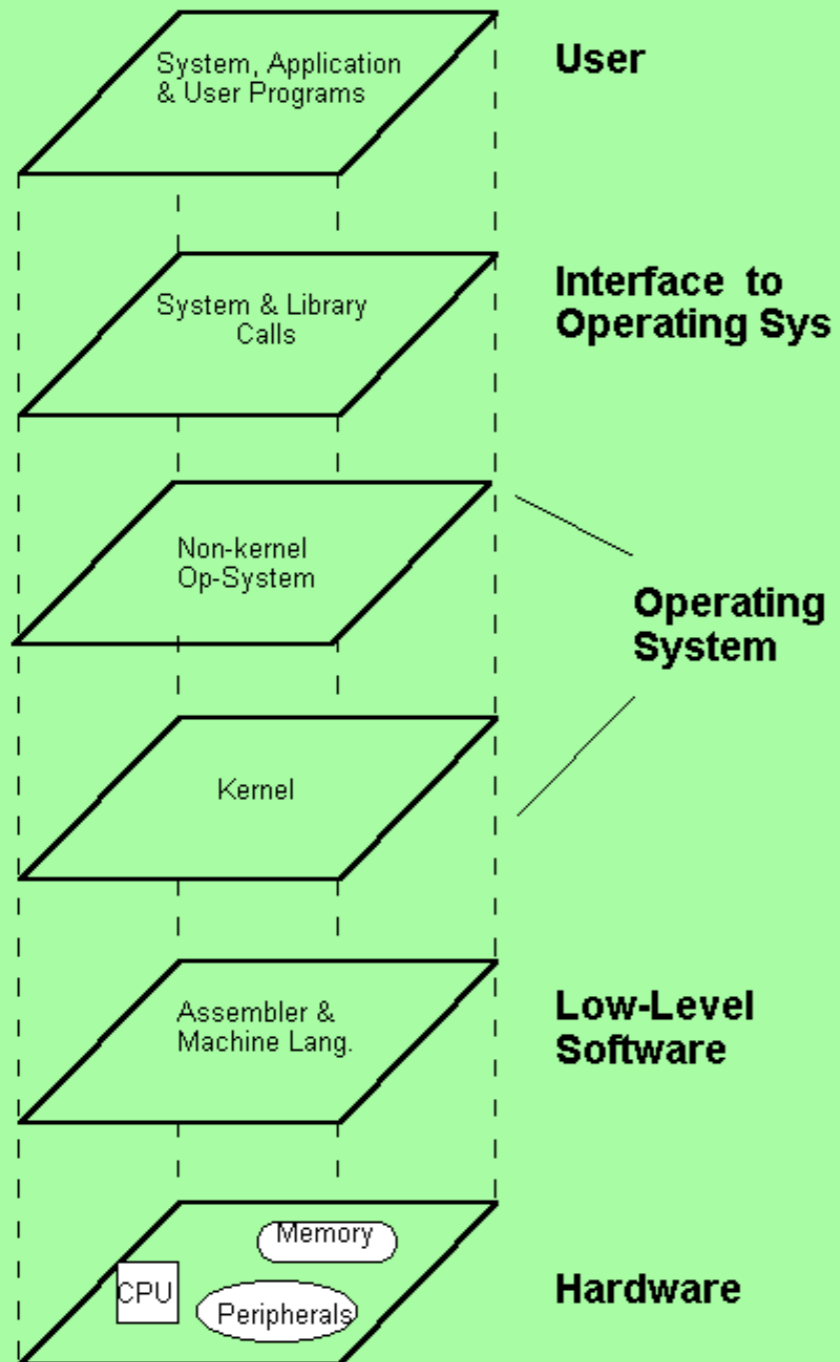


Electronic devices and Ruby

Exploration by a neophyte



In fact I don't mean
electronic

I mean

Real Time Computing

Real Time Computing means deadlines

A system is said to be **real-time** if the total correctness of an operation depends not only upon its logical **correctness**, but also upon the **time** in which it is performed

Wikipedia

Processing Time

=

Result Date - Order Date

Processing Time

=

Calculation Time + Δ

$$\Delta \rightarrow 0$$

Hard Real Time

Physic rules apply

$$\Delta \rightarrow \infty$$

Soft Real Time

Probability rules apply

Hard Real Time is a matter of machine language



Hardware

Assembler

Embedded systems

Soft Real Time is a
matter of programming



Multitasking Systems
High Level Languages

Is time really
important ?

