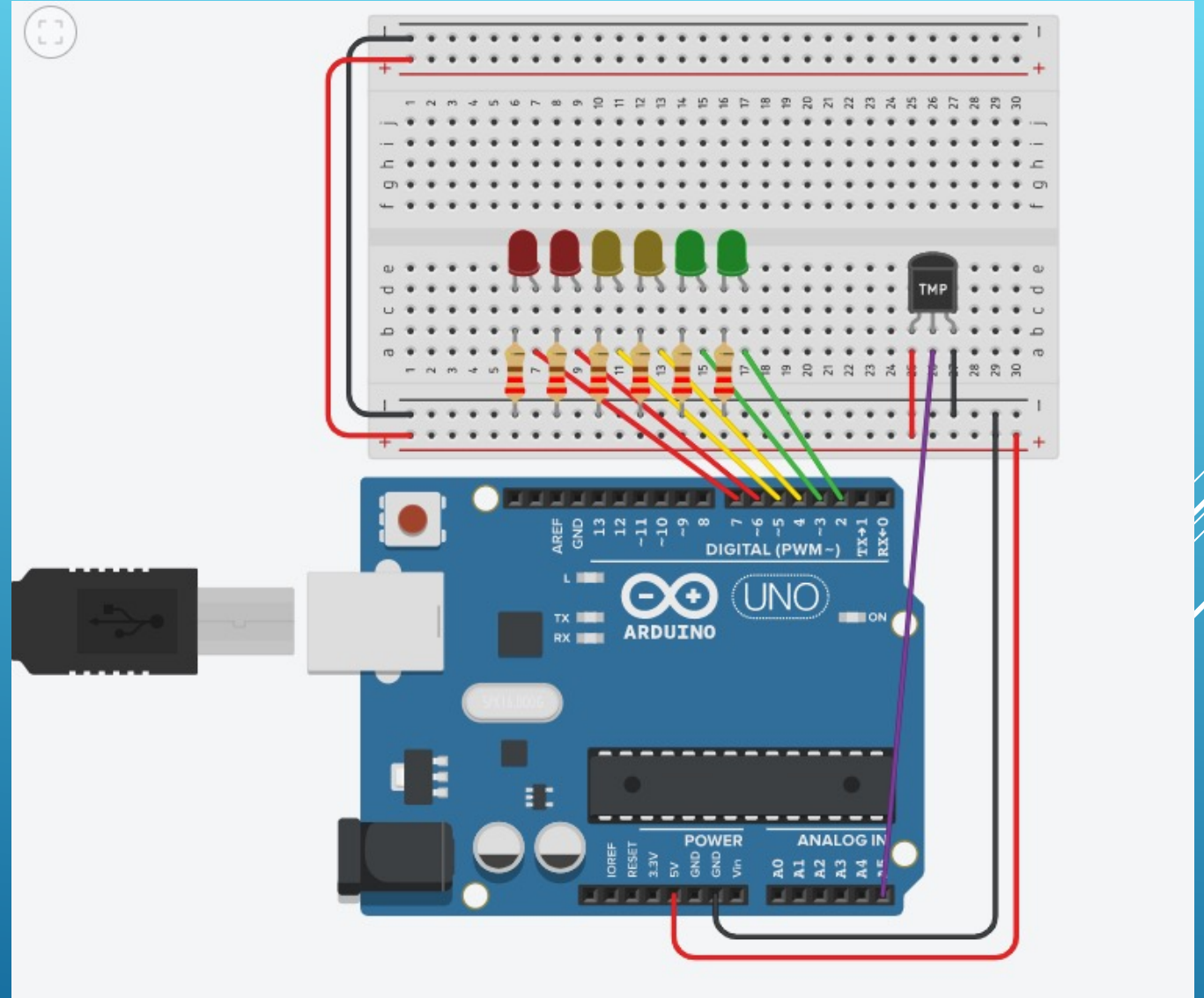


- ▶ Digital thermometer
- ▶ Connect the purple cable to A5

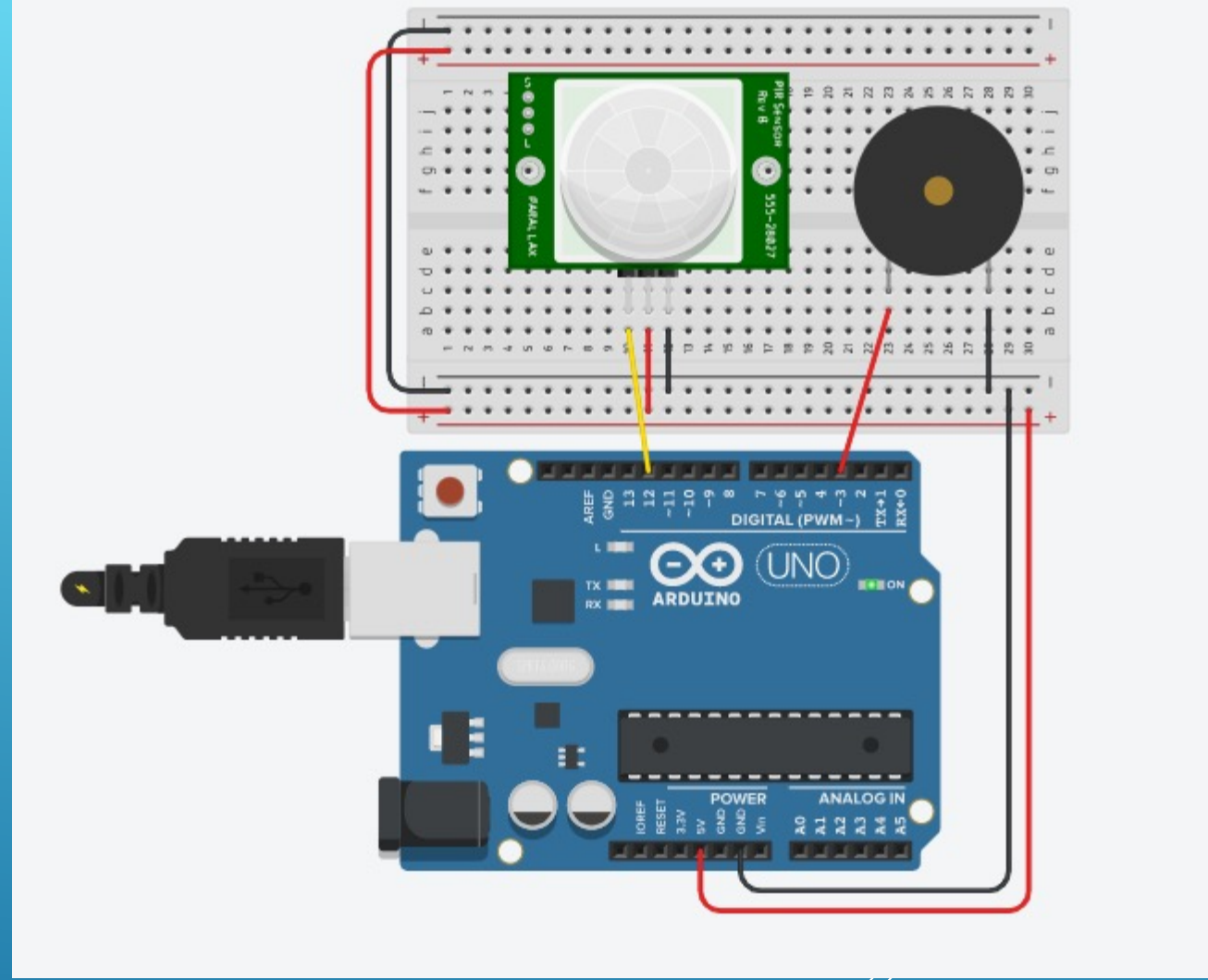
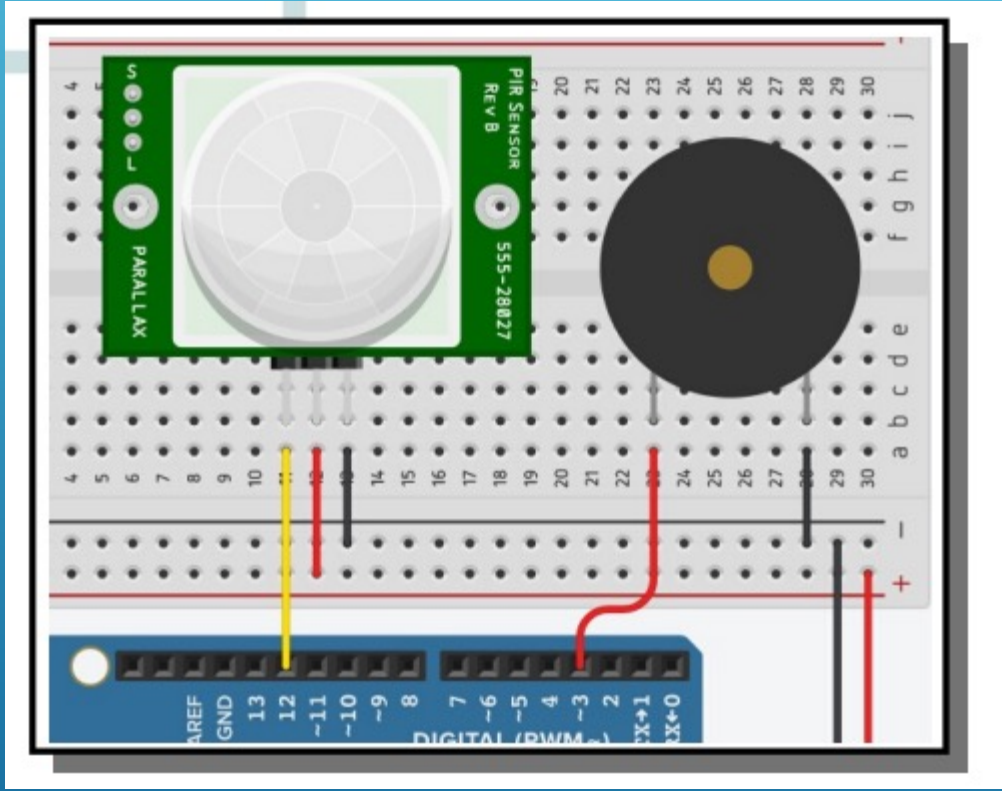








