

崑山科技大學 109 學年度第一學期嵌入式系統期末專題報告

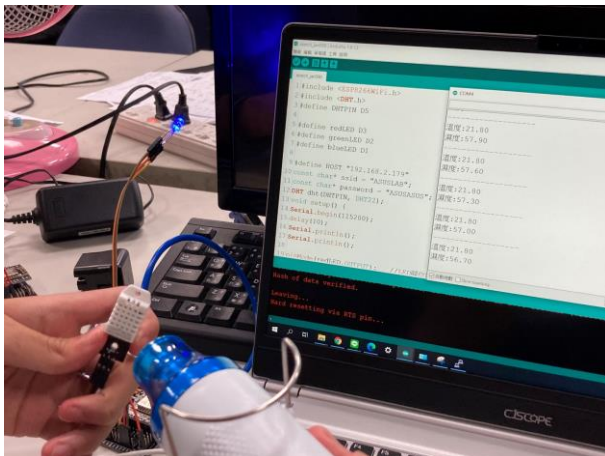
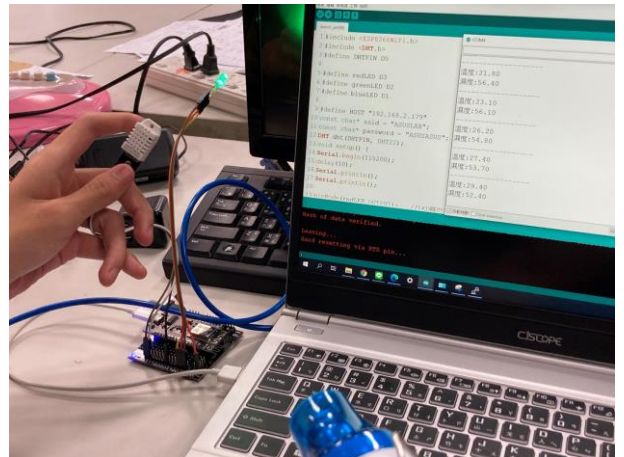
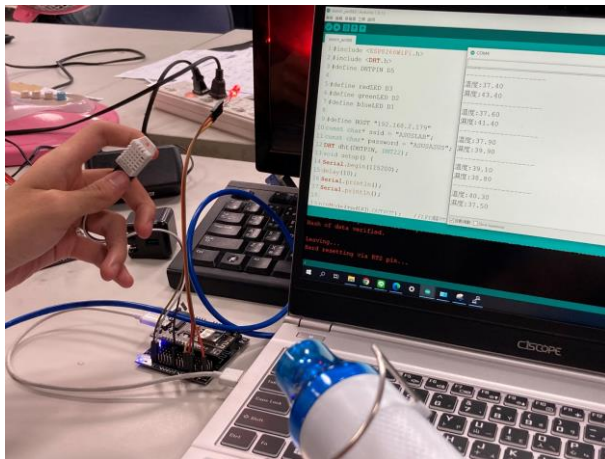
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壹、專題摘要

將 DH22 溫濕度上傳到 Raspberry Pi 資料庫內，NodeMCU 同時需要讀取資料庫的溫度，以此溫度值控制 LED 的顏色，28 度以下顯示藍燈，28~40 度顯示綠燈，40 度以上顯示藍燈，截圖說明實作過程。

貳、實作內容

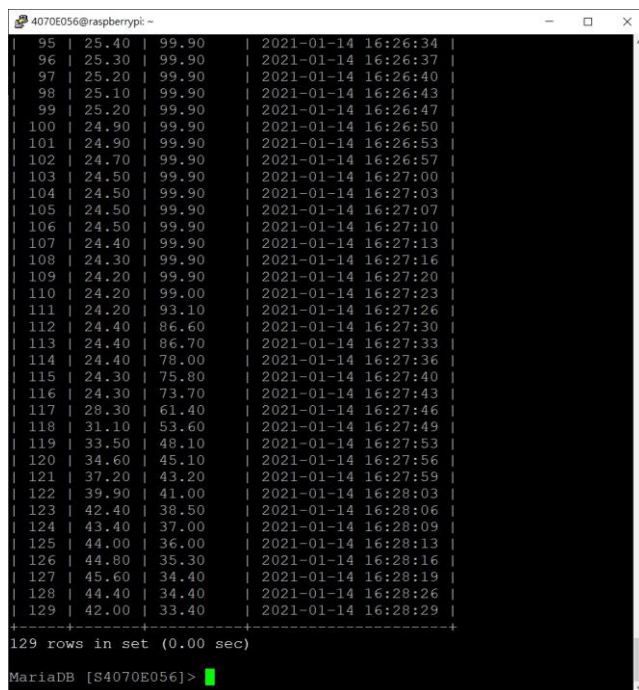
1. 撰寫並燒錄 Arduino 程式碼進到 nodemcu，程式碼內有辨識溫度，透過 LED 變色



