simple and consistent interface with the system from both a hardware and software viewpoint.
3. The system should have a very high degree of reliability with appropriate levels of automatic testing.
4. Hardware should be highly compatible with the Chamber decor so as to be as unobtrusive as possible and still function properly.
5. Absolute lowest cost is not a prime consideration when weighed against other design objectives; however, costs should be handled prudently.³⁵

Informatics estimated that completing these objectives would cost a total of \$900,000.³⁶

Informatics worked on the preliminary design concept for the electronic voting system until September 1971, when HIS recommended the termination of the contract. HIS took Informatics’ design and continued to refine and develop the electronic voting system. In November 1971, Representative John Dent introduced, and the House agreed to, H.Res. 601. This resolution authorized funds for the maintenance and improvement of existing computer systems and the creation of a computer systems staff,³⁷ whose primary task was the creation of the electronic voting system.³⁸ Also in November 1971, the Committee on House Administration approved a

³⁴ U.S. Congress, Joint Committee on the Organization of Congress, *Organization of Congress*, final report to accompany H.Con.Res. 192 (102nd Congress), 103rd Cong., 1st sess., S.Rept. 103-215, vol. 2, and H.Rept. 103-413, vol. 2 (December 1993), p. 117. These reports provided a summary of the creation of House Information Systems in 1971 as part of a history of information resources and technology in Congress.

³⁵ Informatics, “Electronic Voting System for the House of Representatives,” March 16, 1971, p. 2-1. For a copy of the Informatics report, see 92nd Congress, records of the Committee on House Administration, Record Group 233 (House Administration), National Archives, Washington, DC.

³⁶ *Ibid.*, pp. 7-6.

³⁷ H.Res. 601 (92nd Congress), agreed to November 9, 1971.

³⁸ U.S. Congress, Committee on House Administration, *Providing Funds for the Expenses of the Committee on House Administration to Provide for Maintenance and Improvement of Ongoing Computer Services for the House of Representatives and for the Investigation of Additional Computer Services for the House of Representatives*, report to accompany H.Res. 601, 92nd Cong., 1st sess., H.Rept. 92-607 (Washington: GPO, 1971), p. 3. See also “Providing Funds for Computer Services for House of Representatives,” *Congressional Record*, vol. 117, part 31 (November 9, (continued...))

contract with Control Data Corporation to “develop a fully operational electronic voting system” based on the work of Informatics and HIS.³⁹

In October 1972, the cost for designing and installing the electronic voting system was estimated to be \$1,065,000.⁴⁰ While that was substantially greater than the estimated costs in 1915, 1916, or 1969, Representative Wayne L. Hays, chair of the Committee on House Administration, justified the additional cost as a consequence of the use of electronic technology.⁴¹ Instead of having an electrical and mechanical system, the House chose a fully electronic, computer-based system with an electronic display board “which flashes a running tally and records each member’s vote on an overhead scoreboard and a computer printout.”⁴²

In contrast to earlier proposals that linked voting to individual voting boxes that were affixed to desks in the House chamber, the electronic voting system consisted of voting stations strategically located throughout the House chamber. In this respect, the system was unlike those used in many state and local legislative bodies. Representative Joe D. Waggoner enumerated the impracticality of returning to the pre-1913 practice of assigning seats⁴³ as a function of the number of seats in the House chamber and the imbalance between Democrats and Republicans in a Congress. “How many Democrats are in the House of Representative today? It was 244, I believe.... How many seats are there on this side of the aisle? There are 224. And there are 224 over there.”⁴⁴

Initial Use of the Electronic Voting System

While use of the electronic voting system was expected to begin on January 3, 1973,⁴⁵ Speaker Carl Albert announced that the voting system was not yet operational and that “Members will be given sufficient notice as to when the electronic voting system will be activated.”⁴⁶ Between January 3 and January 23, the House used roll-calls to record votes.

The electronic voting system was used for the first time on January 23, 1973, for a quorum call after Representative Hays made a point of order that a quorum was not present.

Mr. Speaker, I am going to make a point of order that a quorum is not present. It is my understanding we will use the new voting system. I just want to say to the Members that their

(...continued)

1971), pp. 40015-40017.

