

The steps towards a basic CanSat

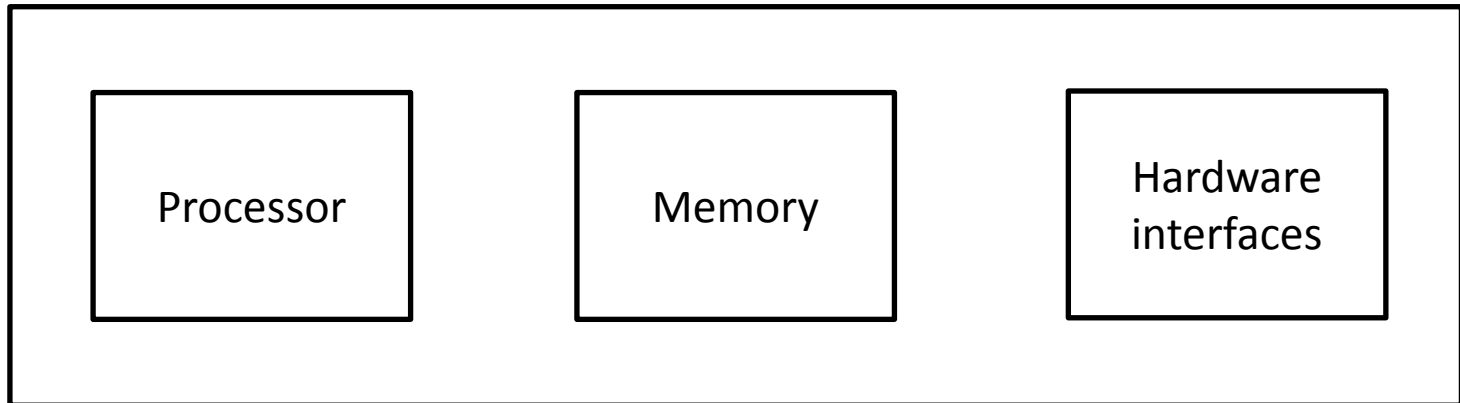
Going through all this is necessary.

A basic CanSat has:

- A “brain” or controlling system
- Power source
- Communication
- Sensors

The “brains” of a CanSat

A micro-controller (or μC)



