

A short ready-to-be-used program for reading a sensor and writing an actuator.

```
Int RedLedPin = 6;

void setup(void) {
  pinMode(RedLedPin, OUTPUT);
}

void loop(void) {
  input_signal = analogRead(0);  /* input sensor is read, using its connection to
  analogue pin #0

  output_signal = map(input_signal, 0, 1023, 255, 0); // linear conversion is
  performed converting the physical quantity read into the physical quantity that has to
  be output

  analogWrite(6, output_signal); // output signal is written to output actuator, using
  its connection to analog pin #6
}
```

The connection between input sensors and analogue pin#0 (first instruction) has to be made physically connecting the device hardware pin.

The “map” instruction in this case makes the linear conversion between a physical quantity whose range is 0-1023 (input_signal, 10 bits analogue quantity) to another quantity with range 255-0 (output_signal), and this results into a straight line passing through the points (0,255) and (1023,0).

The connection between the output sensor and analogue pin#6 (third instruction) has to be made physically connecting the device hardware pin.

Notice at the beginning of the code how the variable RedLedPin is declared as a synonym of #6 pin.

While we won't give any comment in this unit to the syntax and the “void” term, (we just ask to copy them as they are), we can distinguish the two parts shown above: the **setup** instructions and the **loop** instructions.