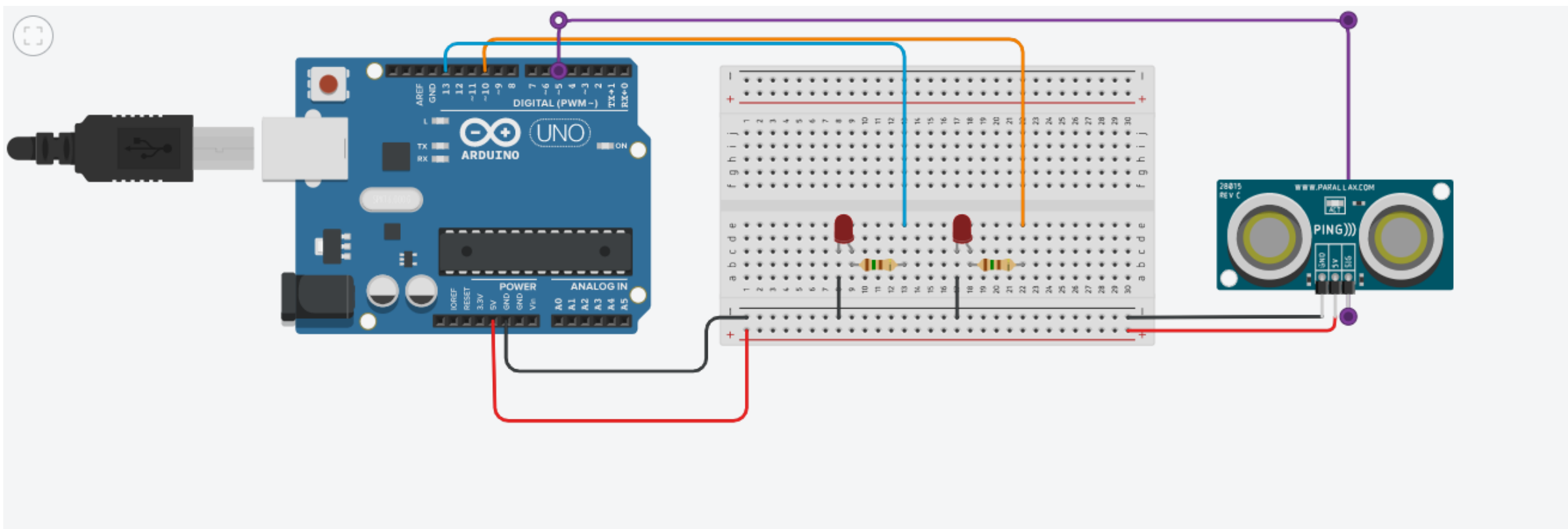


Sistemas Embarcados

Prof. Ederson Luiz Silva

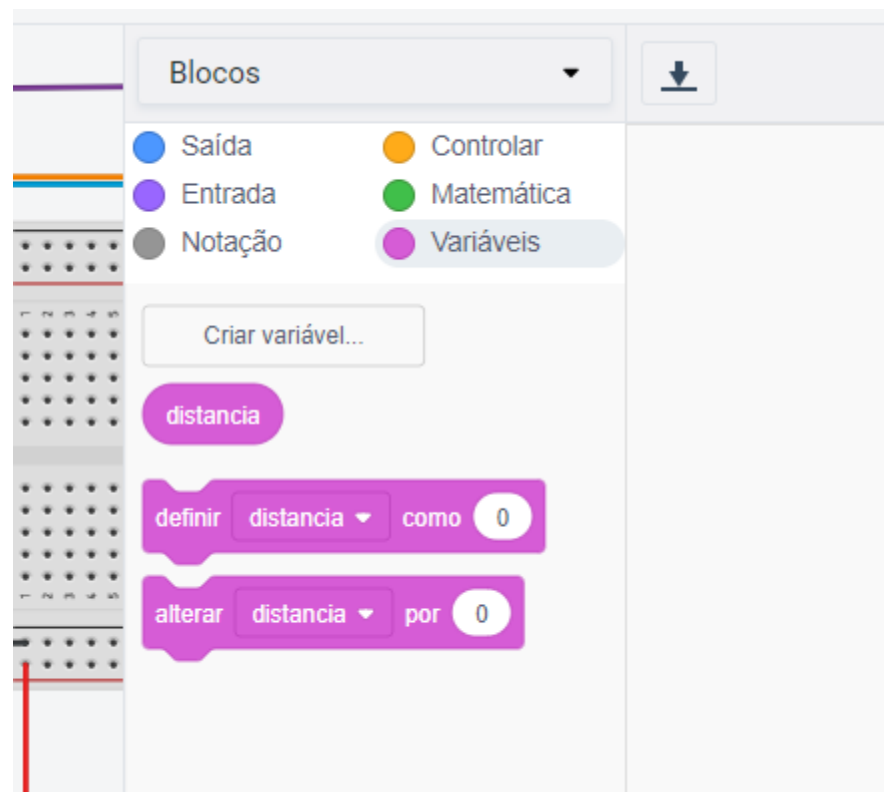
- Nessa aula vamos fazer um sensor de presença de estacionamento.



- `int distancia = 0;`
- `long readUltrasonicDistance(int triggerPin, int echoPin)`
- `{`
- `pinMode(triggerPin, OUTPUT); // Clear the trigger`
- `digitalWrite(triggerPin, LOW);`
- `delayMicroseconds(2);`
- `// Sets the trigger pin to HIGH state for 10 microseconds`
- `digitalWrite(triggerPin, HIGH);`
- `delayMicroseconds(10);`
- `digitalWrite(triggerPin, LOW);`
- `pinMode(echoPin, INPUT);`
- `// Reads the echo pin, and returns the`
- `sound wave travel time in microseconds`
- `return pulseIn(echoPin, HIGH);`
- `}`

```
void setup()
{
  pinMode(10, OUTPUT);
  pinMode(13, OUTPUT);
}
void loop()
{
  distancia = 0.01723 *
  readUltrasonicDistance(3, 3);
  if (distancia <= 50) {
    digitalWrite(10, HIGH);
    digitalWrite(13, LOW);
  } else {
    digitalWrite(10, LOW);
    digitalWrite(13, HIGH);
  }
  delay(10); // Delay a little bit to
  improve simulation performance
}
```

