

## Practice of March 17, 2017

DC motor control.

*Some indications will be given at the beginning of the session about the use of Logidules and connection with the LaunchPad.*

For input-output programming, use for this lab the direct access to the microcontroller registers (P1DIR, P1OUT, P1IN, P1REN, P2...).

Use also `int main()` ... Do not forget the Watchdog initialization.

Do not use Arduino procedures. Especially, `delay()` will hang !

1) Have a look on the **DC motor** (Logidule bloc). It can be rotated slowly by hand without risk. Watch with Logidules lamps on the **limit signals**.

Connect the limit signals on P2.0 et P2.3 of the MSP430.

Command signals **DIR** and **EN** let the motor running on both directions.

Connect these signals on P2.1 et P2.2 du MSP430.

Write a program that provides a **back-and-forth** movement between the limits.

2) Look on the signal available on the 2 **optical sensors**.

Connect these signals to P1.7 et P2.6 of the MSP430.

Imagine an algorithm and write the corresponding program to indicates on a LED the direction of rotation of the motor (rotate the hand motor for demonstration).

3) Write a program that performs the following movements :

- ahead during a second for a possible release of the limit switch
- back to search the end position
- ahead one rotation of the toothed wheel.