



TECNOLÓGICO
NACIONAL DE MÉXICO



SISTEMAS PROGRAMABLES

SEMESTRE ENERO – JUNIO 2024

DOCENTE: ROYCE RODRÍGUEZ

UNIDAD I - SENSORES

EQUIPO 3

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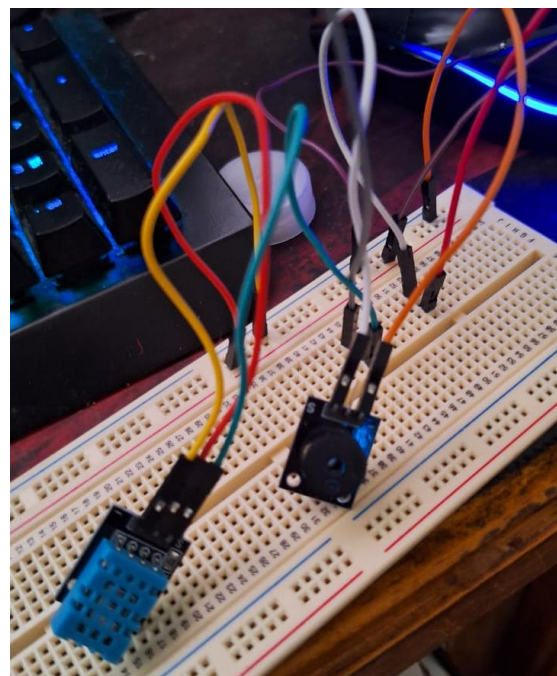
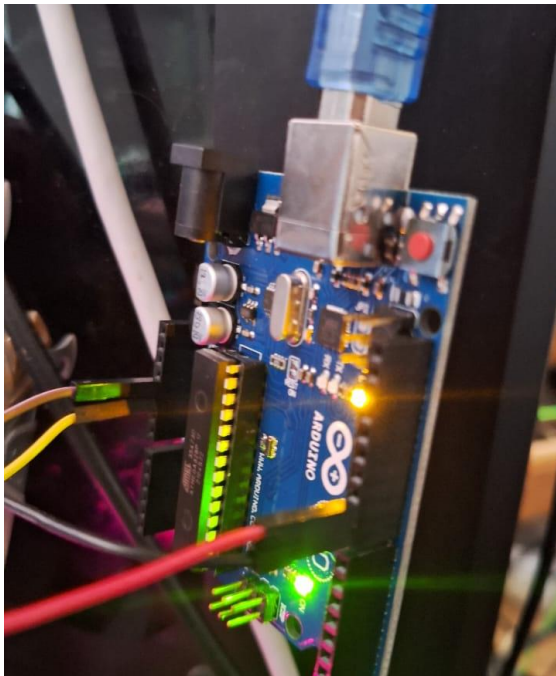
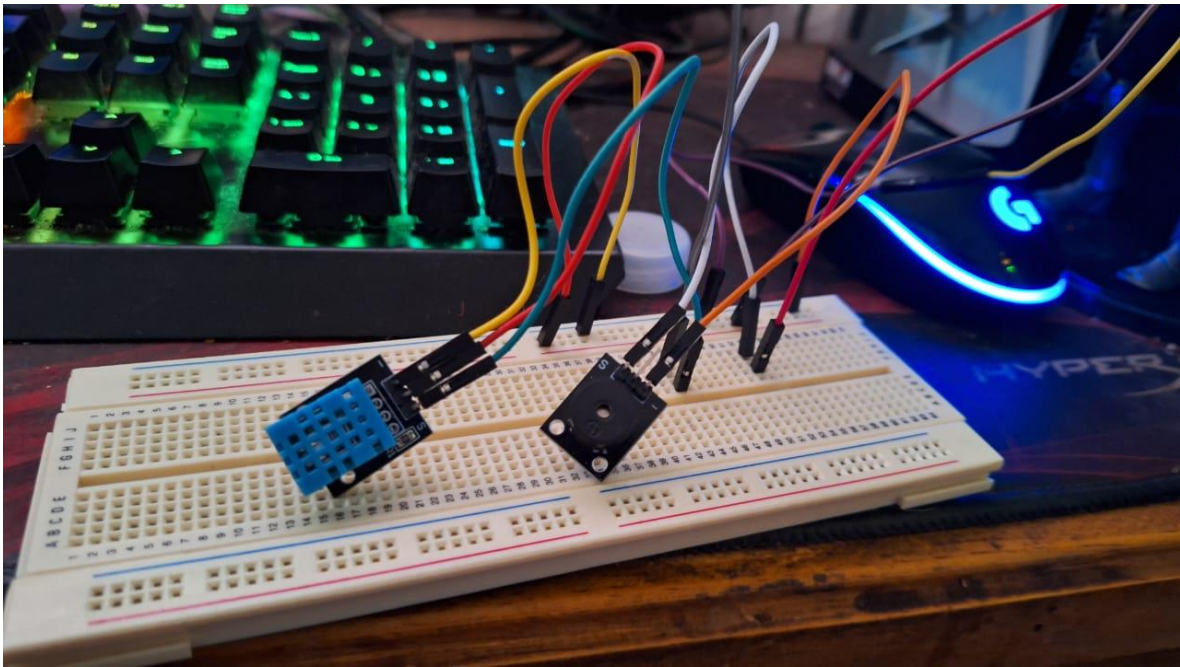
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SENSOR 1: HUMEDAD

