

Last Name (Print): _____

First Name (Print): _____

ID number (Last 4 digits): _____

Section: _____

Submission deadlines:

- Each EE 200 student must complete the circuit in problem 29 prior to attending Laboratory #15. At the beginning of Laboratory #15, each student must show the completed circuit to the instructor to receive a grade for problem 29.
- Each EE 200 student must complete the circuit in problem 30 prior to attending Laboratory #16. At the beginning of Laboratory #16, each student must show the completed circuit to the instructor to receive a grade for problem 30. As the instructor may ask you to verify operation of the circuit, you must bring your myDAQ and test leads to Laboratory #16.
- Turn in the written solutions for problems 31 and 32 by 4:00 pm on Tuesday March 18 in the homework slot outside 121 EE East.

Problem	Weight	Score
29	25	
30	25	
31	25	
32	25	
Total	100	

Problem 29: (25 points)

A goal of Laboratory #15 is to demonstrate the realization of a finite state machine with an asynchronous reset in LabVIEW using the myDAQ. As a specific example, you will realize the finite state machine for the parity detector introduced in Laboratory #4. For this reason, every EE 200 student must construct the circuit in Figure 1 and bring it completed to Laboratory #15. At the beginning of Laboratory #15 the instructor will verify that each student has completed the circuit in Figure 1.

