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 + \triangle
Hard Real Time

\[ \triangle \rightarrow 0 \]

Physic rules apply

Soft Real Time

\[ \triangle \rightarrow \infty \]

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 composants
+
Very large storage medium
Ruby can control hardware!

no more C / C++

no more memory issues

Syntaxic 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