³⁹ U.S. Congress, Committee on House Administration, *The Electronic Voting System for the United States House of Representatives*, committee print, 93rd Cong., 2nd sess., January 31, 1975 (Washington: GPO, 1975), pp. 14-15. This committee print reviews the history of the electronic voting system and explains its operation.

⁴⁰ “Electronic Voting in the House of Representatives,” *Congressional Record*, vol. 118, part 27 (October 13, 1972), p. 36006.

⁴¹ *Ibid.*

⁴² David S. Broder, “The House: A New Era,” *The Washington Post*, February 18, 1973, p. B6.

⁴³ The assigning of seats in the House of Representatives was abolished during the 63rd Congress (1913-1914). “Seating of Members,” *Congressional Record*, vol. 50, part 1 (April 7, 1913), pp. 68-69.

⁴⁴ Legislative Reorganization Act of 1970, *Congressional Record*, vol. 116, part 19 (July 27, 1970), p. 25825.

⁴⁵ “House to Get Its Electronic Voting System January 3,” *The New York Times*, November 19, 1972, p. 32.

⁴⁶ “Announcement by the Speaker Concerning Electronic Voting,” *Congressional Record*, vol. 119, part 1 (January 3, 1973), p. 27.

cards will work if they put in either end or either side out. Any way the Members can get it into the slot, it will work, either end or either side; it does not matter.⁴⁷

The *Congressional Record* does not indicate any problems with the quorum call. The dialogue between the presiding officer and Representative Hays was conducted as it had been in the past, with the exception that the quorum call was conducted by “electronic device.”

Dr. Frank Ryan, HIS’s first director, worked with the clerk of the House to operate the system and assist the tally clerks responsible for counting votes.⁴⁸

Operation of Voting Equipment

Beginning in the 93rd Congress (1973-1974), HIS staff put the electronic voting system through a daily four-step process to ensure it was working properly.⁴⁹ First, the electronic voting system was initialized each morning of a legislative day and tests were conducted on all chamber equipment, including the main display panels, summary display panels, voting stations, and video consoles. Second, the electronic voting system was placed in production mode and made available for votes. Third, during use, a computer technician monitored the system to ensure the system remained operational. Finally, a member of the Clerk’s office acted as a floor monitor to assist Members using the system and to close down inoperable voting stations as necessary.⁵⁰

Data collected by the electronic voting system is housed in four internal House files that are not made public. These files are the transaction log, the checkpoint file, the vote journal log, and the hardware and software error log. The final report of the Select Committee to Investigate the Voting Irregularities of August 2, 2007, explains the four files:

The transaction log records all voting transactions by each Member during a particular vote, including every vote cast, the time each vote is cast, any changes, and the manner in which the vote is cast (i.e., from a voting terminal or by well card) and allows for the generation of a detailed report. The checkpoint file is written at the conclusion of the record vote and contains a snapshot of the vote data at the end of the vote. The vote journal log records when a vote begins and ends and when voting stations are closed, opened, or reopened. The hardware and software error logs record any errors which occur during the execution of the record vote.⁵¹

⁴⁷ “Order of Business,” *Congressional Record*, vol. 119, part 2 (January 23, 1973), p. 1793.

⁴⁸ Frank B. Ryan, “The Electronic Voting System for the United States House of Representatives,” *Computer*, vol. 5, no. 6 (November/December 1972), pp. 32-37.

⁴⁹ The Committee on House Administration printed *The Electronic Voting System for the United States House of Representatives* in the 92nd Congress (September 19, 1972), the 94th Congress (January 31, 1975), the 95th Congress (September 1, 1977), the 96th Congress (April 15, 1979), and the 97th Congress (August 30, 1982). The committee has not printed this guidebook since the 97th Congress. The final report of the Select Committee to Investigate the Voting Irregularities of August 2, 2007, however, suggests that a similar, if not the same process, continues to exist today. For more information, see U.S. Congress, House Select Committee to Investigate the Voting Irregularities of August 2, 2007, *Final Report and Summary of Activities*, 110th Cong., 2nd sess., H.Rept. 110-885 (Washington: GPO, 2008). [Hereafter, *Voting Irregularities of August 2007 Final Report*].

⁵⁰ Letter from Wayne L. Hays, chairman, Committee on House Administration, to Rep. William M. Ketchum, April 18, 1973, located at the Center for Legislative Activities, National Archives and Records Administration.

