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TEJ Summative – Shark Tank

Instructions:

The user is prompted with a question, and must press one of the 4 buttons to select an answer. If they get it wrong, one of the LEDs will turn off, and the motor will lower the person closer to the “shark tank”.

Hardware:

We had a stepper motor that was controlled using the parallel ports, but we had to remove it because we did not have enough ports. We replaced it with a bi-directional motor to lower the person into the tank, but we did not have enough ports on the parallel ports to wire it up fully, so it only spun in one direction. We also had 5 input buttons. The first 4 were used to select answers, the final one was used to exit the game. We used the 747 decoder and the 7 segment display to show how much time the user had to answer the question. We used LEDs to display how many lives the user had, and each time the user lost a life one LED would turn off.

Software:

Our software was far more advanced than our hardware. First, we used a 2D array to store all of our questions. We also had several 1D arrays that we used to store the order of the answers. We our own algorithm to sort the 2D array, which was by far the hardest part. We used the system clock to time the user’s answers. We also used a sleep counter and compared the two times, to make sure that the accuracy was correct on all systems. We also used an array to keep track of the number of lives, and which LEDs had to be turned on. Previously in our program we incorporated the stepper motor, but we had to remove that code because we did not have enough space for a step motor, and we replaced it with code for a bidirectional.

After you recorded the video, we added a loop so the user could re play without closing the program. We also added more questions to the 2D array, and improved our random algorithm. We also created code to use the keyboard, but it is currently commented out.