The “brains” of a CanSat

Processor

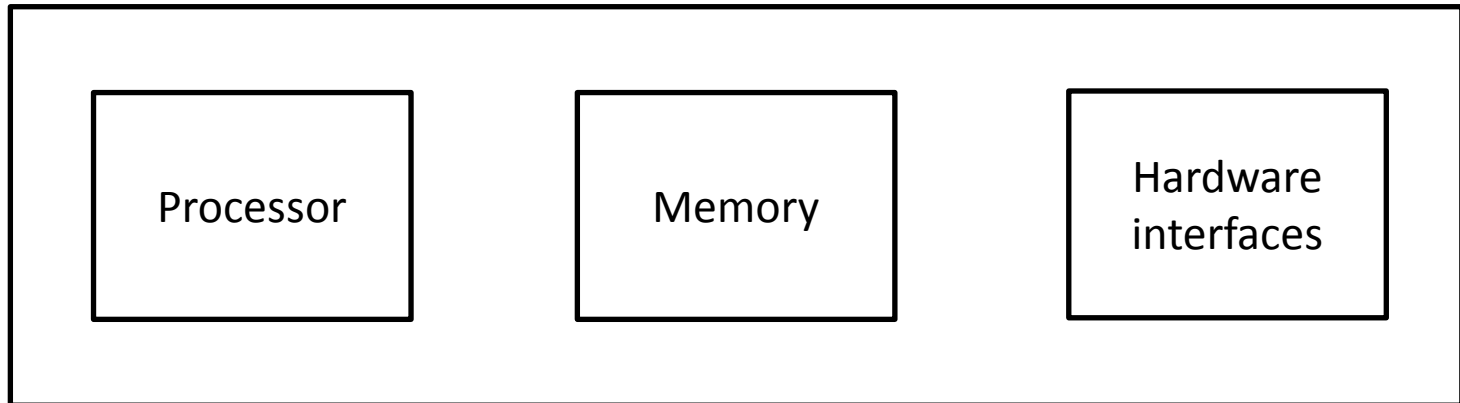
- Calculations

Memory

- Program and Data storage

Hardware interfaces

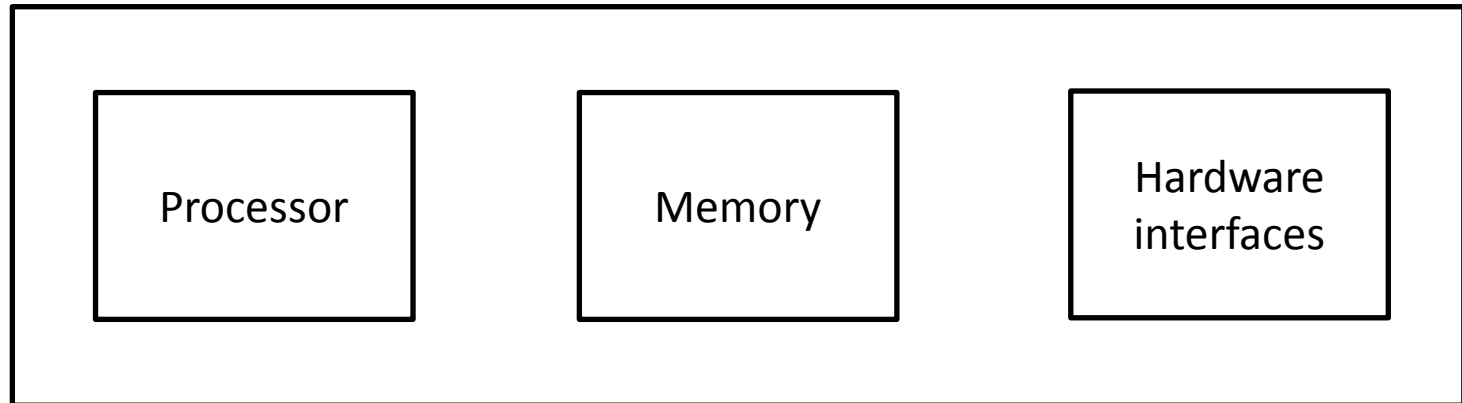
- Connections with the outside world



The “brains” of a CanSat

ATMEGA2560 interfaces

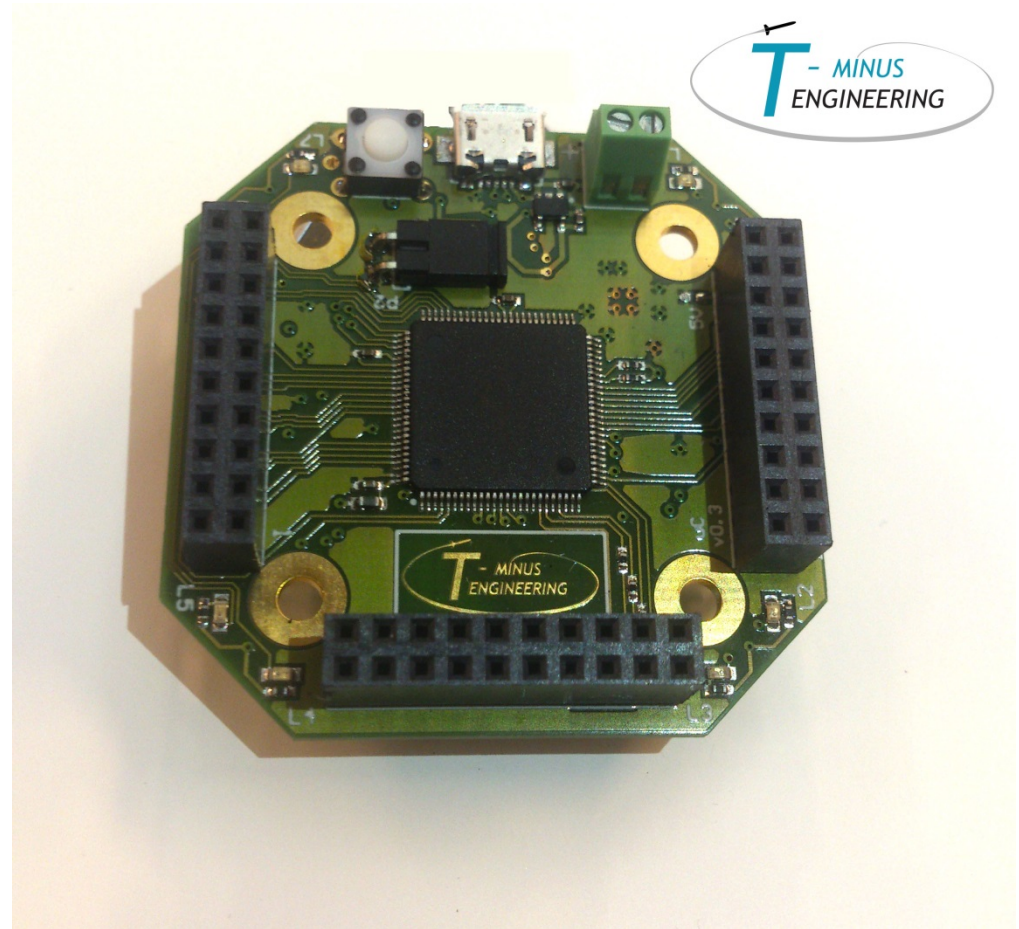
- 8 bit processor
- 256K flash memory
- GPIO, ADC, UART, SPI, I2C, PCINT, OC, ...



T-Minus μ C Board

Providing everything the μ C needs:

- Power supply connections
- Places to connect other hardware
- Programming interface
- 8 LED's to play with



T-Minus μ C Board

First use of the board

- Making an LED blink (different than the default setting)

Why

- μ C operating
- Power supply working
- Programming interface operational
- Programming environment working

T-Minus μ C Board

Programming