⁵¹ Hereafter, *Voting Irregularities of August 2007 Final Report*, p. 5.

Each of these files can be used to evaluate a particular vote and to verify the operational status of the electronic voting system.

Opening a Vote

When the chair announces, “The yeas and nays are ordered. Members will record their vote by electronic device,” the seated tally clerk turns on the electronic voting system for that specific vote and enables it to receive votes cast from the 46 floor voting stations.⁵² In enabling the electronic voting system, the seated tally clerk verifies that the correct bill or resolution number is in the computer, verifies the length of the vote (two minutes, five minutes or 15 minutes), and allows the system to begin accepting votes.⁵³

Voting

House Members may vote at any station located throughout the chamber.⁵⁴ To vote, a Member inserts “a little plastic card which is punched on either end identically, so you can put it in upside down or backwards”⁵⁵ into one of the voting stations, and presses one of three colored buttons: Yea, green; Nay, red; or Present, amber. (A fourth button illuminates to indicate a voting station is activated. It is blue.) A Member’s vote is then displayed in panels above the press gallery seats, directly above the Speaker’s dais. A green light indicates a Member voted Yea, a red light indicates a Member voted Nay, and an amber light indicates a Member voted Present.⁵⁶ Today, Member voting cards have magnetic strips that contain identification information. **Figure 1** shows an electronic voting station.

⁵² Testimony of House Parliamentarian John V. Sullivan, in U.S. Congress, House Select Committee to Investigate the Voting Irregularities of August 2, 2007, *Member Briefing on Voting in the House of Representatives - The Rostrum and the Electronic Voting System: A “Walkthrough” by the Clerk of the House Lorraine C. Miller*, hearing, 110th Cong., 1st sess., October 18, 2007 (Washington: GPO, 2008), p. 2.

⁵³ *Voting Irregularities of August 2007 Final Report*, p. 3. More information about the procedure can also be found in footnote 4 of the Select Committee’s final report.

⁵⁴ The number of voting stations in the House of Representatives has been reported at different levels by various sources since 1973. In committee prints published in 1972, 1975, 1977, and 1982, the Committee on House Administration listed 44 voting stations. See U.S. Congress, Committee on House Administration, *The Electronic Voting System for the United States House of Representatives*, committee print, 97th Cong., 2nd sess., August 30, 1982 (Washington: GPO, 1982), p. 2. Currently, the clerk of the House reports that there are 46 voting stations. See, U.S. Congress, House Select Committee to Investigate the Voting Irregularities of August 2, 2007, *Member Briefing on Voting in the House of Representatives—The Rostrum and the Electronic Voting System: A “Walkthrough” by the Clerk of the House Lorraine C. Miller*, hearing, 110th Cong., 1st sess., October 18, 2007 (Washington: GPO, 2008), p. 7.

⁵⁵ “Electronic Voting in the House of Representatives,” *Congressional Record*, vol. 118, part 27 (October 13, 1972), p. 36006.

⁵⁶ U.S. Congress, Committee on House Administration, *The Electronic Voting System for the United States House of Representatives*, committee print, 97th Cong., 2nd sess., August 30, 1982 (Washington: GPO, 1982), p. 4.

Figure 1. Electronic Voting Station



Source: U.S. Congress, Clerk of the House of Representatives, “The Legislative Reorganization Act of 1970,” *Historical Highlights*, <http://artandhistory.house.gov/highlights.aspx?action=view&intlD=116>.

Two summary displays, on the balconies to the right and left of the Speaker’s dais, keep a running total of votes cast and how much time remains for a vote.⁵⁷ Members today, in general, have a minimum of 15 minutes to record a vote.⁵⁸

Once he or she has voted, a Member may check his or her vote by reinserting the card and noting which light is illuminated at the voting station. During the first 10 minutes of a 15-minute vote, a Member may also change his or her vote in the same manner by depressing the corresponding button. If a Member wishes to change his or her vote after the first 10 minutes of a 15-minute vote, the Member must use a ballot card (well card) in the well of the House.⁵⁹ These ballot cards are manually entered into the electronic voting system by a tally clerk. Members’ votes so recorded are reflected on the panels above the Speaker’s dais (along with the votes of Members who voted at the voting stations), in the running total display boards on either side of the chamber, and as a vote change in the *Congressional Record*.⁶⁰ For a five-minute or two-minute vote, changes may be made electronically throughout the voting process.