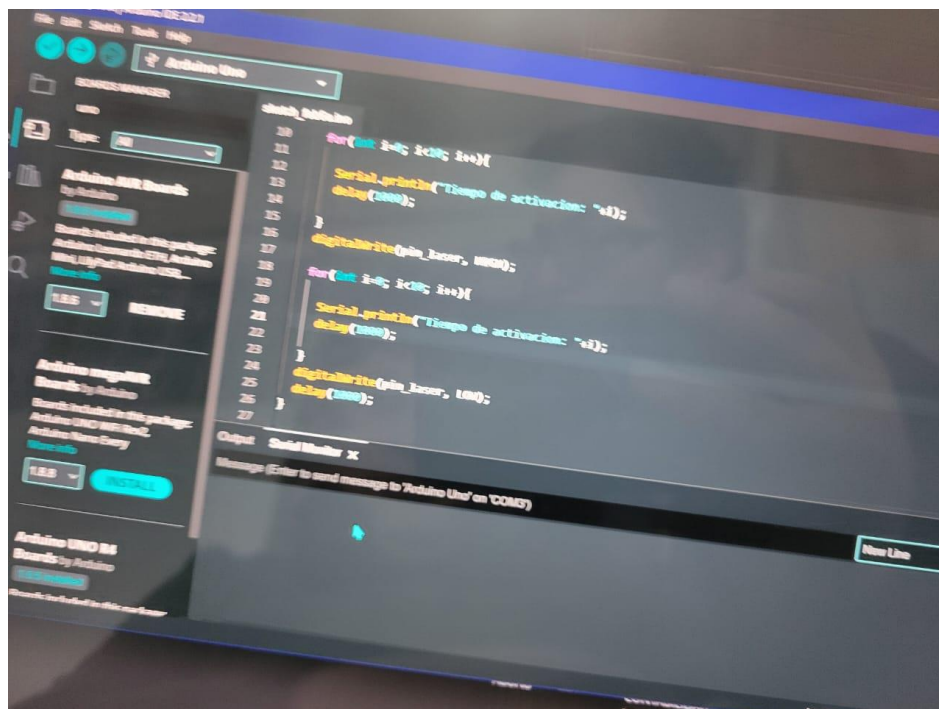
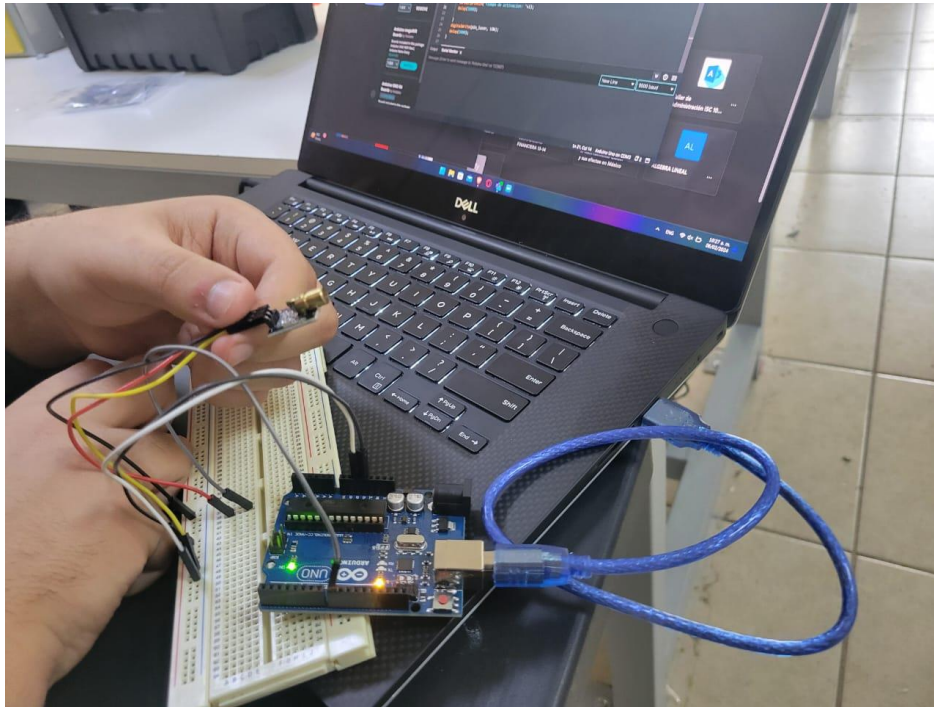