▶ Intruder alarm



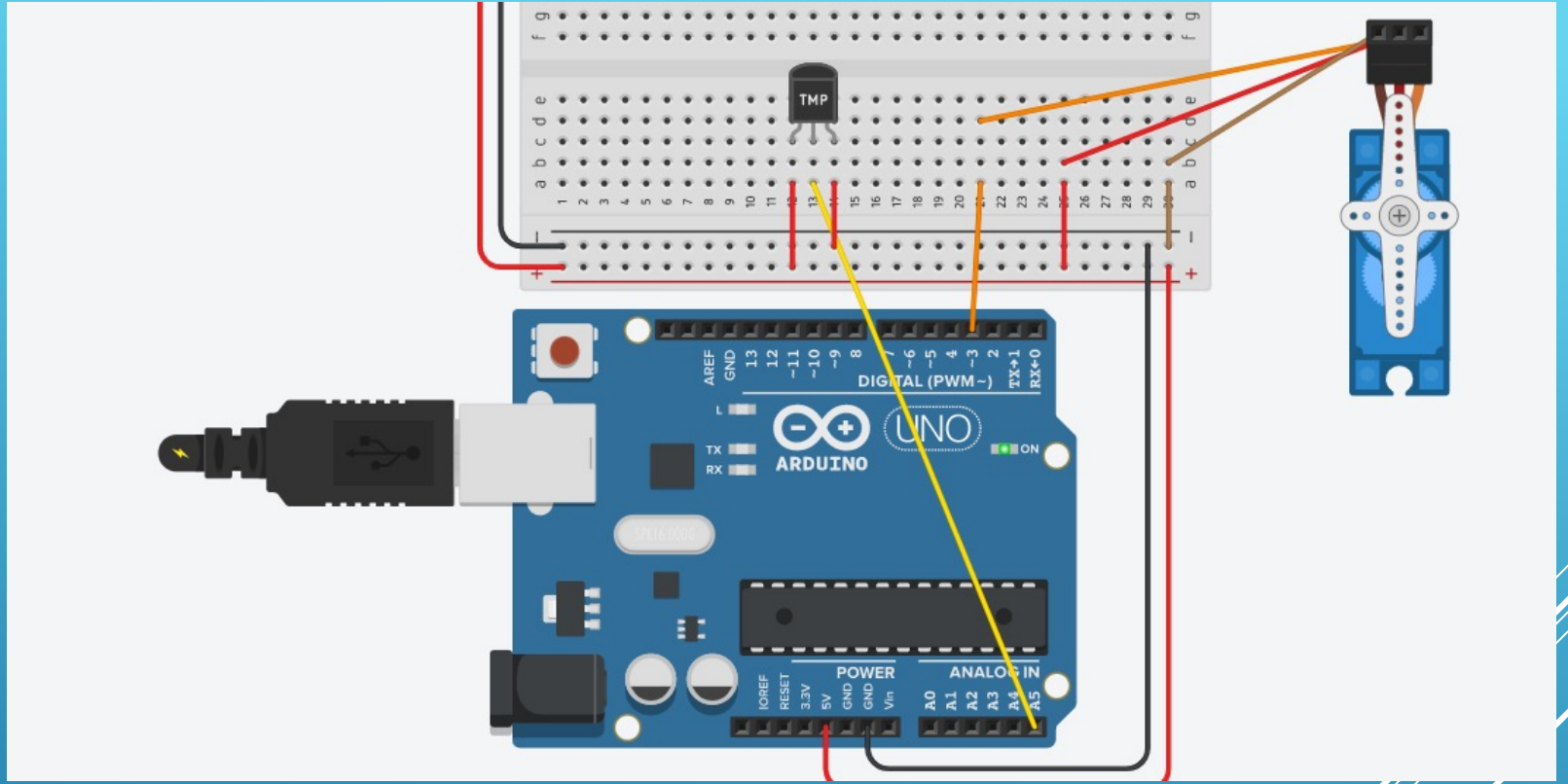
## ▶ Intruder alarm

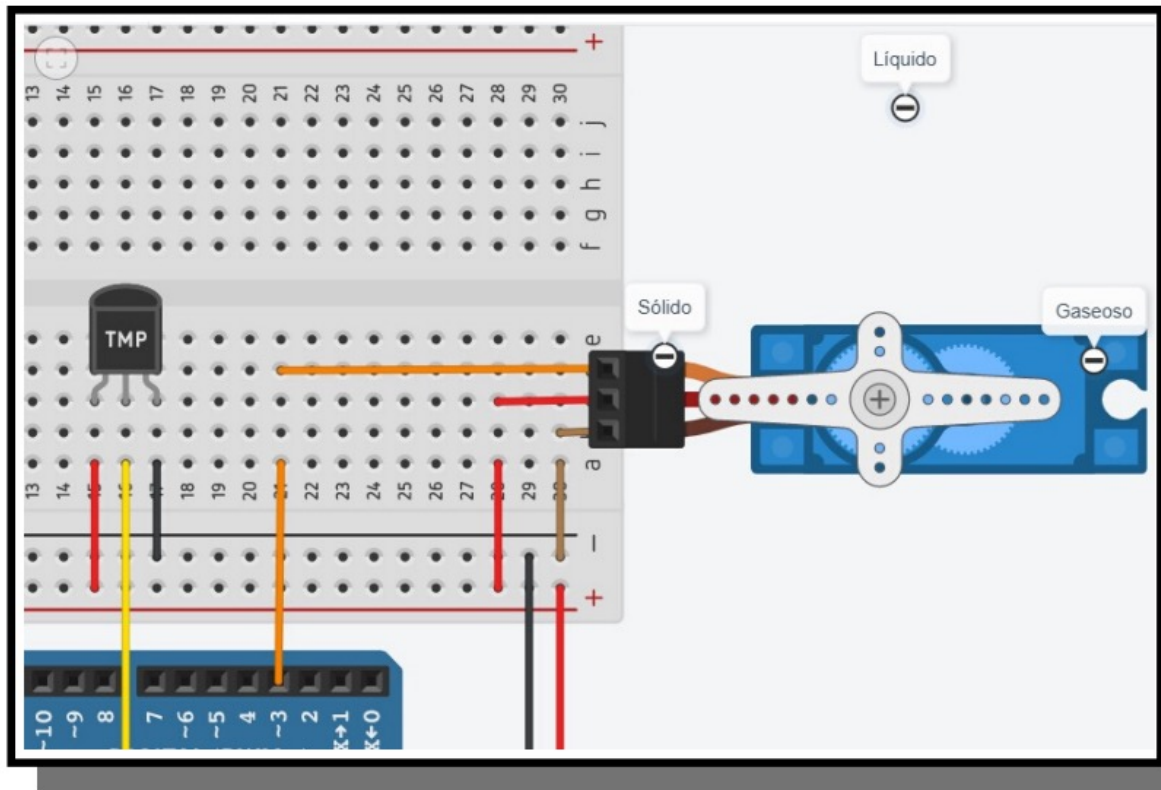
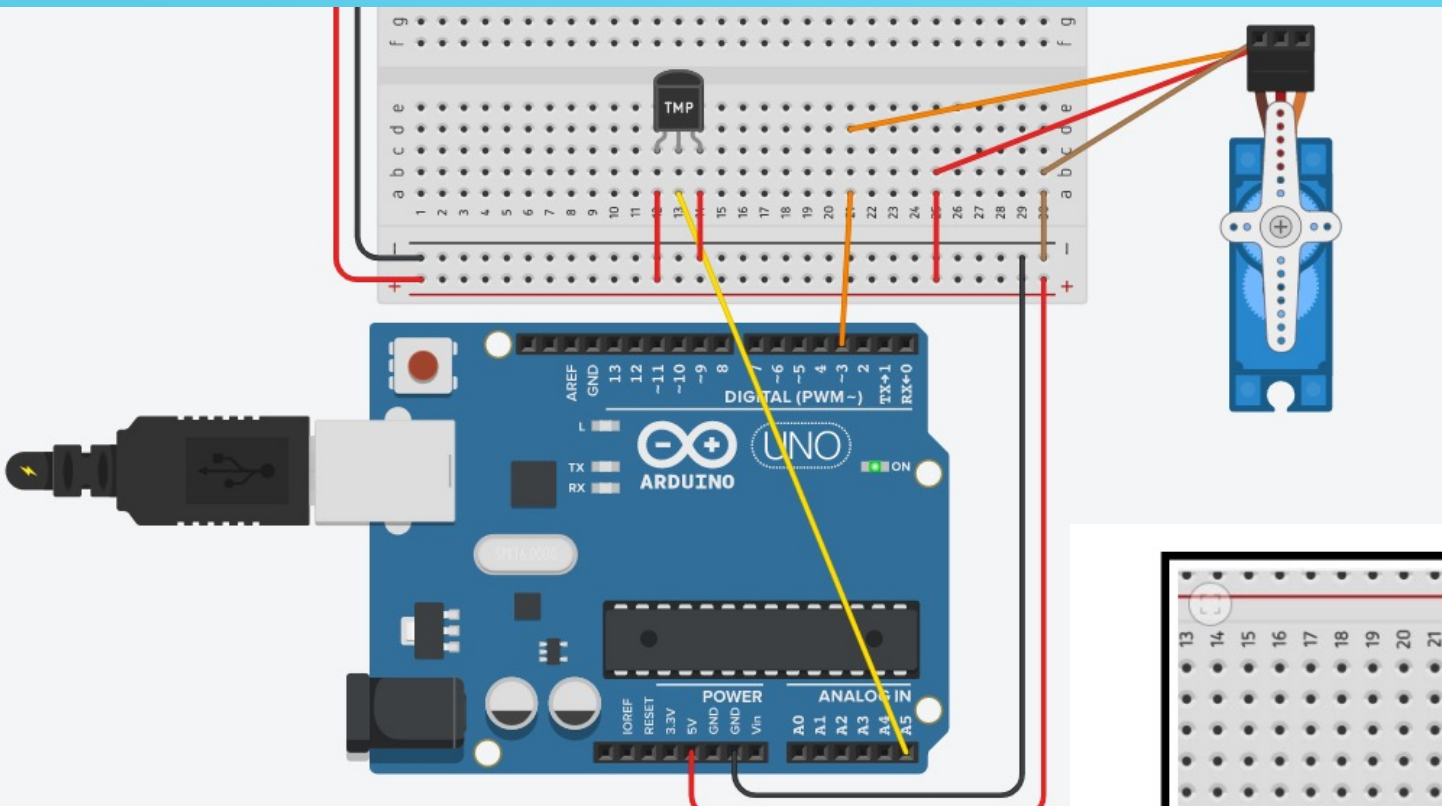
The image shows a Scratch code editor window. On the left, the 'Variables' category is selected, showing a 'Create variable...' button and a variable named 'pir'. Below it are three variable blocks: 'set pir to 0', 'change pir by 0', and a 'pir' variable block. On the right, a script is assembled with the following blocks: 'set pir to read digital pin 12', an 'if' block with the condition 'pir = HIGH', and a 'then' block containing 'play speaker on pin 3 with tone 60 for 1 seconds'.