I mean, is it still a problem anymore ?

Super fast processors

+

programmable components

+

Very large storage medium

[REDACTED]

[REDACTED]

Ruby can control hardware !

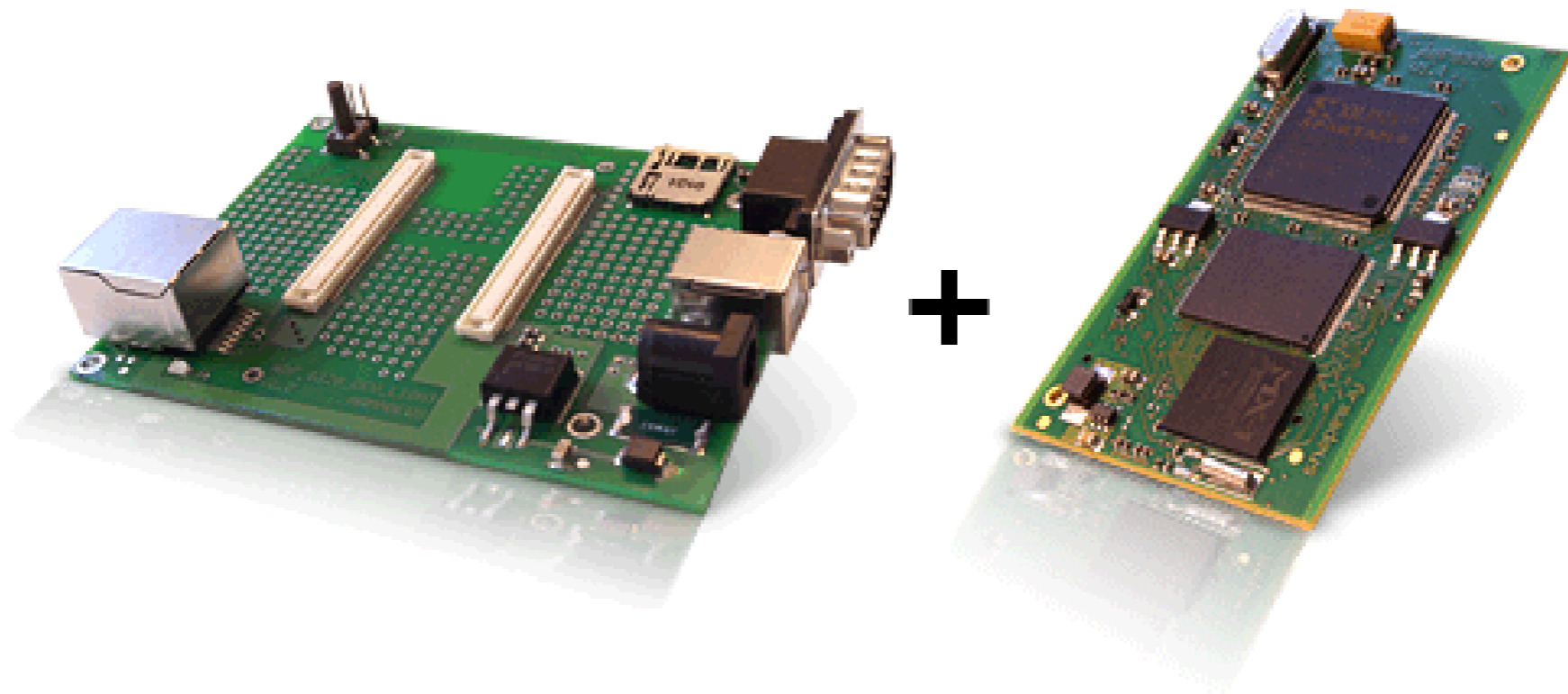
no more C / C++

no more memory issues

Syntactic sugar is finally free for all

Experiment n°1