⁵⁷ Ibid.

⁵⁸ Pursuant to Rule XX, cl. 2 (a), the minimum time for a recorded vote or quorum call is 15 minutes, except as authorized under Rule XX, cl. 8 or cl. 9, or Rule XVIII, cl. 6(f), where the Speaker may reduce to five minutes the minimum time for electronic voting under certain conditions. Under a rules change adopted by the 112th Congress, the chair of the Committee of the Whole may reduce to two minutes the voting time on questions following a 15-minute vote.

⁵⁹ Pursuant to Speaker’s voting policies in effect since 1976 and 1977, vote changes can be made electronically for the first 10 minutes of a vote. After 10 minutes, changes must be made using a ballot card in the well. For votes of fewer than 15 minutes, changes can be made electronically at any time during the vote.

⁶⁰ U.S. Congress, Committee on House Administration, *The Electronic Voting System for the United States House of Representatives*, committee print, 97th Cong., 2nd sess., August 30, 1982 (Washington: GPO, 1982), p. 4.

Closing a Vote

After time for a vote has expired and the chair has determined that a record vote is to be concluded, the clerks on the rostrum initiate a five-stage process to end the vote, tabulate the results, and reset the computer system in preparation for the next vote. Each stage of the process is carried out by the tally clerks. The five stages are (1) closing the voting stations, (2) terminating the vote, (3) setting the vote to final, (4) releasing the displays, and (5) verifying the release.

1. Closing the Voting Stations

The process of closing the voting stations begins when the chair asks whether any Members wish to vote or change their vote. This statement signals the seated tally clerk to close the 46 floor-based voting stations. A Member wishing to vote or change a vote after this announcement must fill out a well card, unless the voting stations are left open to allow additional members to vote. The vote is then manually entered into the electronic voting system.⁶¹

2. Terminating the Vote

A vote is terminated by the chair when no additional Members are in the well casting votes and the seated tally clerk has finished entering all well cards into the electronic voting system. Once the electronic voting system has processed all votes, the seated tally clerk notifies the standing tally clerk that the displayed tally is accurate. The standing tally clerk creates a “tally slip” listing the vote totals and hands it to the parliamentarian. The parliamentarian then provides the slip to the chair for the chair’s announcement of the vote.⁶²

3. Setting the Vote to Final

Following the termination of a vote, the computer system is set to display the word “Final” on the summary display boards. The clerk, however, can still enter votes into the electronic voting system once the word “Final” has appeared on the screen: thus, the word “Final” does not have parliamentary significance.⁶³

4. Releasing the Displays

Releasing the displays is the first step in resetting the electronic voting system and preparing for the next vote. This occurs when the chair completes the reading of the vote tally in an “unequivocal announcement.”⁶⁴ House Parliamentarian John V. Sullivan explained the process during the Select Committee to Investigate the Voting Irregularities of August 7, 2007, hearing conducted on the House floor: “[U]sually if the Chair says, ‘The amendment is adopted,’ that is

⁶¹ *Voting Irregularities of August 2007 Final Report*, p. 6.

⁶² *Ibid.*

⁶³ *Ibid.*

⁶⁴ *Ibid.*, pp. 6-7.

the unequivocal statement of the results. ‘The bill is passed.’ When he utters that sentence, that should be the end of the vote.’⁶⁵

5. Verifying the Release

While the first four stages can be reversed at any time should additional Members be allowed to cast a vote, once the verification process begins, the electronic voting system is shut down, the display panels are cleared, and the computer is readied for additional votes. At the conclusion of the vote, the tally clerks cross check any tally cards against the electronic voting system results and then release the vote results to the clerk’s website.⁶⁶

Conclusion

The history and development of the electronic voting system frames the process for recording votes and quorum calls in the House of Representatives and the Committee of the Whole. It was 101 years from the time Thomas Edison invented a vote recording device in 1869 until the House reached a consensus to adopt an automated vote recording system. Over the course of those years, proposals for the system changed from mechanical relays, to electrical switches, to the computer-driven electronic recording system approved in 1970.