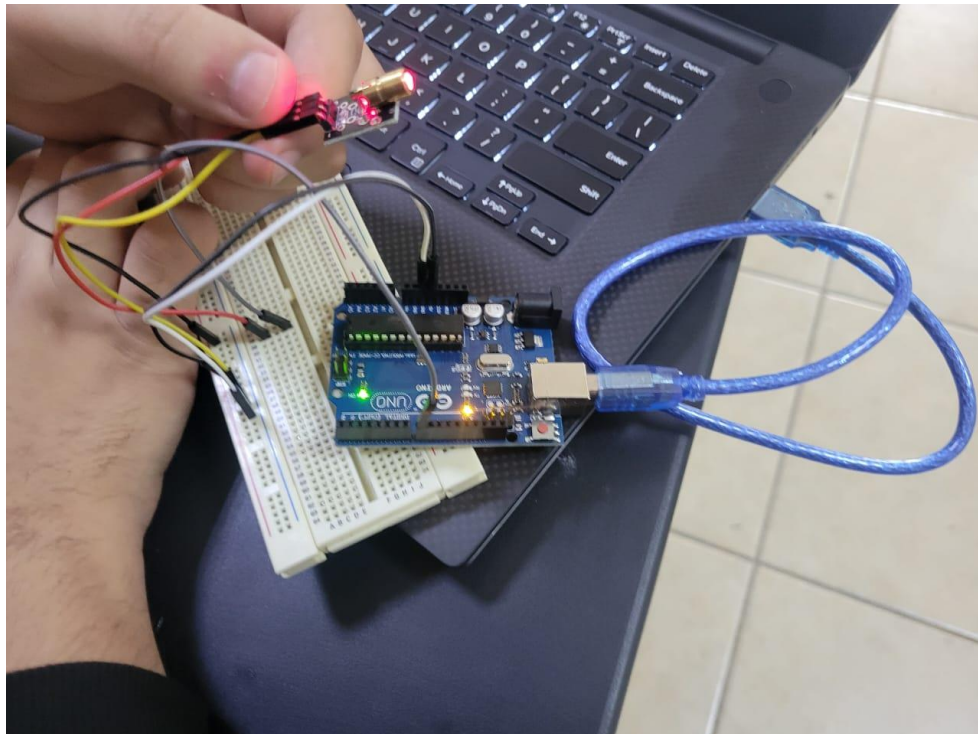
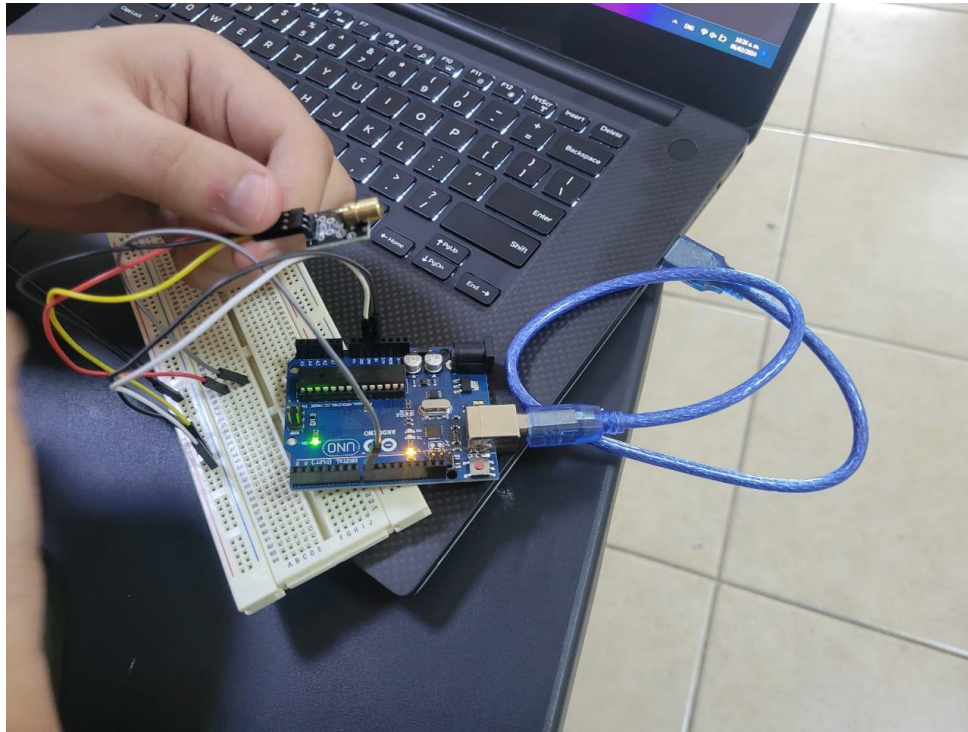

