Week 2 Monday – Taibah Valley – Task 3

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- **Install Arduino IDE [completed!]**
- **Hello world printing on serial**

```
// Print hello world test
void setup()
{
  Serial.begin(9600);
  Serial.println("Hello World!");
}

void loop()
{
  Serial.println("repetitive hello world");
  delay(1000);
}
```

Serial Monitor

```
Hello World!
repetitive hello world
repetitive hello world
repetitive hello world
repetitive hello world
repetitive hello world
```

- **Counter printer**

Text

```
// Counter from 1 to 10
void setup()
{
 Serial.begin(9600);
 Serial.println("Counter from 1 to 10");
 int x;
  for (x=0;x<11;x++)
  { Serial.println(x);
  delay (500);
}
}
```

Serial Monitor

```
Counter from 1 to 10
0
1
2
3
4
5
6
7
8
9
10
```

• **Timer print (MM:SS)**

```
// Timer printer - Open source code - Hours - Minutes - Seconds
unsigned long timer = 0;
static int sec1 = 0;
static int sec10 = 0;
static int min1 = 0;
static int min10 = 0;
static int hrs1 = 0;
static int hrs10 = 0;
void setup() {
  Serial.begin(9600);
}
void loop() {timer = millis();if (timer >= 1000) {
  sec1 = sec1 + 1;
  timer = 0;}if (sec1 == 10) {
  sec10 = sec10 + 1 ;
  sec1 = 0;} if (sec10 == 6) {
  min1 = min1 + 1;
  sec10 = 0;}if (min1 == 10) {
  min10 = min10 + 1;
  min1 = 0;} if (min10 == 6) {
  hrs1 = hrs1 + 1;
  min10 = 0;}if (hrs1 == 10) {
  hrs10 = hrs10 + 1;
  hrs1 = 0;}
Serial.print(min10); Serial.print(min1); Serial.print(":");
Serial.print(sec10); Serial.println(sec1);
delay(1000);
}
```

Serial Monitor

```
00:56
00:57
00:58
00:59
01:00
01:01
01:02
01:03
```

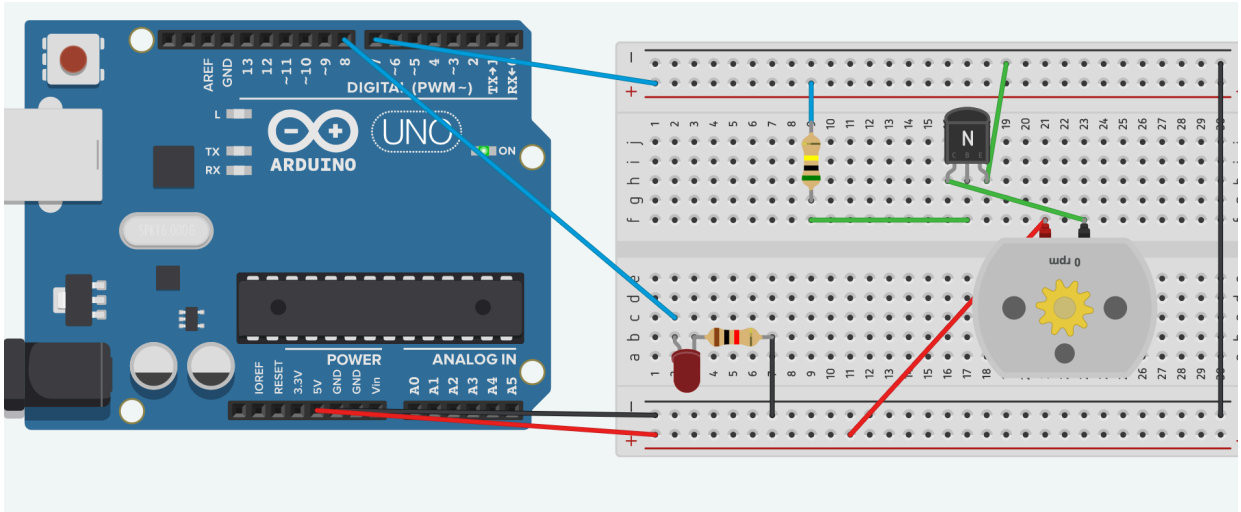
TIMED LED/DC MOTOR

Pin 7 And 8 are signal pins (7 >> Led) & (8>>Base of the transistor).
Each signal is repeated every 1 second.
NPN transistor is used to amplify current (Pin signal is connected to the base, collector is connected the negative terminal of the DC motor, while the emitter is connected to the ground)
Without the NPN transistor the DC motor will barely move (11-24 RPM). On the other hand, by using one NPN transistor we managed to produce 260 RPM.

Code

```
//Timed LED DC motor
void setup()
{ Serial.begin(9600);
  digitalWrite(7, OUTPUT);
  digitalWrite(8,OUTPUT);}
void loop()
{
delay(1000);
  digitalWrite(7, LOW);
 digitalWrite(8,LOW);
  delay(1000);
   digitalWrite(7, HIGH);
  digitalWrite(8,HIGH);
}
```

Off



On