Scratch Code Editor Interface:

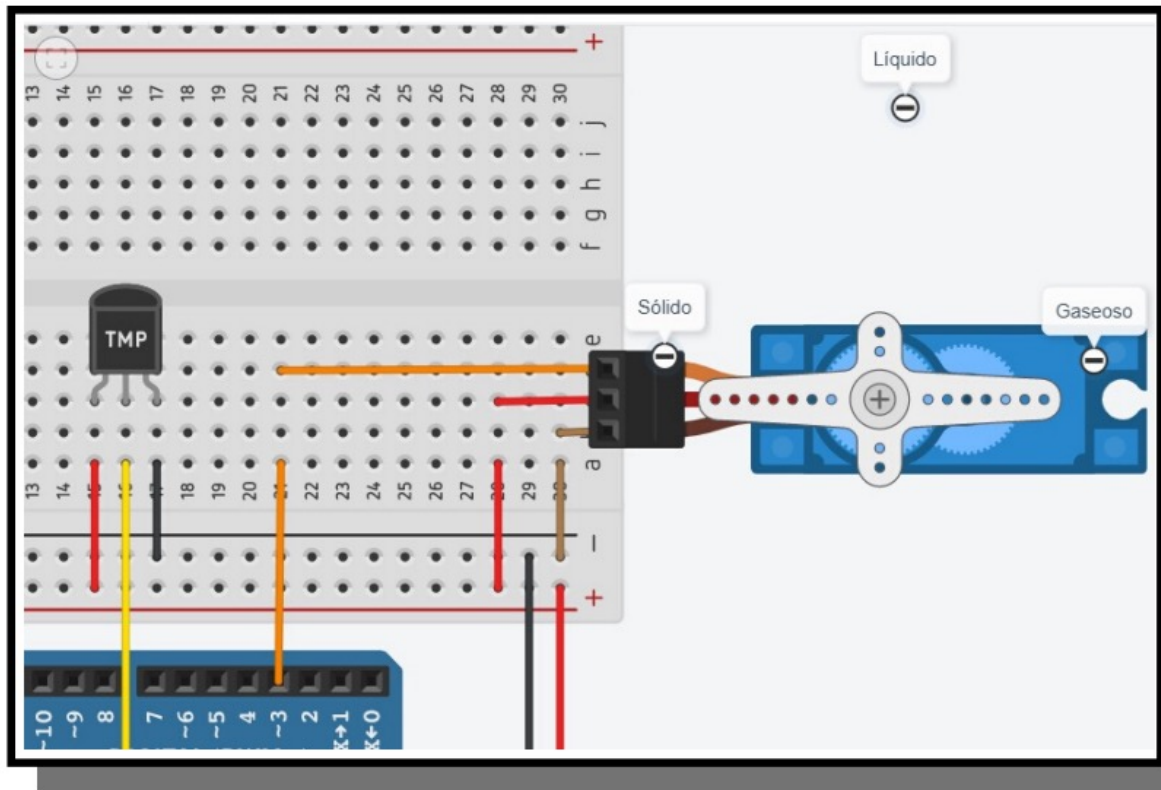
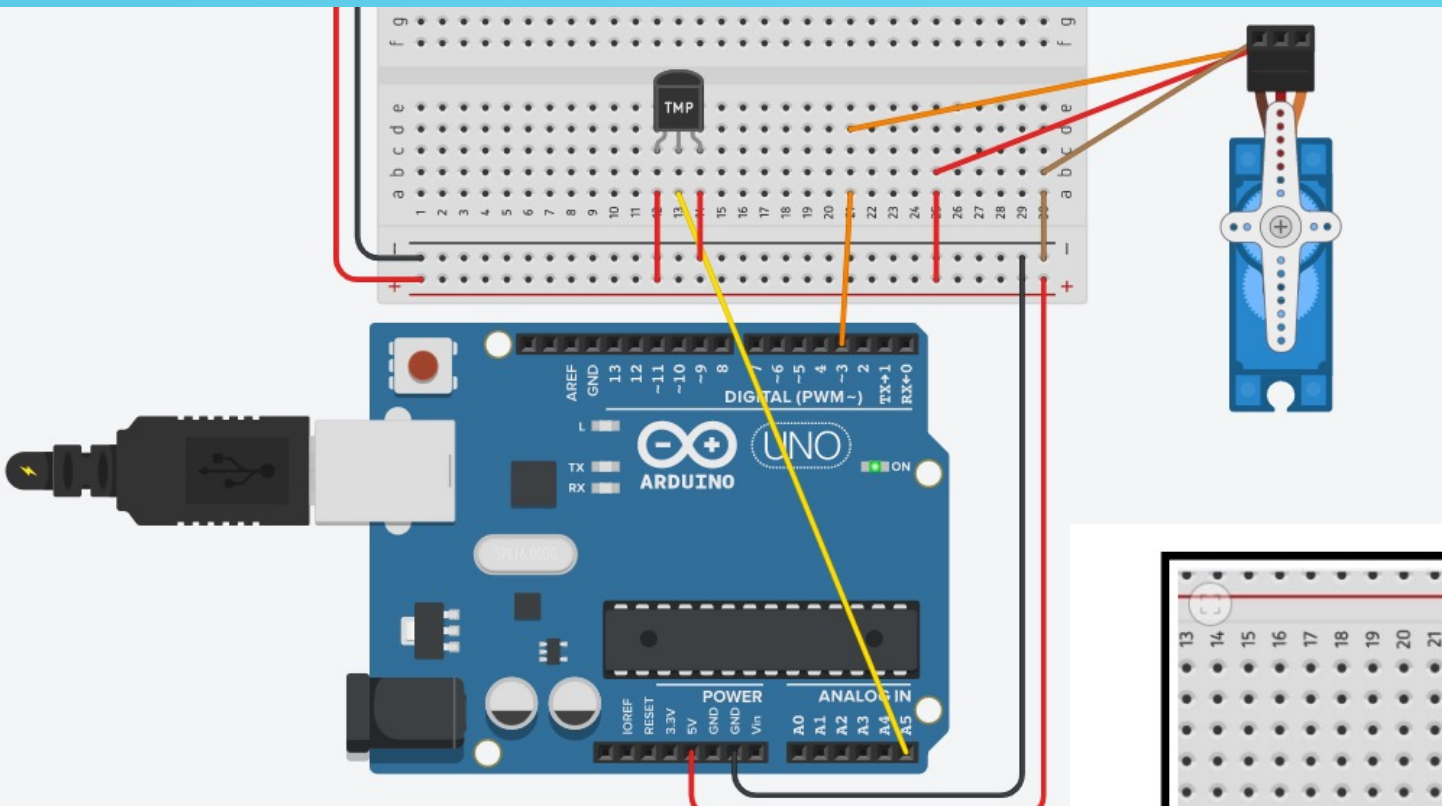
- Categories: Output, Input, Notation, Control, Math, Variables (selected)
- Buttons: Create variable...
- Variable: pir
- Blocks:
  - set pir to 0
  - change pir by 0
  - set pir to read digital pin 12
  - if pir = HIGH then
    - play speaker on pin 3 with tone 60 for 1 seconds

► 0 to 100 centigrade











- Output
- Input
- Notation
- Control
- Math
- Variables

Create variable...