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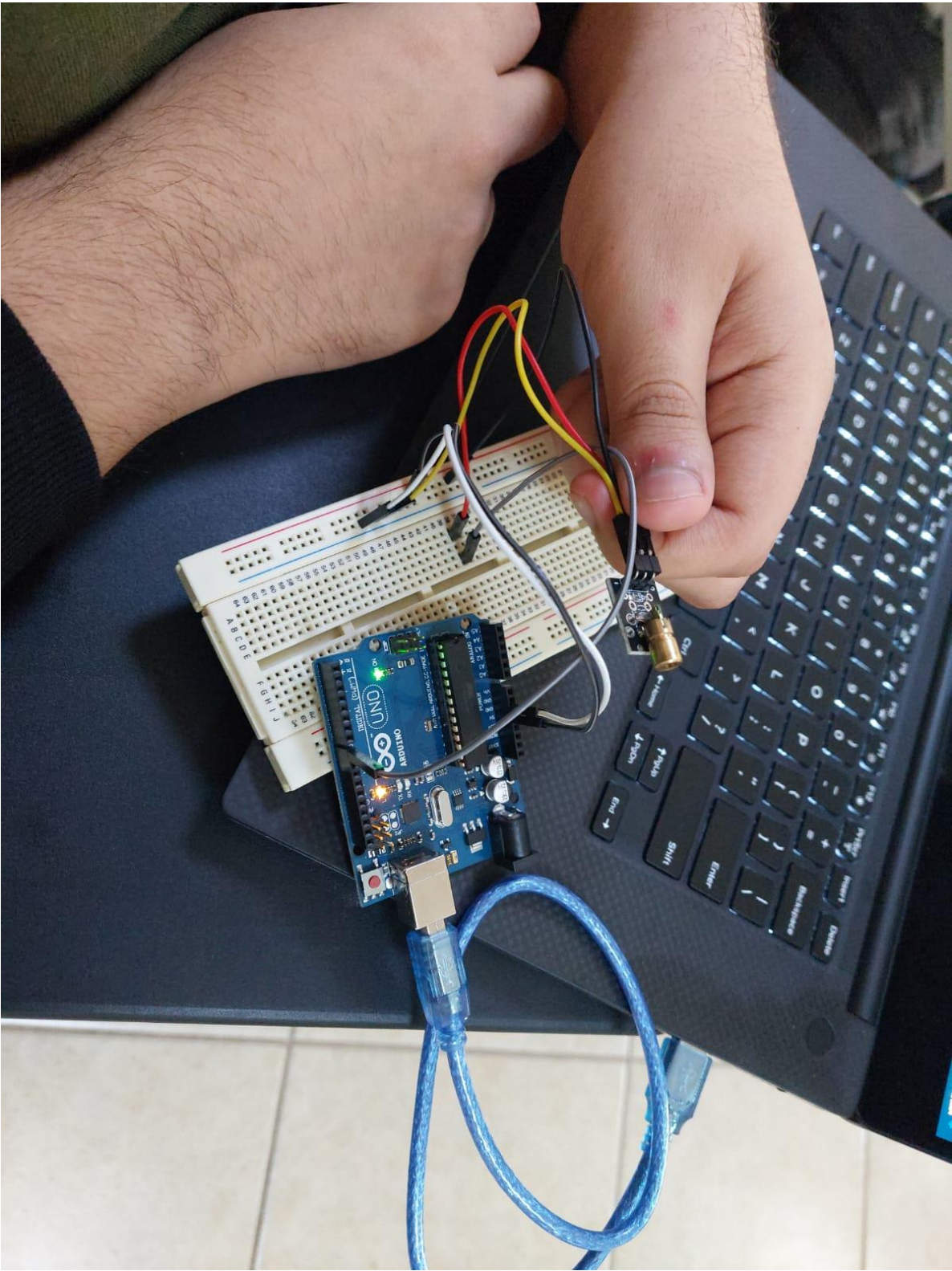
1 int Mode = 0; // Input/output pin
2 int buzzer = 9;
3 byte dt[15];
4 byte read_data;
5 {
6     byte i = 0;
7     byte result = 0;
8     for (i = 0; i < 8; i++)
9     {
10         digitalWrite(Dpin, LOW);
11         // Espera 20 microsegundos
12         delayMicroseconds(20); // Se espera la duración del FLSI para determinar si se ha recibido un 0 o 1
13         if (digitalRead(Dpin) == HIGH)
14             result = (1 << (8 - i)); // Pasa el bit a la izquierda
15         digitalWrite(Dpin) == HIGH;
16         // bit recibido "1", esperando al siguiente bit de recepción.
17     }
18     return result;
19 }
20 void start_test()
21 {
22     digitalWrite(Dpin, LOW); // Se baja el bus para indicar la señal de inicio
23     delay(50); // El retraso es superior a 10 ms para que el DHT-11 pueda detectar la señal de inicio.
24     digitalWrite(Dpin, HIGH);
25     delayMicroseconds(100); // Esperar a que DHT11 responda
26     pinMode(Dpin, INPUT);
27     write(DigitalRead(Dpin) == HIGH);
28 }
29 delayMicroseconds(100); // El DHT11 responde bajando al bus por 20 microsegundos
30
31 if (digitalRead(Dpin) == LOW)
32     delayMicroseconds(100); // El DHT11 sube el bus después de 20 microsegundos para empezar a enviar datos.
33 for (int i = 0; i < 15; i++) // Haciendo la lectura de temperatura y humedad, los bits de check no se consideran
34     dt[i] = read_data();
35 pinMode(buzzer, OUTPUT);
36 digitalWrite(Dpin, HIGH); // Después de completarse la liberación del bus de datos, se espera el host para el inicio de la siguiente señal
37 }
38
39 void playWord(String word)
40 {
41     for (int i = 0; i < word.length(); i++)
42     {
43         playWord(word.charAt(i));
44         delay(500);
45     }
46 }
47 void playLetter(char letter)
48 {
49     int frequency;
50     switch (letter)
51     {
52         case 'a':
53             frequency = 511;
54             break;
55         case 'b':
56             frequency = 587;
57             break;
58         case 'c':
59             frequency = 595;
60             break;
61         case 'd':
62             frequency = 595;
63             break;
64         case 'e':
65             frequency = 595;
66             break;
67         case 'f':
68             frequency = 595;
69             break;
70         case 'g':
71             frequency = 595;
72             break;
73         case 'h':
