

LAB N°04

Arduino Communications
PWM-Sensors-Actuators-Raspberry (Intro)

A. THEORY: (max 01 pages)

1. PWM

1.1. Definition

1.2. Comparing Arduino vs Raspberry GPIO, PWM, and Int. Pins

1.2.1. What is raspberry how to install and configure it?

1.2.2. Comparing Arduino Analog GPIO with A0 and PWM.

1.2.3. Theoretical study of Analog, PWM and interrupt of an Arduino pins

1.2.4. Theoretical study of Analog, PWM and interrupt of a Raspberry pins

1.2.5. Comparing Arduino vs Raspberry GPIO, PWM, and Int. Pins

B. ACTIVITY: (max 04 pages)

B-1 ARDUINO

1. PWM usage:

We want to control the brightness of an LED using a program that uses PWM output. Use the appropriate function **analogWrite(...), Resolution, and Map ...** (Provide necessary explanations).

2. PWM-LDR-LED usage:

- Now, use the light sensor LDR and/or force sensor to modulate the intensity of the LED. To modulate the intensity of an LED using an LDR, we can read the analog output of the LDR using the **analogRead()** function and map the value to a range of 0 to 255 using the **map()** function. We can then use this value as the input to the **analogWrite()** function to control the brightness of the LED.

-Compare PWM Pin with Analog GPIO?

2. Applications of PWM:

Imagine and propose other applications of PWM.

B-2 CONCLUSION