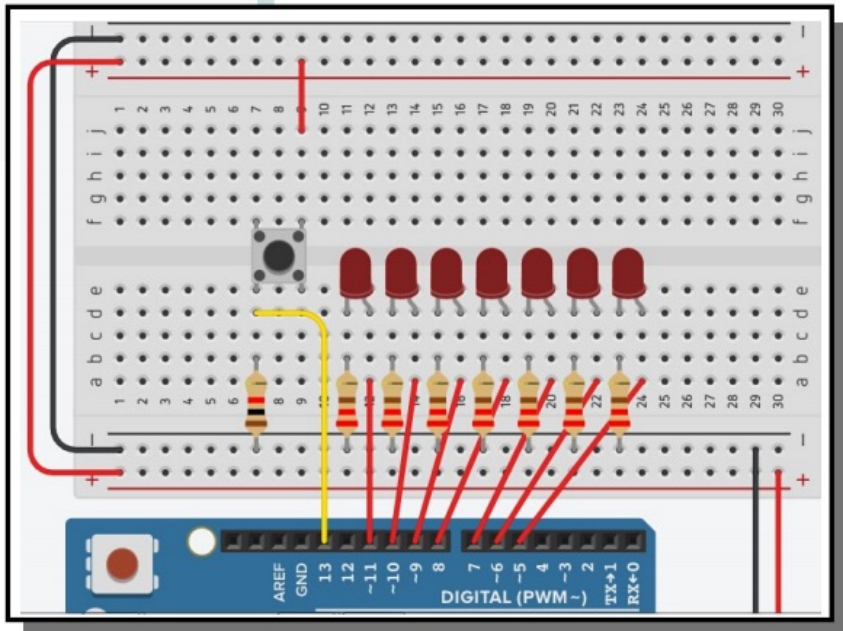
temperatura

set temperatura to 0

change temperatura by 0

```
set temperatura to read temperature sensor on pin A5 in units °C
if temperatura < 0 then
  rotate servo on pin 3 to 180 degrees
if temperatura >= 0 and temperatura < 100 then
  rotate servo on pin 3 to 90 degrees
if temperatura >= 100 then
  rotate servo on pin 3 to 0 degrees
```

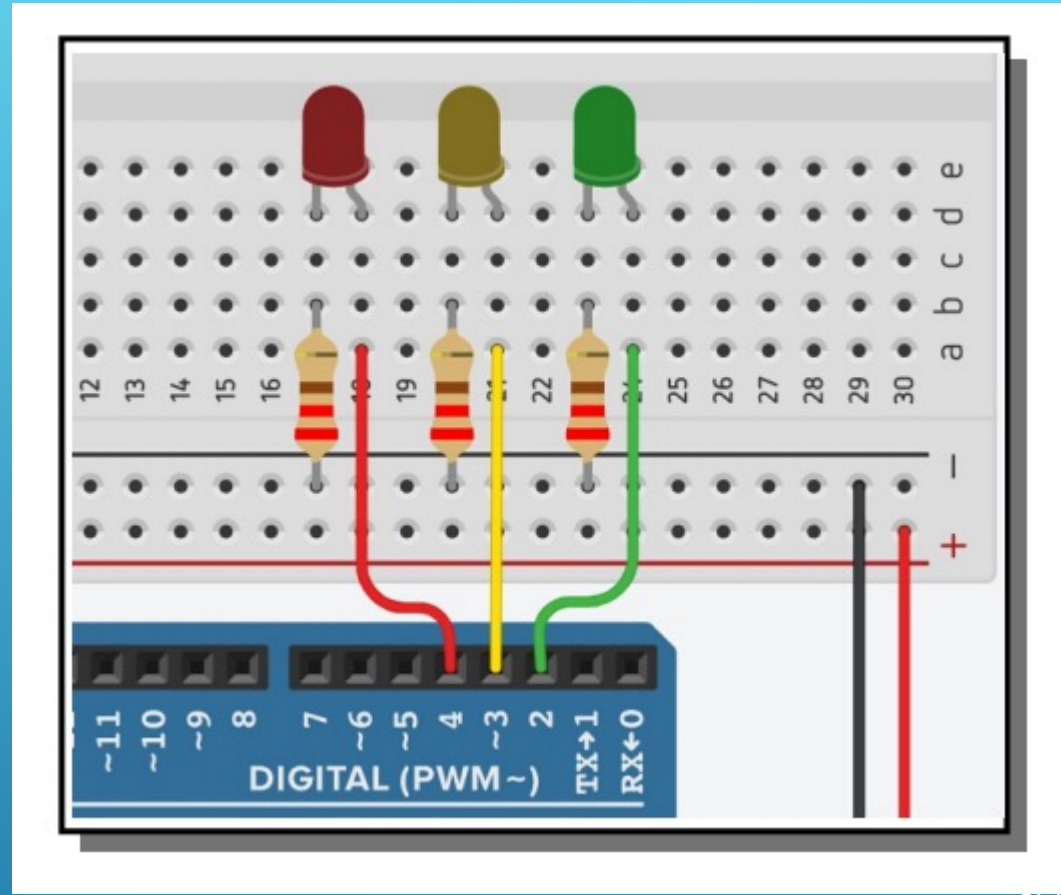
## ▶ Roulette Game



```
set boton to read digital pin 13
if boton = HIGH then
  set numero to pick random 1 to 7
  print to serial monitor numero with newline
  wait 50 milliseconds
if numero = 1 then
  set pin 5 to HIGH
```

```
if numero = 1 then
  set pin 5 to HIGH
  set pin 6 to LOW
  set pin 7 to LOW
  set pin 8 to LOW
  set pin 9 to LOW
  set pin 10 to LOW
  set pin 11 to LOW
```

- ▶ Traffic light for intersections



```
comentario Semaforo 1 en Verde , Semaforo 2 en Rojo
comentario Semaforo 1
definir pasador 2 en ALTA
definir pasador 3 en BAJA
definir pasador 4 en BAJA
comentario Semaforo 2
definir pasador 9 en BAJA
definir pasador 10 en BAJA
definir pasador 11 en ALTA
esperar 3 segundos
```

1°

```
comentario Semaforo 1 en Amarillo , Semaforo 2 en Rojo
comentario Semaforo 1
definir pasador 2 en BAJA
definir pasador 3 en ALTA
definir pasador 4 en BAJA
comentario Semaforo 2
definir pasador 9 en BAJA
definir pasador 10 en BAJA
definir pasador 11 en ALTA
esperar 1 segundos
```

