

**Lab #3****Design and Testing of a Majority “Voting” Circuit****Simplest Option** (Average Grade)

A spacecraft has three onboard computers which perform exactly the same functions (but not program implementation) at exactly the same time. The output of the computers goes to a voting circuit which outputs the majority. For example, if two computers think the output should be one and the other zero, then the voting logic circuit assumes the third computer is in error and a one is output.

Design and breadboard the circuit. Your seven segment display should show 0 if the majority of switches are zero and a 1 if the majority of switches are one.

The maximum number of points you can earn for this solution is 15.

**Above Average Option** (Above Average Grade)

Design your voting circuit for a spacecraft with 5 onboard computers.

The maximum number of points you can earn for this solution is 18.

**Best Option** (Excellent Grade)

Design your voting circuit for a spacecraft with 4 onboard computers. Once again display the number 0 or 1 based on the majority vote – plus display E (even) if the vote is tied. You may create an E by sending a 3 to the 7447 IC and holding your board upside down.

The maximum number of points you can earn for this solution is 20.