ESCUELA DE
CIENCIAS MATEMÁTICAS Y
TECNOLOGÍA INFORMÁTICA

Wireless Network

LAB8: Read data from the temperature sensor using bluetooth and arduino.

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Objective

1. Describe the basic principles of radio communications.
2. Understand the usage of Bluetooth serial communication module and AT command to set the control parameters.
3. Learn how use the Bluetooth module for controlling Arduino via Bluetooth communication.

Exercise 1. LM35 temperature sensor in Arduino

In order to detect the temperature is necessary incorporate to Arduino the sensor LM35 and calculate the temperature based on the voltage provided by sensor. Then, we need to use the next Circuit with code "exer1.ino" of Github.

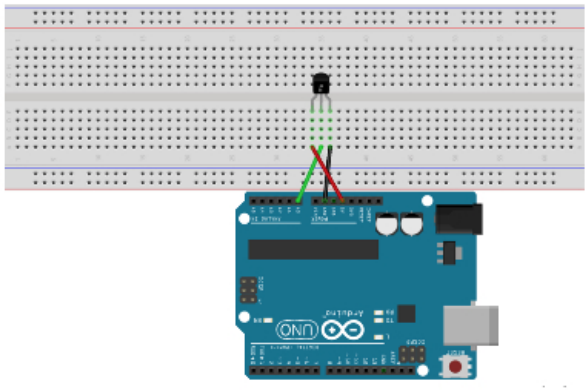

Figure 1: Circuit

Exercise 2. Reading Sensor Data Using Bluetooth

In order to send the information of the Bluetooth is necessary use the "exer2.ino" of the Github en has the next circuit in the Arduino

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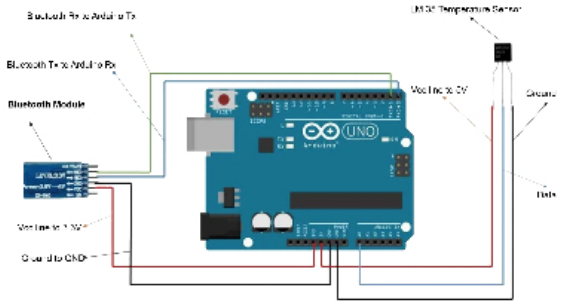

Figure 2: Circuit

Exercise 3. Pairing two Bluetooth Modules and share data between them

In order to paring two devices, we need configure two Bluetooth: one as Master and other as Slave using the AT mode of the practice 7. Then, in AT mode is necessary:

for Slave

- AT + UART = 38400,0,0
- AT + ROLE = 0
- AT + ADDR? (keep this direction)

for Master

- AT + UART = 38400,0,0
- AT + ROLE = 1
- AT + CMODE = 0
- AT + BIND = ¡direction of slave¿

The Arduinos need has the code given in the Github with names “exer1.ino”. Furthermore, each Arduino needs the next circuit.

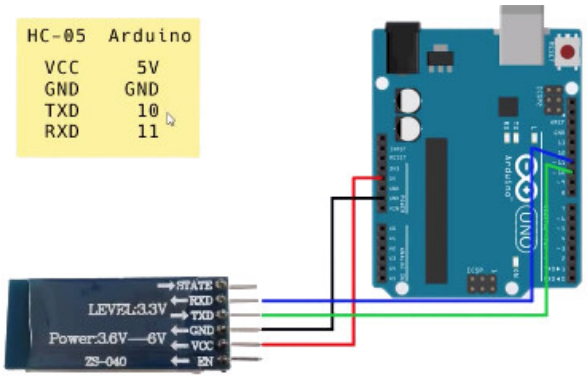

Figure 3: Circuit

Now, with this exercise is possible send and receive messages in Arduino console.

Exercise 4. HC-05 Bluetooth Module As Master and Slave

The Arduinos need has the code given in the Github with name "exer4.ino". Furthermore, each Arduino needs the next circuit.

Figure 4: Circuit

After that is possible turn on and off the leds that has the Arduino through Bluetooth.

Exercise 5. Build Your Own Bluetooth project