Analysis of Color Sensor Calibration Sketch
Engineering Technology Department

```cpp
// Define color sensor pins
#define S0 12
#define S1 11
#define S2 10
#define S3 9
#define sensorOut 8

// Variables for Color Pulse Width Measurements
int redPW = 0;
int greenPW = 0;
int bluePW = 0;

void setup() {
  // Set S0 - S3 as outputs
  pinMode(S0, OUTPUT);
  pinMode(S1, OUTPUT);
  pinMode(S2, OUTPUT);
  pinMode(S3, OUTPUT);

  // Set Pulse Width scaling to 20%
  digitalWrite(S0,HIGH);
  digitalWrite(S1,LOW);

  // Set Sensor output as input
  pinMode(sensorOut, INPUT);

  // Setup Serial Monitor
  Serial.begin(9600);
}

void loop() {
  // Read Red Pulse Width
  redPW = getRedPW();
  // Delay to stabilize sensor
  //delay(200);

  // Read Green Pulse Width
  greenPW = getGreenPW();
  // Delay to stabilize sensor
  //delay(200);

  // Read Blue Pulse Width
  bluePW = getBluePW();
```

```arduino
  // Delay to stabilize sensor
  //delay(200);

  // Print output to Serial Monitor
  Serial.print("Red PW = ");
  Serial.print(redPW);
  Serial.print(" - Green PW = ");
  Serial.print(greenPW);
  Serial.print(" - Blue PW = ");
  Serial.println(bluePW);
}


// Function to read Red Pulse Widths
int getRedPW() {
  // Set sensor to read Red only
  digitalWrite(S2,LOW);
  digitalWrite(S3,LOW);
  // Define integer to represent Pulse Width
  int PW;
  // Read the output Pulse Width
  PW = pulseIn(sensorOut, LOW);
  // Return the value
  return PW;
}

// Function to read Green Pulse Widths
int getGreenPW() {
  // Set sensor to read Green only
  digitalWrite(S2,HIGH);
  digitalWrite(S3,HIGH);
  // Define integer to represent Pulse Width
  int PW;
  // Read the output Pulse Width
  PW = pulseIn(sensorOut, LOW);
  // Return the value
  return PW;
}

// Function to read Blue Pulse Widths
int getBluePW() {
  // Set sensor to read Blue only
  digitalWrite(S2,LOW);
  digitalWrite(S3,HIGH);
  // Define integer to represent Pulse Width
  int PW;
```

```
  // Read the output Pulse Width
  PW = pulseIn(sensorOut, LOW);
  // Return the value
  return PW;
}
```