**Technical Report**

**Introduction:**

For assignment 4.1.3, we were tasked to build a functioning prototype for a tollbooth that monitor the sensors and opens and closes the tollbooth door. We created the circuit in Multisim and exported it to PLD; and then using the VEX model, we were to test it.

**Explanation of Operation:**

We had to create a system that simulated the opening and closing of a tollbooth door using a PLD system and a VEX model. We had to transfer everything to PLD to get our state machine to work. We were supposed to simulate the testing in PLD using the digital constant for the switches and the probes for the outputs and limit switches.

**Explanation of Build:**

We could replicate the tollbooth door by using a motor and some limit switches from the VEX kit to build the model and then using a Multisim circuit to program the DMS board, we could test the system.

**Explanation of Testing:**

Using the DMS board, we exported the PLD circuit to the board and programmed it to the VEX model that we built and then we proceeded to test the system through Multisim. Through testing, we discovered that when the gate activated the bottom switch, the arm would open. And when the gate activated the top switch, the arm would close.

**Conclusion:**

In conclusion, this project was enjoyable. Building things with my hands and testing the systems we built is fun. Through this project I gained more intelligence through Multisim and Vex models.

 