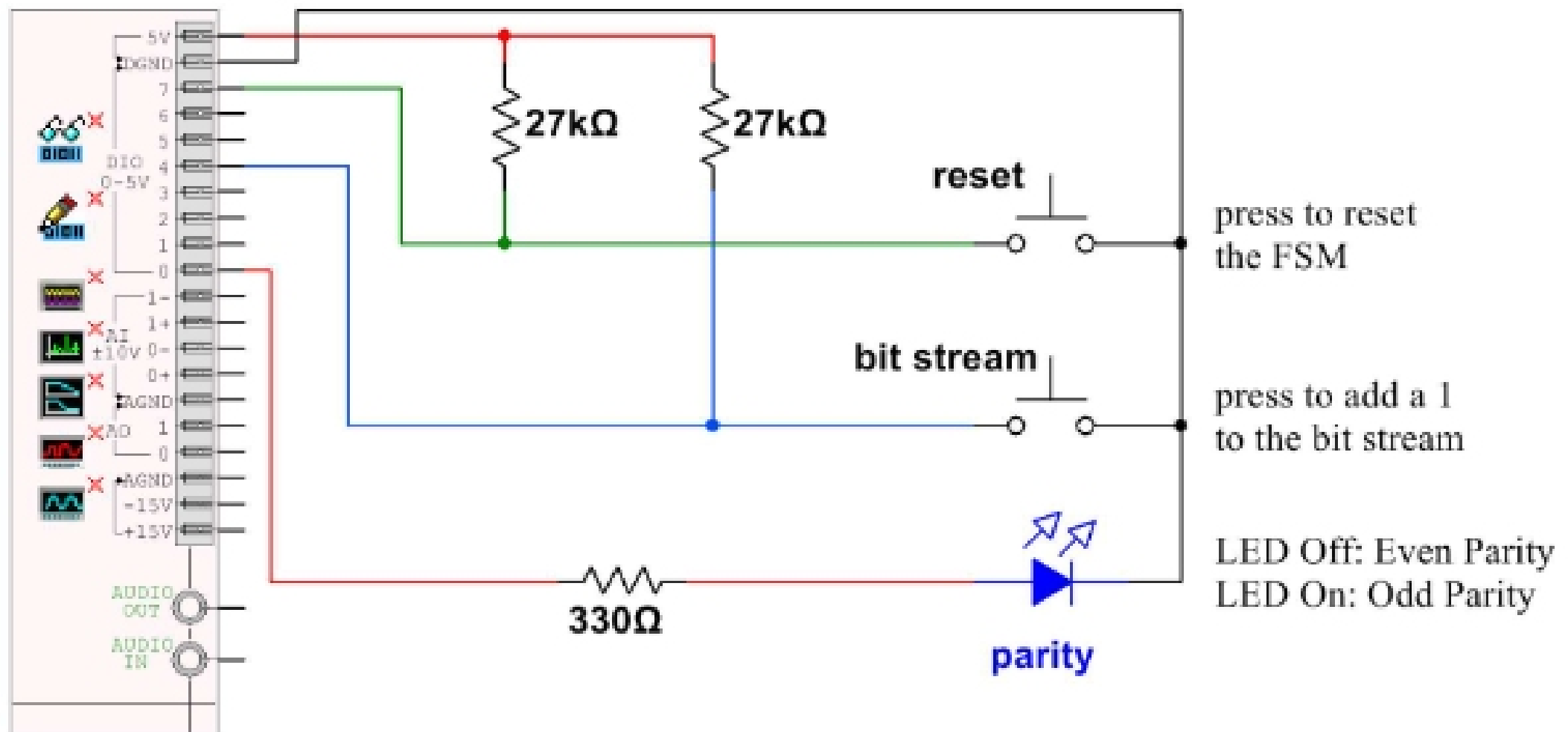


Figure 1: Circuit for realization the parity detector finite state machine using LabVIEW and the myDAQ.

Problem 30: (25 points)

A goal of Laboratory #16 is realize the finite state machine for the parity detector with an asynchronous reset, realized with either polling or an external interrupt, using using the Microchip Technology dsPIC33EP64MC502 microcontroller. Every EE 200 student must construct the circuits in Figures 2 and 3. Details for completing the circuit in Figure 2 are available in Problem Set 7 Problem 25. At the beginning of Laboratory #16 the instructor will verify that each student has completed the circuit in Figures 2 and 3. The instructor may verify operation of the circuits by using your myDAQ to measure the voltage at pins 2 and 28 of the dsPIC33EP64MC502, or pins 1 and 2 of the 6 pin header required for the PICKit 3 Debugger/Programmer.

