```
 1: //Kalli Bonin and Alexander Dineen
 2: //Question 1 - Counting Green
 3:
 4: void measure_green(int time, int power, int &green, int &notGreen)
 5: {
 6:     const float ONE_CM = 180.0 / PI * 2.75;
 7:     time1[T1] = 0;
 8:     motor[motorA] = motor[motorC] = power;
 9:     while ( time1[T1] < time)
10:         {
11:             while ((float)nMotorEncoder[motorA] < ONE_CM)
12:             {}
13:                 if (SensorValue[S2] == (int)colorGreen)
14:                     green++;
15:                 else
16:                     notGreen++;
17:                 nMotorEncoder[motorA] = 0;
18:         }
19:     motor[motorA] = motor[motorC] = 0;
20: }
21:
22: task main()
23: {
24:     int green = 0, notGreen = 0;
25:
26:     SensorType[S1] = sensorEV3_Touch;
27:     SensorType[S2] = sensorEV3_Color;
28:     wait1Msec(50);
29:     SensorMode[S2] = modeEV3Color_Color;
30:     wait1Msec(50);
31:
32:     displayString(3, "13 Monday");
33:
34:     while (!SensorValue[S1]){}
35:     while (SensorValue[S1]){}
36:
37:
38:     while(!getButtonPress(buttonAny)){}
39:     while(!getButtonPress(buttonDown))
40:     {
41:         if(getButtonPress(buttonLeft))
42:         {
43:             while(getButtonPress(buttonLeft)){}
44:             measure_green(2000, 75, green, notGreen);
45:         }
46:         else if(getButtonPress(buttonRight))
47:         {
48:             while(getButtonPress(buttonRight)){}
49:             measure_green(3000, 50, green, notGreen);
50:         }
```

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51:          else if(getButtonPress(buttonEnter))
52:          {
53:              while(getButtonPress(buttonEnter)){}
54:              measure_green(4000, 25, green, notGreen);
55:
56:          }
57:          displayString(2, "Green: %d Not Green: %d", green, notGreen);
58:      }
59:      while(getButtonPress(buttonDown)){}
60: }
61: /*
62:      Final values:
63:      Green: 78
64:      Not Green: 106
65:
66:      Reflection:
67:      Since green has blue and yellow in it, the robot will miss detect
68:      occasionally. As well, LED does not produce uniform pattern each color.
69:      Because of this, when it is very close to the mat, some colors reflect
70:      and reach the sensor, while some do not.
71:
72:      If we were going to detect a certain type of green and we need to be more
73:      accurate, we could use the getColorRGB function to calculate a threshold
74:      or tolerance to better detect green using the color sensor.
75:
76:      The height that the color sensor is off the table affects the measurements
77:      taken by that sensor. To ensure we are getting the most accurate readings
78:      we need to place it at the correct height which we can determine through
79:      tests.
80:
81:
82:
83: */
```