2. 撰寫 php 程式碼，內有透過溫度變數分辨溫度後，顯示顏色

```
18 $db=new PDO($dsn,'4070E056','0000');
19 $db->exec("set names utf8");
20 $sql="select * from DHT order by Time DESC";
21 foreach ($db->query($sql) as $row) {
22     $Temp = $row["Temp"];
23     if($row["Temp"]<28)
24     {
25         $row["color"] = "BLUE";
26     }
27     elseif($row["Temp"]>=28 & $row["Temp"]<40)
28     {
29         $row["color"] = "GREEN";
30     }else{
31         $row["color"] = "RED";
32     }
33
34     echo "<tr>";
35     echo " <td>",$row["ID"],"</td>";
36     echo " <td>",$row["Temp"],"</td>";
37     echo " <td>",$row["Humidity"],"</td>";
38     echo " <td>",$row["color"],"</td>";
39     echo "<td>",$row["Time"],"</td>";
40     echo "</tr>";
41 }
```

3. 查看 Rasberry Pi 資料庫內溫溼度數據



```
4070E056@raspberrypi: ~
+----+-----+-----+-----+-----+
| 95 | 25.40 | 99.90 | 2021-01-14 16:26:34 |
| 96 | 25.30 | 99.90 | 2021-01-14 16:26:37 |
| 97 | 25.20 | 99.90 | 2021-01-14 16:26:40 |
| 98 | 25.10 | 99.90 | 2021-01-14 16:26:43 |
| 99 | 25.20 | 99.90 | 2021-01-14 16:26:47 |
| 100 | 24.90 | 99.90 | 2021-01-14 16:26:50 |
| 101 | 24.90 | 99.90 | 2021-01-14 16:26:53 |
| 102 | 24.70 | 99.90 | 2021-01-14 16:26:57 |
| 103 | 24.50 | 99.90 | 2021-01-14 16:27:00 |
| 104 | 24.50 | 99.90 | 2021-01-14 16:27:03 |
| 105 | 24.50 | 99.90 | 2021-01-14 16:27:07 |
| 106 | 24.50 | 99.90 | 2021-01-14 16:27:10 |
| 107 | 24.40 | 99.90 | 2021-01-14 16:27:13 |
| 108 | 24.30 | 99.90 | 2021-01-14 16:27:16 |
| 109 | 24.20 | 99.90 | 2021-01-14 16:27:20 |
| 110 | 24.20 | 99.00 | 2021-01-14 16:27:23 |
| 111 | 24.20 | 93.10 | 2021-01-14 16:27:26 |
| 112 | 24.40 | 86.60 | 2021-01-14 16:27:30 |
| 113 | 24.40 | 86.70 | 2021-01-14 16:27:33 |
| 114 | 24.40 | 78.00 | 2021-01-14 16:27:36 |
| 115 | 24.30 | 75.80 | 2021-01-14 16:27:40 |
| 116 | 24.30 | 73.70 | 2021-01-14 16:27:43 |
| 117 | 28.30 | 61.40 | 2021-01-14 16:27:46 |
| 118 | 31.10 | 53.60 | 2021-01-14 16:27:49 |
| 119 | 33.50 | 48.10 | 2021-01-14 16:27:53 |
| 120 | 34.60 | 45.10 | 2021-01-14 16:27:56 |
| 121 | 37.20 | 43.20 | 2021-01-14 16:27:59 |
| 122 | 39.90 | 41.00 | 2021-01-14 16:28:03 |
| 123 | 42.40 | 38.50 | 2021-01-14 16:28:06 |
| 124 | 43.40 | 37.00 | 2021-01-14 16:28:09 |
| 125 | 44.00 | 36.00 | 2021-01-14 16:28:13 |
| 126 | 44.80 | 35.30 | 2021-01-14 16:28:16 |
| 127 | 45.60 | 34.40 | 2021-01-14 16:28:19 |
| 128 | 44.40 | 34.40 | 2021-01-14 16:28:26 |
| 129 | 42.00 | 33.40 | 2021-01-14 16:28:29 |
+----+-----+-----+-----+
129 rows in set (0.00 sec)

MariaDB [S4070E056]>
```

4. 查看網頁依照溫度大小顯示顏色

125	44.00	36.00	RED	2021-01-14 16:28:13
124	43.40	37.00	RED	2021-01-14 16:28:09
123	42.40	38.50	RED	2021-01-14 16:28:06
122	39.90	41.00	GREEN	2021-01-14 16:28:03
121	37.20	43.20	GREEN	2021-01-14 16:27:59
120	34.60	45.10	GREEN	2021-01-14 16:27:56
119	33.50	48.10	GREEN	2021-01-14 16:27:53
118	31.10	53.60	GREEN	2021-01-14 16:27:49
117	28.30	61.40	GREEN	2021-01-14 16:27:46
116	24.30	73.70	BLUE	2021-01-14 16:27:43
115	24.30	75.80	BLUE	2021-01-14 16:27:40
114	24.40	78.00	BLUE	2021-01-14 16:27:36

叁、成果展示

展示不同溫度，有不同顯示的變化

