



CSE260 Lab Project Report Summer 2022

Project Title: Design and Implementation of the internal circuit of an Electronic voting machine.

Group number: 05

Group members:

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1. Introduction:

Voting machines are mainly used in almost every country during times of election of any scale. Here, two or many candidates participate and the mass general casts their votes for their preferred candidates. In this project, we are making a 4 personal voting machine that will count a maximum of 4 votes for each candidate. Also, after every vote, the user will be able to see the number of votes that have been cast for both candidates. After all the votes are cast and all the numbers have been counted, we can compare the votes manually and declare the winner of the election. Here all the vote counts will be shown in binary numbers using LEDs.

2. Components used:

- Breadboard
- Jumper wire
- LED's
- 7400 IC (NAND)
- 7408 IC (AND)
- 7486 IC (X - OR)
- 7404 IC (NOT)
- 74283 IC (4-bit parallel adder)
- Batteries

3. Data flow

As the project is a four-person voting machine, two teams will be able to cast at most 4 votes for each of their candidates. So there will be 2 separate 4-person voting systems and there will be LEDs to show the result of the total vote count with the help of a binary number system.

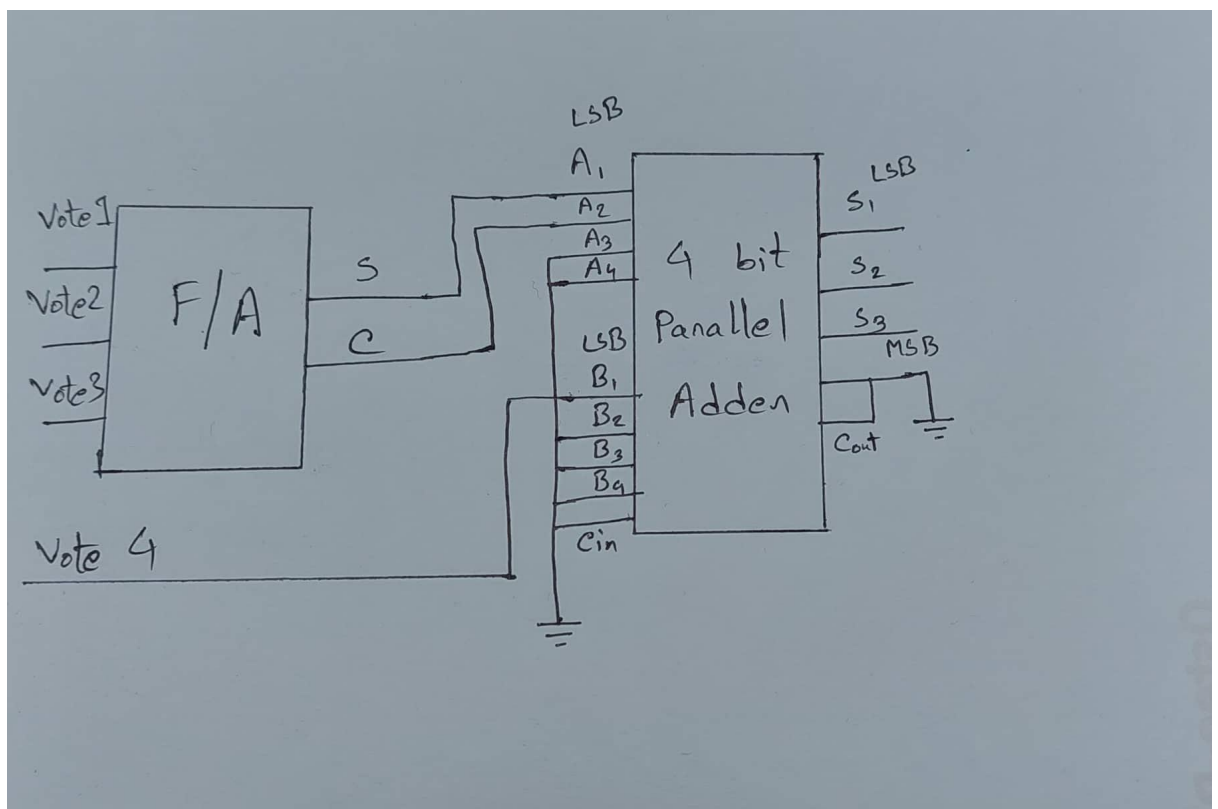
At first, 3 votes will be counted on a Full Adder circuit. The full adder will generate a sum and carry output. Now, in the four-bit parallel adder, there can be two numbers with 4 binary bits. Sum output from the full adder will be connected to the LSB bit and the carry output will be connected to the 2nd LSB bit. Rest two will be connected to the ground as there will be no possible input for these two. On the other number of the parallel adder, one vote input will be

taken in the LSB bit. All three will be connected to the ground. This setup will at most get a 3-bit result so all the output pins except the 3-sum output will be connected to the ground. The three output pins will be connected to the LEDs to show the total vote count of that particular candidate.

The same procedure will be followed for making the second voting system.

Experimental Setup:

A Block diagram for 4 person's voting system is given below. Two 4 person voting systems were used in the project.



4. Results

If the switches of the votes in the full adder and the parallel adder will be turned on one vote will be counted for each of the switches turned on. After every vote, the output LEDs will change the combination to tell us the number of votes using binary numbers. Two teams have been given different coloured LEDs to reduce confusion among the teams that are taking part in the election. After all

the votes have been cast we will be able to see the total number of votes each team or candidate has got. Then we will have to manually compare the votes and declare the winner of the election.

5. Limitations

- The first limitation to this project is that it can only take votes from 4 people at max. No more than 4 people can vote in this election. One must use more adders and wires to increase the number of voters. It will also make the project bigger if no PCB is used and the production cost will also increase.
- It can not keep track of if someone who already has voted is casting another vote. So one person can easily give multiple votes to one person which will change the result of the election.
- The last limitation to this project is that one person can give votes to both the candidates which mean instead of counting a total of 4 votes the machine can read up to 8 total votes. It will directly mean the results are incorrect and the election process is faulty.

6. Conclusion

In the end, we can just say that the voting machine works for 4 people correctly under certain observations. Although the machine has some limitations, it still works for primary elections. Also, the limitations can be removed later on by adding many more features to this project. The project will perfectly count the votes of the people and will in the end tell us how many votes have been counted for each of the candidates. After counting the votes all we have to do is just compare the counts manually and then declare the result. This system will make the election process much more efficient and the chances of counting mistakes will be brought down to zero.

7. References

1. Datasheets: Atmega16,32, DS1307, LCD: Hitachi HD44780, max232, voltage regulator 7805, Low drop out linear regulator 1117
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