- Arduino IDE (Integrated Development Environment)
 - [Arduino.cc](http://arduino.cc)

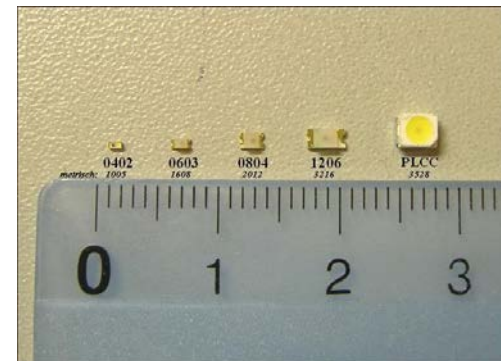
T-Minus μ C Board

The LED

- GPOI (general purpose input/output pin)

Using a LED

- Setup
 - `pinMode(16, OUTPUT);`
- Use
 - `digitalWrite(16, LOW);`
 - `digitalWrite(16, HIGH);`



Practical session

The USB stick

- CanSat kit manual
- Documentation
 - Datasheets
 - printouts
- Programs
 - Arduino
 - Including T-Minus board files
 - Drivers
 - Transceiver settings

Practical session

Installing Arduino

Practical session

Installing T-Minus board in Arduino

Practical session

Connecting the board

Practical session

Blinking LED's

Practical session

Everyone has

- Connected the T-Minus μ C board
 - Powered via USB
- Is able to program the board
 - Installed drivers
 - Installed Arduino
 - Installed the Board in Arduino