Armadeus



ARM processor + Flash memory + FPGA

Embedded Linux kernel + Ruby + VHDL

Powerful - Easy - Flexible

Expensive

Cross Compilation Issues

VHDL needed

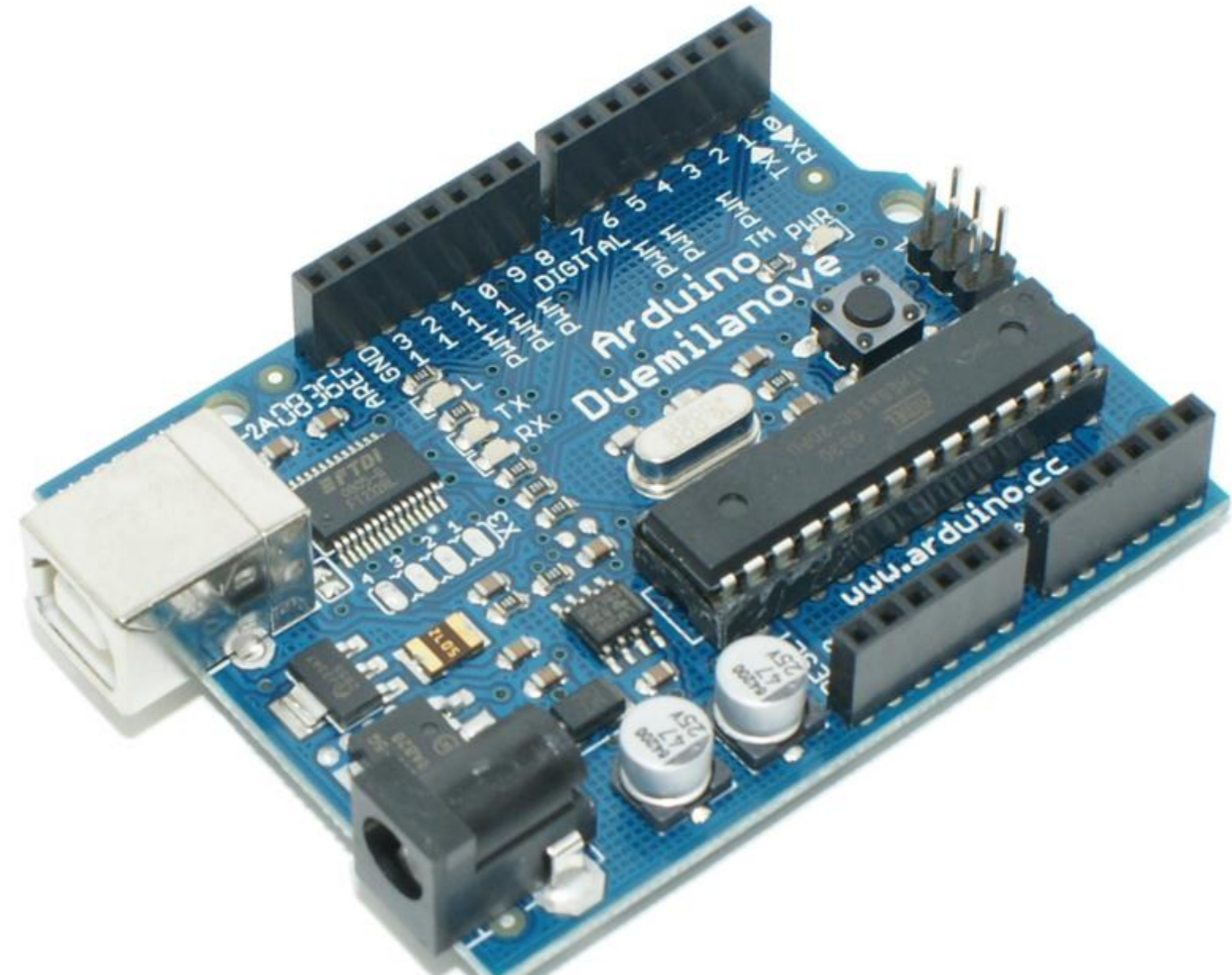
Experiment n°2

Arduino

ATmega micro controller

+

C++ like programming language



