Initialize (ports, timers, variables)

Switch pushed?

Y

Set T, weight, D

D(Flex sensors) ≤ D_{obj}?

N

Release solenoid motors; turn off T & weight

Actived linear solenoid motors; apply T

Get Hall effect sensor input; y_{0} = y

y = 0?

Y

Take off weight

N

Apply weight

T

weight

D

y

y_{0}

objectID

Timers

Timer0:  PWM (servo motor)

TIMSK[1:0]=0b00

TCCR0=0b01101101

fast PWM mode

set OCR0 at top, clear at OCR0

want: 50 Hz (20 ms) period

want: 0.5-2.5 ms pulse width

ideal prescalar = 1250, use 1024 (16.384 ms)

ideal compare values = 6.4-32, use 7.8125-39.0625

Timer1:  1 ms base (LCD, matlab, inputs)

TIMSK[5:2]=0b0100 (?)

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Timer2:  PWM (temperature)

TIMSK[7:6]=0b00

fast PWM mode

TCCR2=0b01111001

full speed (no prescalar)

vary OCR2 for amount of heat flow (0=off, 256=full on/dangerous?)

Hardware Ports/Pins

PINB: switches

PORTC.0: solenoid

PORTC.8: servo motor

PORTD[1:0]: LEDs/USART/LCD

PORTD.4: Peltier Reference

PORTD.5: Peltier PWM

PINA[2:0]: flex sensors