- Vamos criar uma variável distância



- Vamos construir o nosso código no Tinkercad



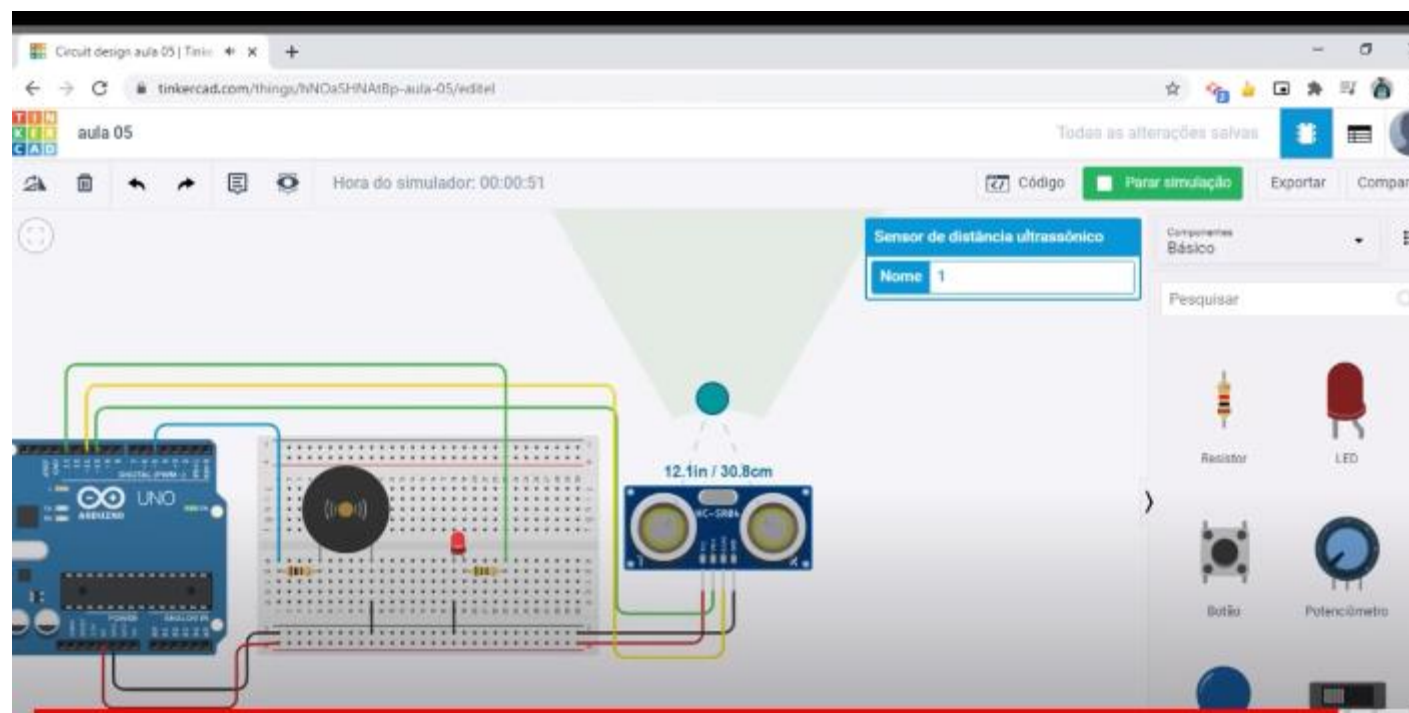
- Agora na linguagem C

```
void setup()
{
    pinMode(13, OUTPUT);
    pinMode(10, OUTPUT);
}

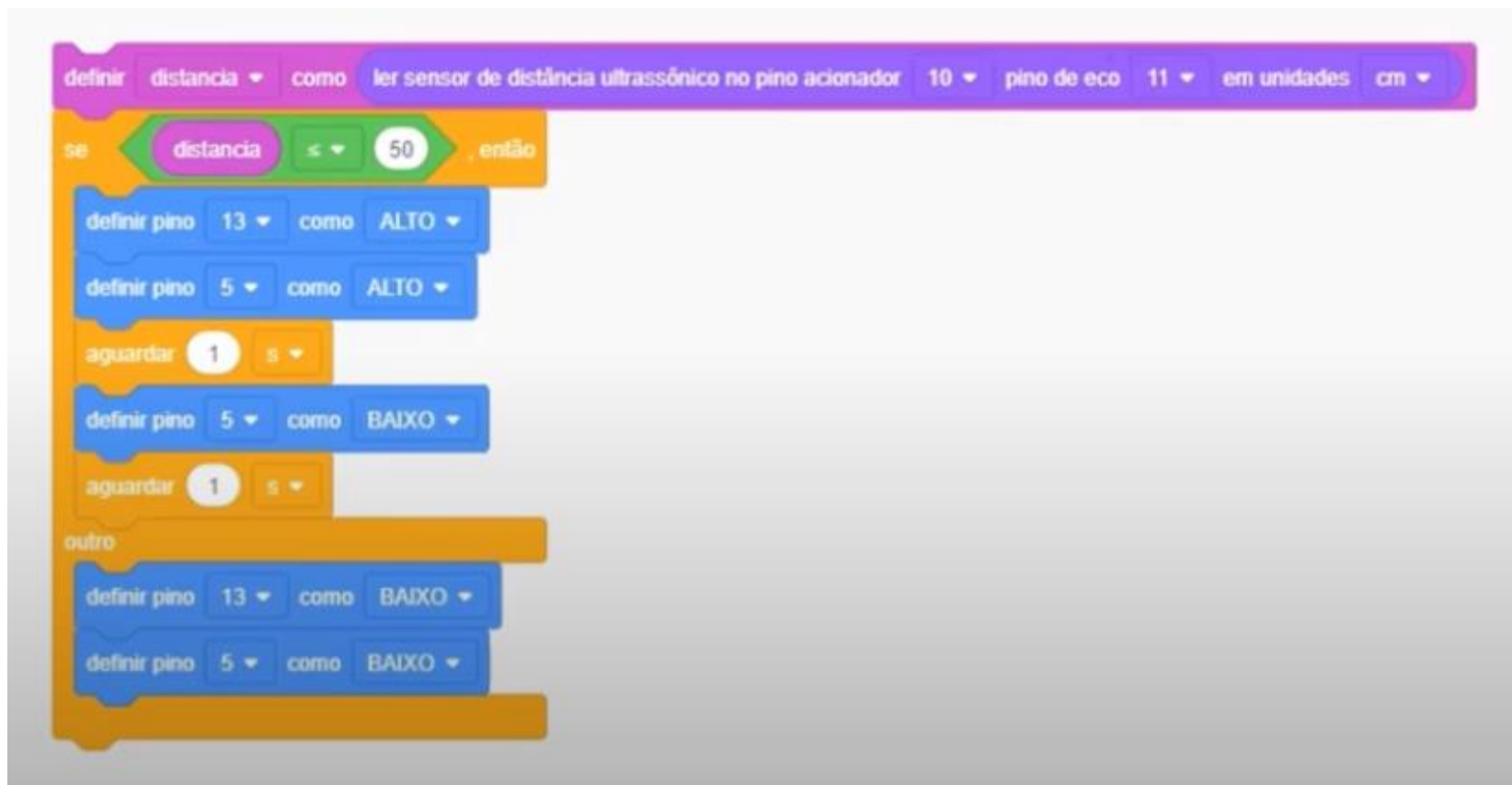
void loop()
{
    distancia = 0.01723 * readUltrasonicDistance(5, 5);
    if (distancia <= 50) {
        digitalWrite(13, HIGH);
        digitalWrite(10, LOW);
    } else {
```

```
        digitalWrite(13, LOW);
        digitalWrite(10, HIGH);
    }

    delay(10); // Delay a little bit to improve simulation
    performance
}
```