Cheap - Light - Low Level

Pseudo C++

Low storage capacity (as it is)

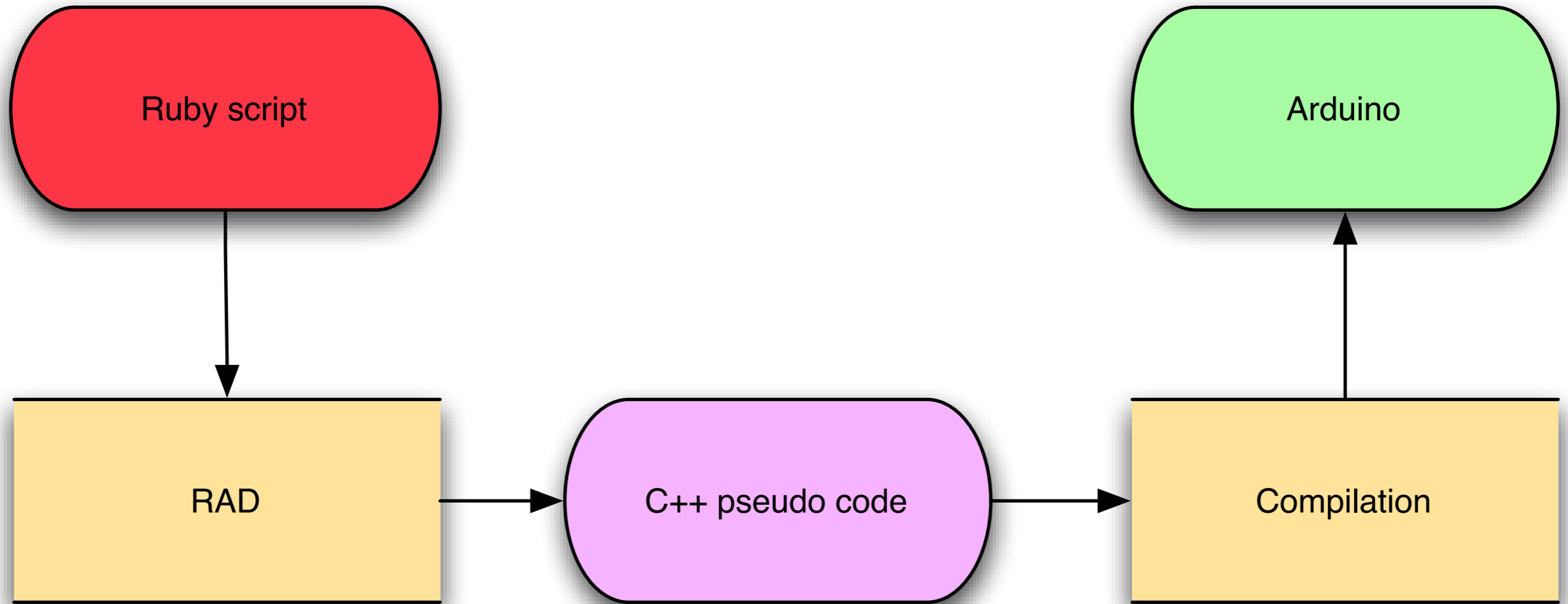
Ruby won't run !

But what if Ruby could generate pseudo C++ ?

RAD

Ruby Arduino development

<http://rad.rubyforge.org/>



Arduino understands compiled C++

You can write awesome ruby code

DEMO TIME !