2°



comentario Semaforo 1 en Rojo, Semaforo 2 en Verde

comentario Semaforo 1

definir pasador 2 en BAJA

definir pasador 3 en BAJA

definir pasador 4 en ALTA

comentario Semaforo 2

definir pasador 9 en ALTA

definir pasador 10 en BAJA

definir pasador 11 en BAJA

esperar 3 segundos

3°

comentario Semaforo 1 en Rojo, Semaforo 2 en Amarillo

comentario Semaforo 1

definir pasador 2 en BAJA

definir pasador 3 en BAJA

definir pasador 4 en ALTA

comentario Semaforo 2

definir pasador 9 en BAJA

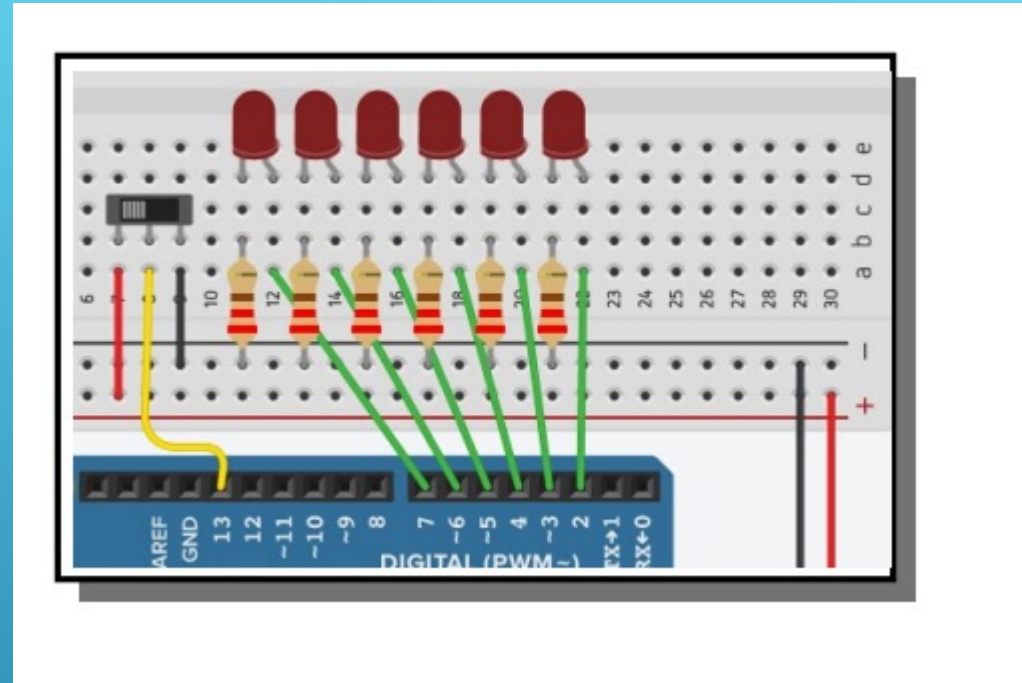
definir pasador 10 en ALTA

definir pasador 11 en BAJA

esperar 1 segundos

4°

► Sequence Selection

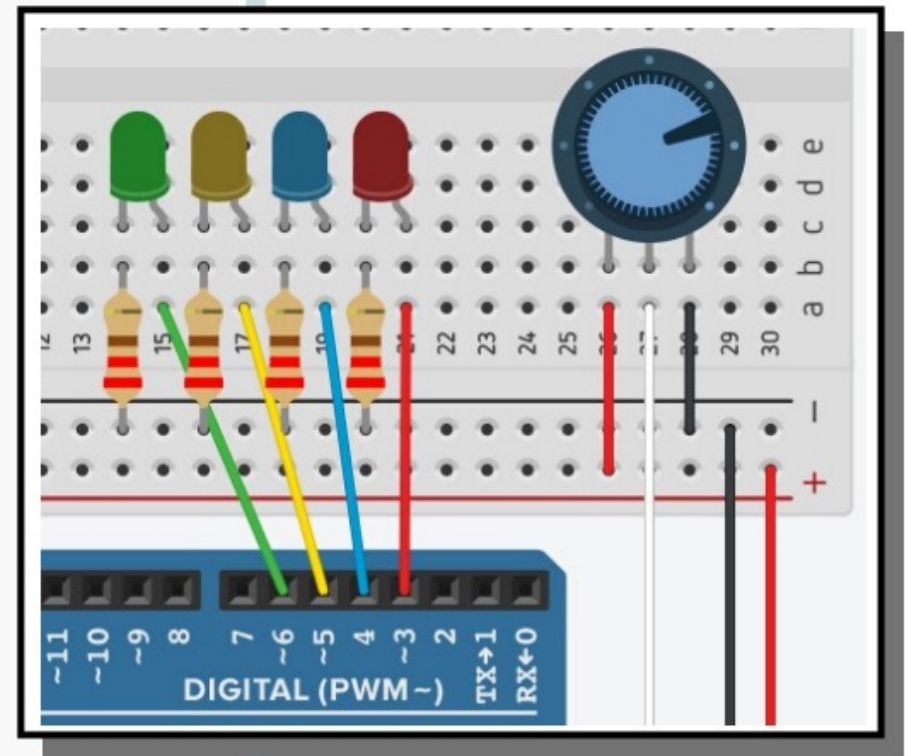


```
definir interruptor en leer pasador digital 13
si interruptor = ALTA entonces
  definir pasador 2 en ALTA
  esperar 0.5 segundos
  definir pasador 2 en BAJA
  esperar 0.5 segundos
  definir pasador 3 en ALTA
  esperar 0.5 segundos
  definir pasador 3 en BAJA
  esperar 0.5 segundos
si no
```



```
si no
  definir pasador 3 en ALTA
  esperar 0.5 segundos
  definir pasador 3 en BAJA
  esperar 0.5 segundos
  definir pasador 2 en ALTA
  esperar 0.5 segundos
  definir pasador 2 en BAJA
  esperar 0.5 segundos
```

- ▶ Speed variation
- ▶ The white cable goes to A5



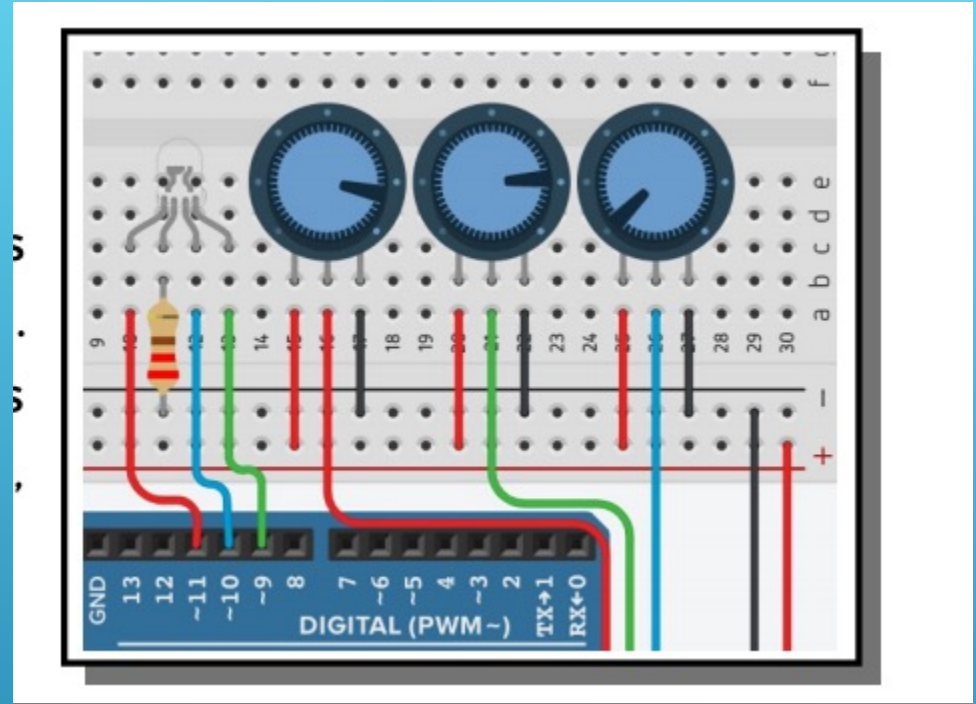


► Speed variation

The image displays a Scratch script for controlling a motor's speed. The script begins with two 'definir' (define) blocks: 'pote' is defined as 'leer pasador analógico A5' (read analog pin A5), and 'velocidad' is defined as 'asignar pote al rango entre 50 y 1000' (assign pote to the range between 50 and 1000). This is followed by an 'imprimir en monitor en serie' (print to serial monitor) block showing 'velocidad' on a new line. The main loop consists of alternating 'definir pasador' (define pin) and 'esperar' (wait) blocks. The first cycle sets pin 3 to 'ALTA' (HIGH) and waits for 'velocidad' milliseconds. The second cycle sets pin 3 to 'BAJA' (LOW) and waits for 'velocidad' milliseconds. The third cycle sets pin 4 to 'ALTA' and waits for 'velocidad' milliseconds. The fourth cycle sets pin 4 to 'BAJA' and waits for 'velocidad' milliseconds. The fifth cycle sets pin 5 to 'ALTA' and waits for 'velocidad' milliseconds. The sixth cycle sets pin 5 to 'BAJA' and waits for 'velocidad' milliseconds. The final block is another 'esperar' block for 'velocidad' milliseconds.

