ECOLE NATIONALE SUPÉRIEURE D'INFORMATIQUE

LAB N°06

Arduino-Raspberry Wired Communications

UART

I. THEORY: *(max 01 page to 02 pages)*

1.1. Definition **UART** and particularly **USB**

1.2. Introduction and Comparing Arduino vs Raspberry UART

1.2.1. Theoretical study of UART of an Arduino MKR1010 pins and software related to UART.

1.2.2. Theoretical study of UART of Raspberry pins and software related to UART.

II. ACTIVITY: *(max 04 pages)*

Communicating between Arduino and Raspberry Pi via UART

a) Raspberry PUSH-BUTTON-LED

Given the sensors, LDR, Pushbutton and LED connected to Raspberry as shown in Figure Fig 1. Choose the adequate connections (GPIO digital and analog, PMW, Int, etc.) and implement some controls based on previous Labs with explanations.

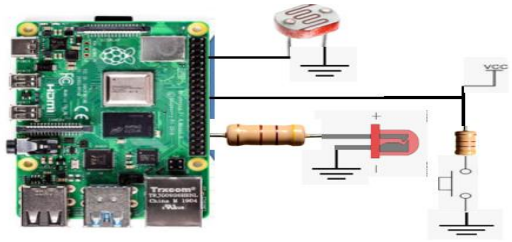

Fig 1 Communication Raspberry LDR, LED, Pushbutton.

b) Arduino-Raspberry-PUSH-BUTTON-LED

Given the diagram represented in Figure Fig. 2, consisting of a Raspberry Pi and an Arduino connected via a UART serial bus. We want to turn on or off the LED-1 connected to the Raspberry Pi each time we press the push button connected at the Arduino.

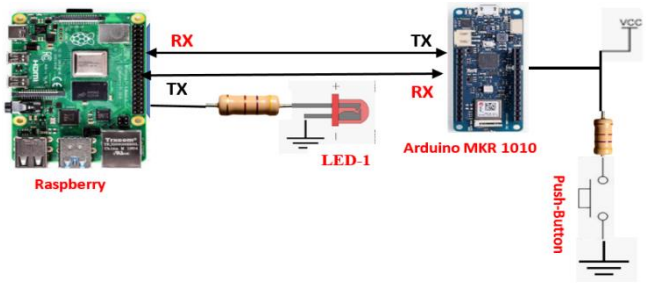

Fig 2. Communication Raspberry Arduino via Bus UART

c) Arduino-Raspberry-PUSH-BUTTON-LDR

Adding a LDR at the Arduino level. We will then create a program that can be used to control the LED-1 from the Arduino based on the light intensity detected by the LDR.

III. CONCLUSION