

Low Power Sensor Station Datalogger

- **Description**

My project proposal is a Low Power Sensor Station Datalogger, this project is based on an ATmega328 processor and the goal is to last the most time possible with a 3.3V battery. The component of storing and analyzing the data is just to check we can have a proper function of the processor even when it spends the most part of the time sleeping.

- **Objectives**

The main objectives of this project are the Low Power Mode, Data log (save to a SD card values of temp., humidity, light, etc.) and a Matlab Interactive Interface to read and analyze the data.

It must, last a reasonable time with the battery, store correctly the values and have a proper analysis program.

I hope it last at least a month.

The main difficulties of this project will be to wake up the processor and turn back to sleep again.

- **Hardware and Software**

The hardware I will use is: ATmega328 (Arduino Uno with Detachable Processor to be easier to connect to computer and program), Temperature Sensor, Humidity Sensor, battery 3.3V, a microSD or SD card reader and RTC clock module.

The software I will use is: Matlab and C.

- **Sources**

<http://www.home-automation-community.com/arduino-low-power-how-to-run-atmega328p-for-a-year-on-coin-cell-battery/>

<http://www.gammon.com.au/power>

<https://github.com/rocketscream/Low-Power>

<https://learn.sparkfun.com/tutorials/reducing-arduino-power-consumption/all>

- **Where to buy**

For this project I would need the following material:

- 1) Arduino UNO with detachable processor - <https://nettigo.eu/products/arduino-uno-r3-clone-atmega328p-mega16u2>
- 2) 2 * Temperature Sensor – <https://nettigo.eu/products/digital-temperature-sensor-ds18b20>
- 3) 2*AA Battery Holder – <https://nettigo.eu/products/battery-holder-2xaa-no-cover>
- 4) MicroSD Card Reader Module - <https://nettigo.eu/products/micro-sd-card-reader-module>
- 5) RTC Module - <https://nettigo.eu/products/modul-zegara-rtc-i-pamiecia-eeeprom>

The estimated price of this is around 56 zloty.