Peso- 100 ohms



- `int distancia = 0;`
- `long readUltrasonicDistance(int triggerPin, int echoPin)`
- `{`
- `pinMode(triggerPin, OUTPUT); // Clear the trigger`
- `digitalWrite(triggerPin, LOW);`
- `delayMicroseconds(2);`
- `// Sets the trigger pin to HIGH state for 10 microseconds`
- `digitalWrite(triggerPin, HIGH);`
- `delayMicroseconds(10);`
- `digitalWrite(triggerPin, LOW);`
- `pinMode(echoPin, INPUT);`
- `// Reads the echo pin, and returns`
- `the sound wave travel time in microseconds`
- `return pulseIn(echoPin, HIGH);`
- `}`

```
void setup()
```

```
{  
  pinMode(12, OUTPUT);  
  pinMode(9, OUTPUT);  
}
```

```
void loop()
```

```
{  
  distancia = 0.01723 * readUltrasonicDistance(3, 3);  
  if (distancia < 50) {  
    digitalWrite(12, LOW);  
    digitalWrite(9, HIGH);  
  } else {  
    digitalWrite(12, HIGH);  
    digitalWrite(9, LOW);  
  }  
  delay(10); // Delay a little bit to improve simulation performan  
}
```

- Bibliografia
- <https://www.youtube.com/watch?v=mMWcB-vFYZs>