

ECE 476/676 - Homework #7

Edge and Timer Interrupts - Due Monday, March 17th

Roulette!



Program a roulette wheel with eight numbers (1-8) on your Pi-Pico using Python.

- On reset, you start with \$100 in your bank account.
- You can bet on numbers 1 through 8 on the roulette wheel. Pushing the analog input up and down allows you to change which number you're betting on.
- When you press GP15, the game starts.
 - A random number in the range of 0-8 is generated
 - Numbers 1-8 correspond to the winning number
 - 0 means the winning number is the number you bet on minus one (you *just* missed)
- Once the game starts, the ball rolls around the roulette wheel
 - The ball position is shown on the LCD display
 - The ball shifts N times ($N = 23 + X$ where X is a random number generated when you press GP15)
 - Each shift is 200ms
- The ball then stops on the winning number
 - If you bet on this number, your bank increases by \$8 (you win)
 - If not, your bank decreases by \$1 (you lose)

Grading:

- 10 points: Use edge interrupts to detect when you press GP15
- 10 points: Use timer interrupts to move the ball every 200ms (you can vary this if you like)
- 10 points: Allow you to adjust which number you're betting on using the joystick
- 10 points: Display on the LCD the ball position as it moves, the number you're betting on, and your bank balance.
- 10 points: Demonstrate your working program