The electronic voting system, as designed and installed, was forward-looking technology. The electronic voting system also fit the House’s traditions and practices. Unlike many earlier proposals, the electronic voting system did not use assigned seats as the basis for voting stations. Instead of requiring all Members to be present on the floor for a vote, the electronic voting system in addition allowed them to come and go from the House floor, so long as they voted during the time frame established by the Speaker or chair of the Committee of the Whole, within House rules and precedents.

⁶⁵ U.S. Congress, House Select Committee to Investigate the Voting Irregularities of August 2, 2007, *Member Briefing on Voting in the House of Representatives—The Rostrum and the Electronic Voting System: A “Walkthrough” by the Clerk of the House Lorraine C. Miller*, hearing, 110th Cong., 1st sess., October 18, 2007 (Washington: GPO, 2008), p. 18.

⁶⁶ *Voting Irregularities of August 2007 Final Report*, p. 7.

Appendix. Proposals to Establish Automated Voting in the House of Representatives

Proposals to establish automated voting in the House of Representatives were first introduced during the 49th Congress (1885-1886), 17 years after Thomas Edison proposed his electrical voting system to Congress. The table below lists each of the bills and resolutions proposing to use an electrical, mechanical, and automated voting system in the House of Representatives, and includes the Congress and date the bill or resolution was introduced, bill number, and sponsor of the measure.

Table A-I. Electrical, Mechanical, and Automated Voting Bills and Resolutions in the House of Representatives Before 1970

Congress (Years)	Date Introduced	Bill Number	Sponsor (Party-State)
49 th (1885-1886)	February 1, 1886	N/A ^a	Beach (D-NY)
49 th (1885-1886)	June 7, 1886	N/A ^b	Le Fevre (D-OH)
50 th (1887-1888)	January 14, 1889	N/A ^c	Cogswell (R-MA)
51 st (1889-1890)	January 8, 1890	N/A ^d	Cogswell (R-MA)
51 st (1889-1890)	August 14, 1890	N/A ^e	Gifford (R-SD)
52 nd (1891-1892)	January 25, 1892	N/A ^f	Oates (D-AL)
62 nd (1911-1912)	January 23, 1912	H.Res. 385	Copley (R-IL) ^g
62 nd (1911-1912)	January 7, 1913	H.Res. 768	Garrett (D-TN)
63 rd (1913-1914)	April 1, 1913	H.Res. 15	Copley (P-IL)
63 rd (1913-1914)	June 26, 1913	H.Res. 187	Walsh (D-NJ)
63 rd (1913-1914)	March 2, 1915	H.Res. 513	Walsh (D-NJ)
64 th (1915-1916)	July 10, 1916	H.Res. 223	Howard (D-GA)
67 th (1923-1924)	January 29, 1923	H.Res. 497	Kelly (P-PA) ^h
75 th (1937-1938)	May 25, 1938	H.R. 10756	Hill (D-WA)
77 th (1941-1942)	January 1, 1941	H.R. 984	Hill (D-WA)
79 th (1945-1946)	October 15, 1945	H.Res. 372	Bennett (R-MO)
79 th (1945-1946)	January 29, 1946	H.R. 5263	Buck (R-NY)
80 th (1947-1948)	January 29, 1947	H.R. 1433	Buck (R-NY)
80 th (1947-1948)	November 24, 1947	H.R. 4557	Miller (R-NE)
81 st (1949-1950)	January 2, 1949	H.R. 37	Davis (R-WI)
81 st (1949-1950)	June 7, 1949	H.R. 5030	Bennett (D-FL)
81 st (1949-1950)	June 13, 1949	H.R. 5121	Noland (D-IN)
81 st (1949-1950)	June 21, 1949	H.Res. 261	Bennett (D-FL)
81 st (1949-1950)	February 27, 1950	H.Res. 491	Noland (D-IN)
82 nd (1951-1952)	January 3, 1951	H.R. 171	Davis (R-WI)
82 nd (1951-1952)	January 4, 1951	H.R. 931	Le Compte (R-IA)