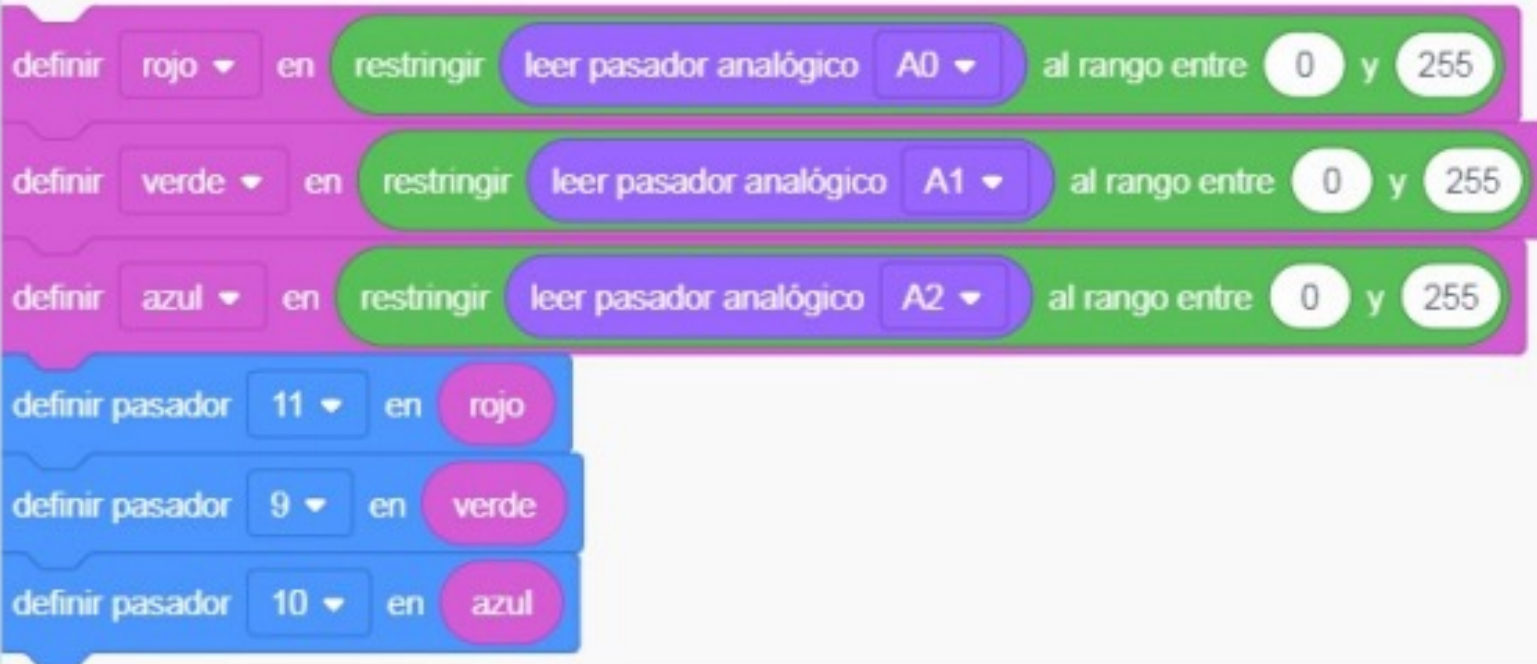
To the right of the code is a breadboard circuit diagram. It shows three resistors (green, yellow, and blue) connected to digital pins 13, 15, and 17. A green wire connects pin 15 to digital pin 6, and a yellow wire connects pin 17 to digital pin 7. The breadboard is labeled 'DIGITAL' at the bottom.

► Mix RGB



CONNECT THE CABLES IN THE MIDDLE  
TO **A0, A1 AND A2**

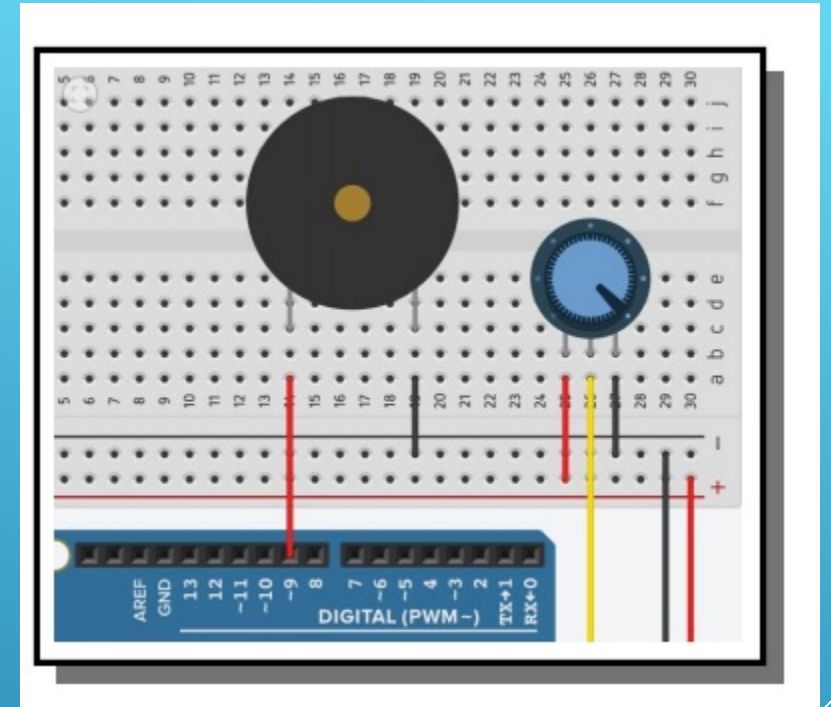
► Mix RGB



The image shows a Scratch script with six code blocks. The first three are 'definir' blocks with a dropdown menu, 'en', 'restringir', 'leer pasador analógico', a dropdown menu, and 'al rango entre' with two input fields. The first block sets 'rojo' to A0 with a range of 0 to 255. The second sets 'verde' to A1 with a range of 0 to 255. The third sets 'azul' to A2 with a range of 0 to 255. The next three are 'definir pasador' blocks with an input field, 'en', and a color dropdown. The fourth sets pasador 11 to 'rojo'. The fifth sets pasador 9 to 'verde'. The sixth sets pasador 10 to 'azul'.