74             frequency = 595;
75             break;
76         case 'i':
77             frequency = 595;
78             break;
79         case 'j':
80             frequency = 595;
81             break;
82         case 'k':
83             frequency = 595;
84             break;
85         case 'l':
86             frequency = 595;
87             break;
88         case 'm':
89             frequency = 595;
90             break;
91         case 'n':
92             frequency = 595;
93             break;
94         case 'o':
95             frequency = 595;
96             break;
97         case 'p':
98             frequency = 595;
99             break;
100        case 'q':
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103        case 'r':
104            frequency = 595;
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106        case 's':
107            frequency = 595;
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109        case 't':
110            frequency = 595;
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112        case 'u':
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115        case 'v':
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118        case 'w':
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122            frequency = 595;
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157        case '9':
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160        case ' ':
161            frequency = 595;
162            break;
163        case '.':
164            frequency = 595;
165            break;
166        case ',':
167            frequency = 595;
168            break;
169        case '!':
170            frequency = 595;
171            break;
172        case '?':
173            frequency = 595;
174            break;
175        case ':':
176            frequency = 595;
177            break;
178        case ';':
179            frequency = 595;
180            break;
181        case '<':
182            frequency = 595;
183            break;
184        case '>':
185            frequency = 595;
186            break;
187        case '=':
188            frequency = 595;
189            break;
190        case '+':
191            frequency = 595;
192            break;
193        case '-':
194            frequency = 595;
195            break;
196        case '_':
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198            break;
199        case '@':
