TERRAN BLAKE // LAB 6 // ECE 241

Number of encoder counts per revolution: 120
Number of encover counts per detent: 4

```
unsigned int encoderPos = 0;
unsigned long currentTime = 0;
unsigned long timer = 0;                                    //integer for button pin

enum ButtonState {Idle, Wait, Low};

ButtonState currentState;

int NextState(int input) {
  switch (currentState) {

    case Idle:
      if ( input == LOW) {
        timer = millis();
        currentState = Wait;
      }
      break;

    case Wait:
      if ( input == HIGH) {
        currentState = Idle;
      } else if (millis() - timer >= 5) {
        currentState = Low;
        return 1;
      }
      break;

    case Low:
      if ( input == HIGH) {
        currentState = Idle;
      }
      break;
  }
  return 0;
}

void setup() {
  //Lcd setup
```

```
  Serial.begin(9600);

  currentState = Idle;
  currentTime = millis();

  //Pin Assignments
  pinMode(2, INPUT);
  pinMode(3, INPUT);
  pinMode(4, INPUT);

  // encoder pin on interrupt 0 (pin 2)
  attachInterrupt(0, MonitorA, CHANGE);
  // encoder pin on interrupt 1 (pin 3)
  attachInterrupt(1, MonitorB, CHANGE);
}

void loop() {

  if (NextState( digitalRead(4))) {
    encoderPos--;
    Serial.println(encoderPos);

  }

  if(millis() - currentTime >= 100) {
    currentTime = millis();
   Serial.println(encoderPos);

  }

}

// Interrupt on A changing state
void MonitorA() {

  if (digitalRead(2) == digitalRead(3)) {
    encoderPos--;

  } else {
    encoderPos++;

  }
```

```
}

// Interrupt on B changing state
void MonitorB() {

  if (digitalRead(2) == digitalRead(3)) {
    encoderPos++;

  } else {
    encoderPos--;

  }

}
```