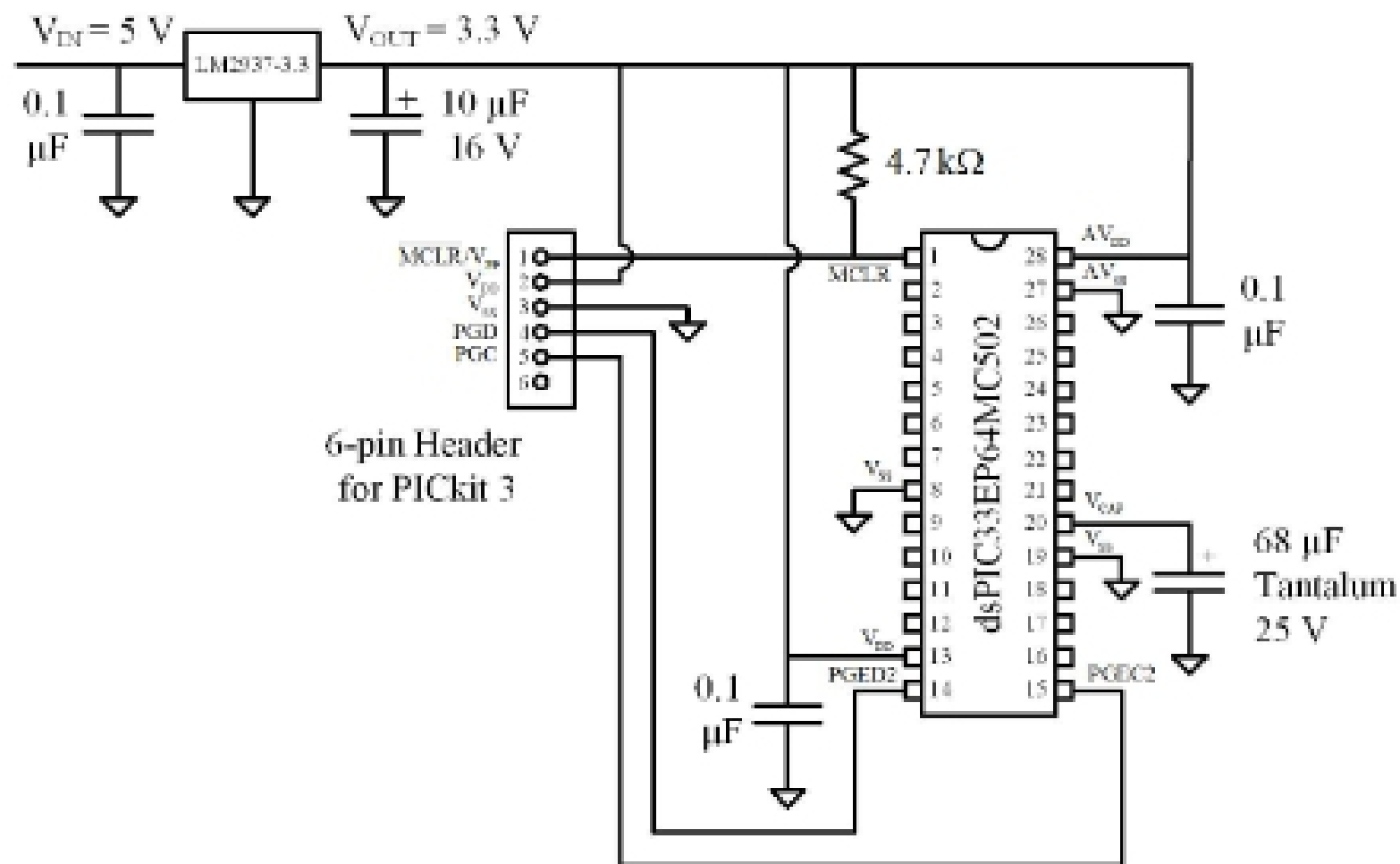


Figure 2: Basic connections for all EE 200 microcontroller exercises.

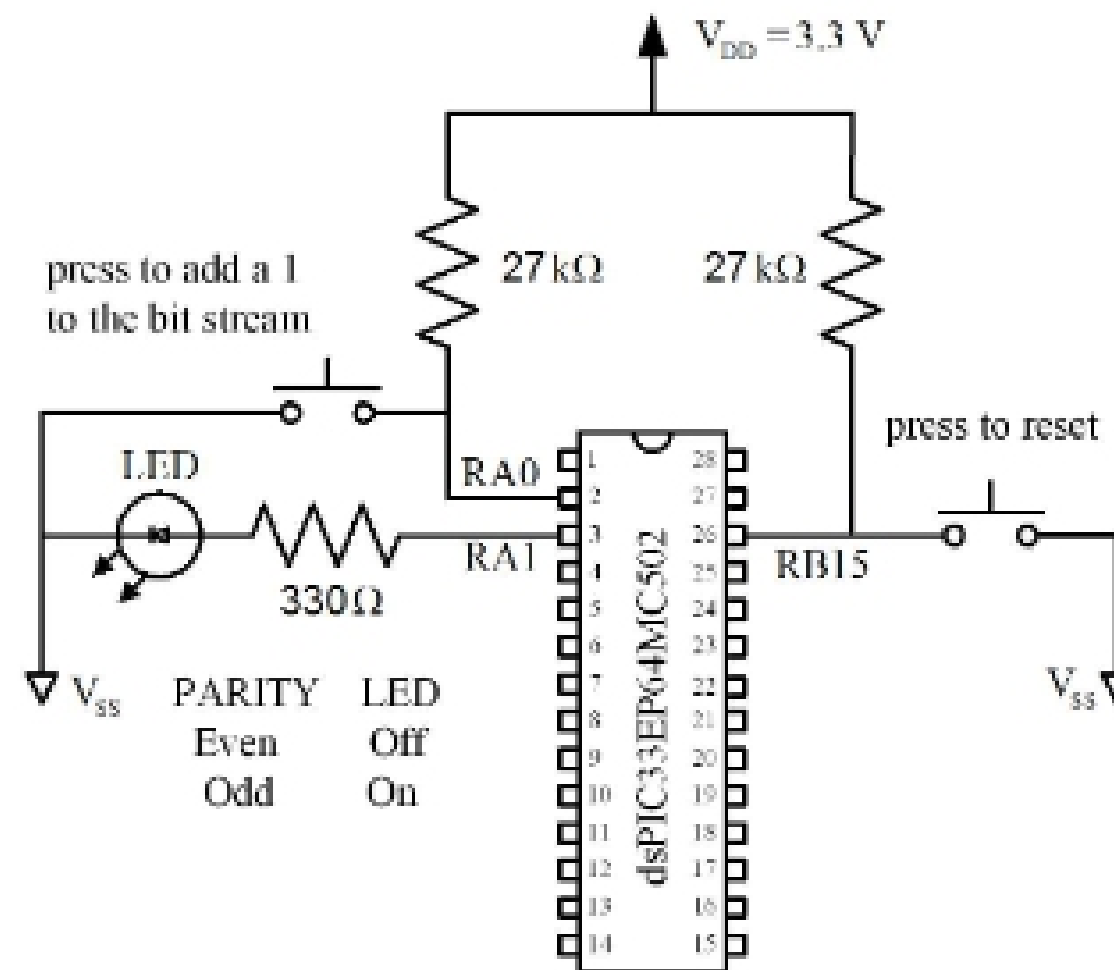


Figure 3: Additional circuit connections for realizing the parity detector using the microcontroller.