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207            break;
208        case '%':
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210            break;
211        case '^':
212            frequency = 595;
213            break;
214        case '*':
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217        case '~':
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938            frequency = 595;
939            break;
940        case '~':
941            frequency = 595;
942            break;
943        case '~':
944            frequency = 595;
945            break;
946        case '~':
947            frequency = 595;
948            break;
949        case '~':
950            frequency = 595;
951            break;
952        case '~':
953            frequency = 595;
954            break;
955        case '~':
956            frequency = 595;
957            break;
958        case '~':
959            frequency = 595;
960            break;
961        case '~':
962            frequency = 595;
963            break;
964        case '~':
965            frequency = 595;
966            break;
967        case '~':
968            frequency = 595;
969            break;
970        case '~':
971            frequency = 595;
972            break;
973        case '~':
974            frequency = 595;
975            break;
976        case '~':
977            frequency = 595;
978            break;
979        case '~':
980            frequency = 595;
981            break;
982        case '~':
983            frequency = 595;
984            break;
985        case '~':
986            frequency = 595;
987            break;
988        case '~':
989            frequency = 595;
990            break;
991        case '~':
992            frequency = 595;
993            break;
994        case '~':
995            frequency = 595;
996            break;
997        case '~':
998            frequency = 595;
999            break;
1000       case '~':


```

SENSOR 2: INFRARROJO









```
1  int pin_laser = 8;
2
3
4  void setup() {
5      pinMode(pin_laser, OUTPUT);
6  }
7
8  void loop() {
9
10     for(int i=0; i<5; i++){
11
12         Serial.println("Tiempo de activacion: "+i);
13         delay(1000);
14
15     }
16     digitalWrite(pin_laser, HIGH);
17
18     for(int i=0; i<5; i++){
19
20         Serial.println("Tiempo de activacion: "+i);
21         delay(1000);
22
23     }
24     digitalWrite(pin_laser, LOW);
25     delay(1000);
26 }
27
```