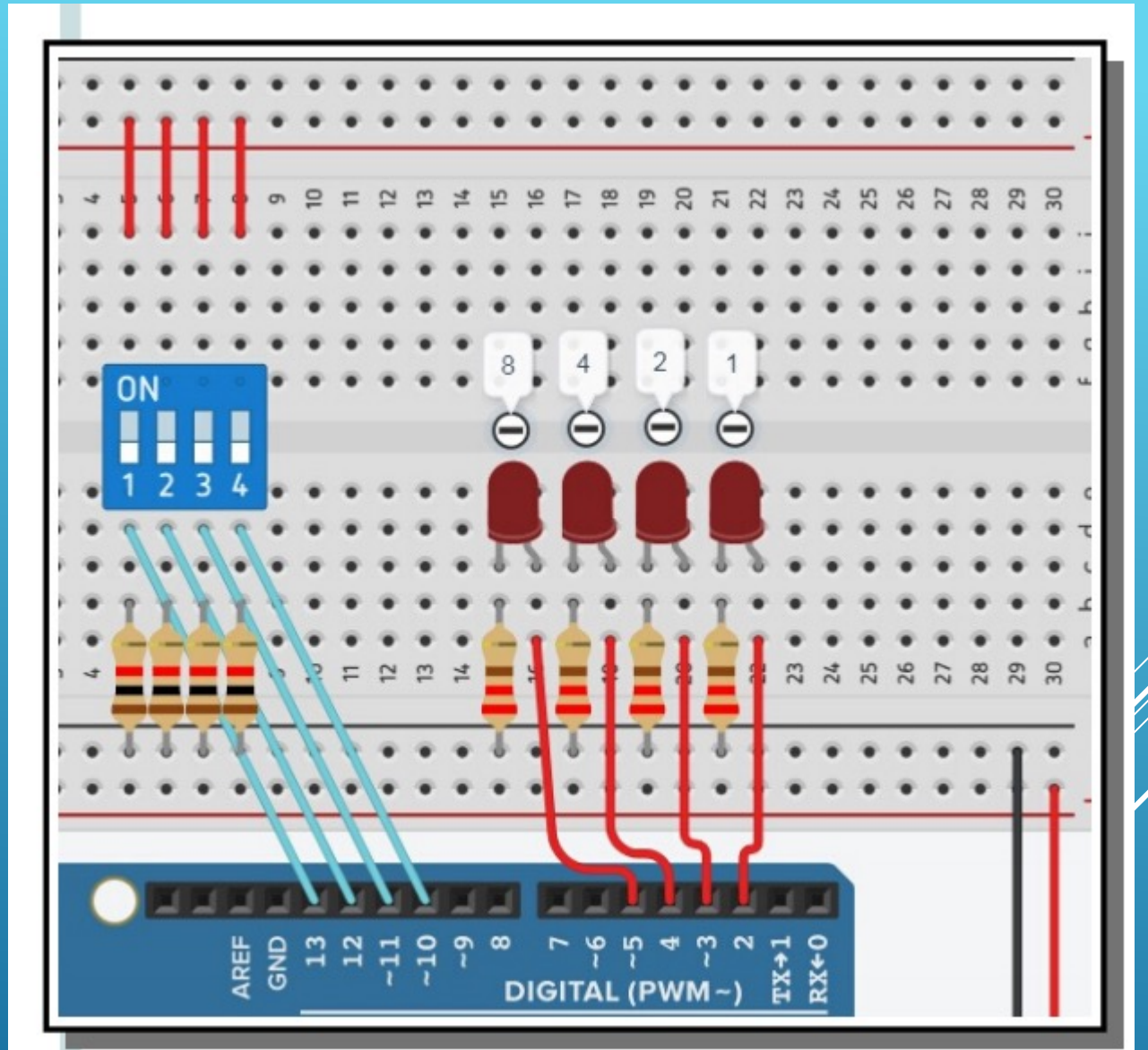
```
definir rojo ▼ en restringir leer pasador analógico A0 ▼ al rango entre 0 y 255
definir verde ▼ en restringir leer pasador analógico A1 ▼ al rango entre 0 y 255
definir azul ▼ en restringir leer pasador analógico A2 ▼ al rango entre 0 y 255
definir pasador 11 ▼ en rojo
definir pasador 9 ▼ en verde
definir pasador 10 ▼ en azul
```

► Mix Music





► Binary – Decimal Converter



```
definir I1 en leer pasador digital 13
definir I2 en leer pasador digital 12
definir I3 en leer pasador digital 11
definir I4 en leer pasador digital 10
definir decimal en 0

si I1 = ALTA entonces
  definir pasador 2 en ALTA
  cambiar decimal por 2 ^ 0
si no
  definir pasador 2 en BAJA
```

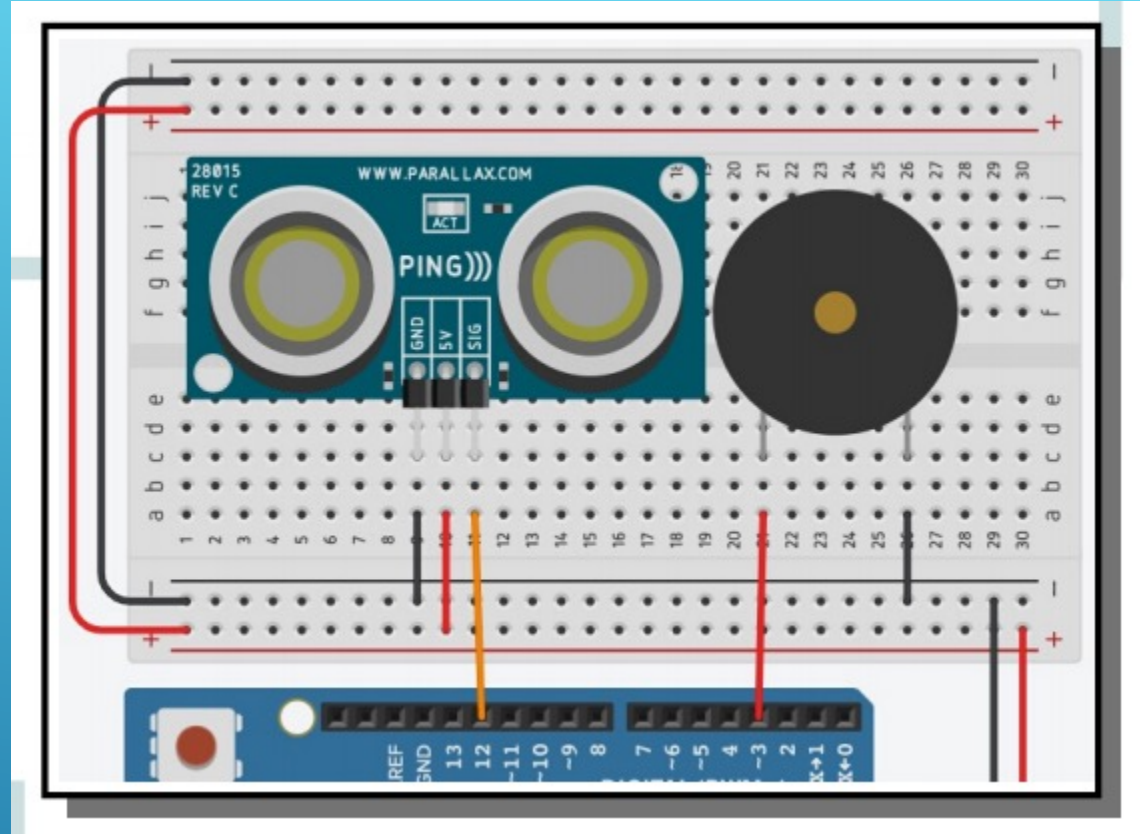
```
si I2 = ALTA entonces
  definir pasador 3 en ALTA
  cambiar decimal por 2 ^ 1
si no
  definir pasador 3 en BAJA

si I3 = ALTA entonces
  definir pasador 4 en ALTA
  cambiar decimal por 2 ^ 2
si no
  definir pasador 4 en BAJA

si I4 = ALTA entonces
  definir pasador 5 en ALTA
  cambiar decimal por 2 ^ 3
si no
  definir pasador 5 en BAJA

imprimir en monitor en serie decimal , nueva línea con
```

► Proximity Alarm



## ► Proximity Alarm