Congress (Years)	Date Introduced	Bill Number	Sponsor (Party-State)
82 nd (1951-1952)	January 12, 1951	H.R. 1326	Denton (D-IN)
82 nd (1951-1952)	June 22, 1951	H.R. 4578	Jarman (D-OK)
83 rd (1953-1954)	January 6, 1953	H.R. 988	Bennett (D-FL)
83 rd (1953-1954)	January 6, 1953	H.R. 1039	Johnson (R-CA)
83 rd (1953-1954)	Jan 7, 1953	H.R. 1246	Davis (R-WI)
83 rd (1953-1954)	January 9, 1953	H.R. 1397	Le Compte (R-IA)
83 rd (1953-1954)	January 15, 1953	H.R. 1811	Dawson (R-UT)
83 rd (1953-1954)	January 26, 1953	H.R. 2090	Elliott (D-AL)
83 rd (1953-1954)	March 12, 1953	H.R. 3920	Jarman (D-OK)
84 th (1955-1956)	January 5, 1955	H.R. 92	Denton (D-IN)
84 th (1955-1956)	January 5, 1955	H.R. 128	Le Compte (R-IA)
84 th (1955-1956)	January 5, 1955	H.R. 651	Davis (R-WI)
85 th (1957-1958)	January 28, 1957	H.R. 3758	Denton (D-IN)
85 th (1957-1958)	February 27, 1957	H.R. 5387	Jarman (D-OK)
85 th (1957-1958)	January 3, 1958	H.R. 10436	Glenn (R-NJ)
86 th (1959-1960)	January 7, 1959	H.R. 754	Denton (D-IN)
86 th (1959-1960)	January 7, 1959	H.R. 814	Jarman (D-OK)
86 th (1959-1960)	January 15, 1959	H.R. 2537	Glenn (R-NJ)
87 th (1961-1962)	January 3, 1961	H.R. 954	Glenn (R-NJ)
87 th (1961-1962)	February 7, 1961	H.R. 3966	Denton (D-IN)
87 th (1961-1962)	July 10, 1961	H.R. 8047	Tupper (R-ME)
88 th (1963-1964)	February 27, 1963	H.R. 4311	Glenn (R-NJ)
89 th (1965-1966)	January 14, 1965	H.R. 2805	Denton (D-IN)
91 st (1969-1970)	January 3, 1969	H.R. 397	Bennett (D-FL)
91 st (1969-1970)	January 14, 1969	H.R. 3340	Davis (R-WI)

Source: Author compilation from the index of the *Congressional Record* between 1885 and 1970.

- a. Representative Beach's resolution was not assigned a number in the 49th Congress. The resolution can be found in U.S. Congress, House of Representatives, *Plan to Register Votes, Etc.*, 49th Cong., 1st sess., Mis.Doc. 98, Serial Set 2415 (1886), p. 1, and in the *Congressional Record*, vol. 17, part 1 (February 1, 1886), p. 1037.
- b. Representative Le Fevre's resolution was not assigned a number in the 49th Congress. The resolution can be found in U. S. Congress, House of Representatives, *Electrical Recording of Yeas and Nays*, 49th Cong., 1st sess., Mis.Doc. 315, Serial Set 2418 (1886), p. 1, and in the *Congressional Record*, vol. 17, part 5 (June 7, 1886), p. 5365.
- c. Representative Cogswell's resolution was not assigned a number in the 50th Congress. The resolution can be found in the *Congressional Record*, vol. 20, part 1 (January 14, 1889), p. 761.
- d. Representative Cogswell's resolution was not assigned a number in the 51st Congress. The resolution can be found in the *Congressional Record*, vol. 21, part 1 (January 8, 1890), p. 474.
- e. Representative Gifford's resolution was not assigned a number in the 51st Congress. The resolution can be found in the *Congressional Record*, vol. 21, part 9 (August 14, 1890), p. 8585.

- f. Representative Oates's resolution was not assigned a number in the 52nd Congress. The resolution can be found in the *Congressional Record*, vol. 23, part 1 (January 25, 1892), p. 517.
- g. Representative Copley represented an Illinois district from 1911 to 1923 and was a member of the Republican Party during the 62nd, 63rd and 65th through 67th Congresses. During the 64th Congress, Representative Copley represented the Progressive Party.
- h. Representative Kelly was initially elected to the 63rd Congress as a member of the Republican Party. He was not re-elected to the 64th Congress, and was re-elected to the 65th Congress as a Progressive.

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