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import RPi.GPIO as GPIO
import time

# Pin Setup
# Setting up 8 output pins
print("Initializing pins")
GPIO.setmode(GPIO.BOARD)
GPIO.setwarnings(False)
pin_out = (7,11,12,13,15,16,18,22)
pin_in = (26)
GPIO.setup(pin_in, GPIO.IN, pull_up_down=GPIO.PUD_UP)
GPIO.setup(pin_out, GPIO.OUT)

def cls():
    print("\n" * 30)

#harness number 1 control
def lift_harness_1():
    cls()
    print("Lifting harness #1")
    GPIO.output(12, True)
    time.sleep(1)
    GPIO.output(12, False)
    print("done")

def lower_harness_1():
    cls()
    print("Lowering Harness #1")
    GPIO.output(12, True)
    GPIO.output(16, True)
    time.sleep(1)
    GPIO.output(12, False)
    GPIO.output(16, False)
    print("done")

#Harness number 2 control
def lift_harness_2():
    cls()
    print("Lifting harness #2")
    GPIO.output(18, True)
    time.sleep(1)
    GPIO.output(18, False)
    print("done")

def lower_harness_2():
    cls()
    print("Lowering Harness #2")
    GPIO.output(18, True)
    GPIO.output(22, True)
    time.sleep(1)

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GPIO.output(18, False)
GPIO.output(22, False)
print("done")

#Harness number 3 control
def lift_harness_3():
    cls()
    print("Lifting harness #3")
    GPIO.output(7, True)
    time.sleep(1)
    GPIO.output(7, False)
    print("done")

def lower_harness_3():
    cls()
    print("Lowering Harness #3")
    GPIO.output(7, True)
    GPIO.output(11, True)
    time.sleep(1)
    GPIO.output(7, False)
    GPIO.output(11, False)
    print("done")

#Harness number 4 control
def lift_harness_4():
    cls()
    print("Lifting harness #4"      GPIO.output(13, True))
    time.sleep(1)
    GPIO.output(13, False)
    print("done")

def lower_harness_4():
    cls()
    print("Lowering Harness #4")
    GPIO.output(13, True)
    GPIO.output(15, True)
    time.sleep(1)
    GPIO.output(13, False)
    GPIO.output(15, False)
    print("done")

#lower all 4 harnesses
def lower_all():
    cls()
    print("lowering all harnesses")
    lower_harness_1()
    lower_harness_2()
    lower_harness_3()
    lower_harness_4()
    GPIO.output(pin_out, False)

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#wait for button press
def button_press():
    cls()
    print("Pull back beater one time")
    while True:
        input_state = GPIO.input(pin_in)
        if input_state == False:
            print('Button Pressed')
            time.sleep(0.2)
            break

button_press()
while (True):
    # This sequence actuates a 1-3, 2-4 harness sequence
    try:
        lift_harness_1()
        lift_harness_2()
        button_press()
        lower_harness_1()
        lift_harness_3()
        button_press()
        lower_harness_2()
        lift_harness_4()
        button_press()
        lower_harness_3()
        lift_harness_1()
        button_press()
        lower_harness_4()
        lower_harness_1()
        continue

    except:
        # If a keyboard interrupt is detected exits cleanly

        print()
        print("Terminating program")
        print("Lowering all harnesses")
        lower_all()
        print("Cleaning up")
        GPIO.output(pin_out, False)
        GPIO.cleanup()
        quit()

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