
DIGISIM

PROBLEM STATEMENT 1 (PART 1)

Team: Cool Bits

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APPROACH

We have stored the votes of each candidate in SR Latches and after the completion of 15 sec from the first press of voter, the votes will be stored in counter accumulating all the votes from different voters. At end, you may press a push button displaying the winner on 7-Segment Display.

PCB LAYOUT

Here as you can see in this PCB layout design we have generate the clock pulse of frequency 1Hz using N555 and with some resistors and capacitors. Each logic gates and IC's VCC and GND terminal is connected with connector with two inputs. Through pin no.1 of the connector we will supply VCC of 5V and Ground through pin no 2 . Also there is enable pin which will be activated by supplying 5V. And after enabling it will start comparing the votes of the candidates. And result will be shown In the display attached.

We have done copper filling of Ground only because Filling a via with copper increases its thermal conductivity and higher conductivity will lead to high heat and may overheat the whole board and also may damage IC's.

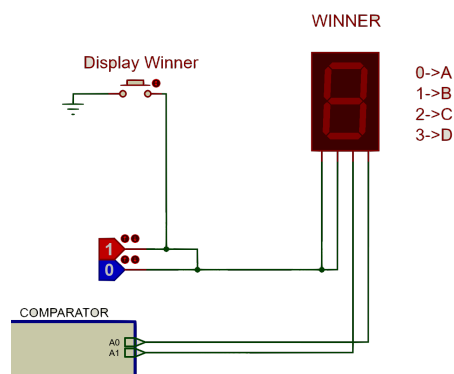
FEATURES

1. VOTES COMPARATOR :

The button named “*Display Winner*” when pressed compares the votes of all the four candidates and prints ‘0’ if A wins, ‘1’ if B wins, ‘2’ if C wins and ‘3’ if D wins. The comparator uses 3 four-bit comparator and 2 multiplexers.

2. DISPLAY OF WINNER :

The winner as output from comparator is shown on a 7-Segment Display for better readability on PCB. The Display will only function when the Display winner button is pressed.

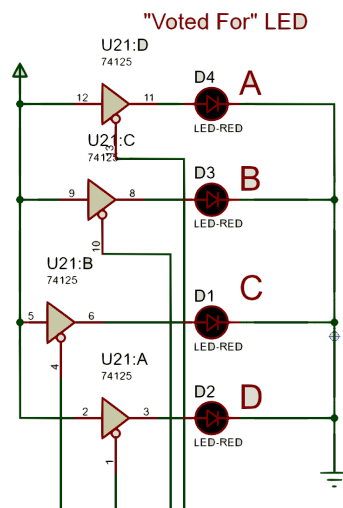


3. MULTIPLE CANDIDATE VOTING :

A voter may cast his vote(s) to any of the four candidates (one or more than one candidate) while only once for one candidate. The voter has a total time of 15 seconds in which he may cast his votes after which his votes will be registered.

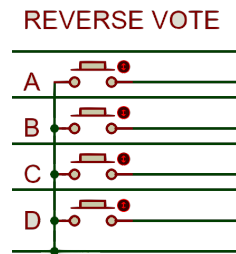
4. “Voted For” LEDs :

Added four LEDs that display for which candidate the voter has voted. This feature removes any uncertainty in minds of the voter that they might cast a wrong vote. A visual confirmation is best way to remove any such confusion



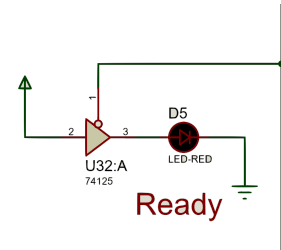
5. **REVERSE THE CASTED VOTE :**

As the votes are not registered into counters until 15 seconds have passed. The voter has this 15 seconds to alter his voting decisions. We have added four additional buttons to reverse a vote that voter may have casted mistakenly.



6. **THE 'READY' LED :**

As the machine doesn't take input from voter within 3 sec of a button press. A 'Ready' LED is present which indicates that the machine is ready for another input. So the user may input another vote if he wants to.



7. **3 SECOND DELAY :**

A 3 second delay is added after any button to cast vote is pressed by the voter. This feature is to avoid any debouncing caused by switch. *However, as we are using SR Latch, which once set will not change its value until reset, overcomes this issue of debouncing without introducing any delay in circuit.*