Smart Controller

RTEMS (http://www.rtems.com) is an Open Source RTOS providing a powerful development and run-time environment that promotes the production of efficient real-time embedded applications.

Features:

- Scalable Architecture
- Modified GPL License
- Multiple APIs - Classic, POSIX
- Event-driven multitasking
- Priority-based, preemptive scheduling
- Responsive Interrupt Management
- Optional Rate Monotonic Scheduling
- Priority Inheritance and Ceiling Protocols
- Intertask communication and synchronization
- Homogeneous and heterogeneous multiprocessor systems
- Reentrant ANSI C Library
- Add-on libraries including Python, Lua, and Tcl
- High performance BSD TCP/IP Stack
- Protocols: TCP, UDP, BOOTP, ARP, ICMP
- Servers: FTPD, HTTPD, TELNETD
- Clients: DHCP, NTP, DNS, TFTP

Processors Supported:

M680x0	ix86	Coldfire	ARM
M683xx	Pentium	MIPS	Blackfin
PowerPC	SuperH	SPARC	H8
NIOS2		SPARC64	

Available Services:

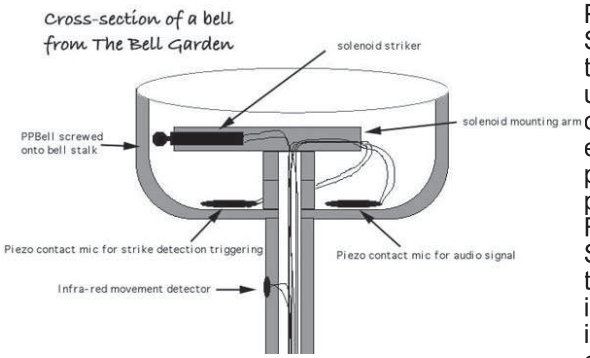
- Training
- Standard Support
- Legacy Support
- RTEMS Application Assistance
- Board Support Package Development
- Application Design and Development
- Ports to New Architectures
- System Architecture Design

On-Line Applications Research (OAR) Corporation

7047 Old Madison Pike
Suite 320
Hunstville, AL 35806
http://www.oarcorp.com
Phone: 256-722-9985
Fax: 256-722-0985

The Smart Controller is a portable hardware device that responds to input control voltage, OSC, and MIDI messages. It also produces output control voltage, OSC, and MIDI messages . The Smart Controller is a stand alone device. It is a powerful, reliable, and compact instrument capable of reducing the number of electronic modules required in a live performance or installation, particularly the requirement of a laptop computer.

The system includes the Smart Controller Workbench, a complete interactive development environment that not only enables the composer to create and debug their patches, it accurately simulates the behavior of the hardware, and functions as an in-circuit debugger that enables the performer to remotely monitor, modify, and tune patches running in an installation without the requirement of stopping or interrupting the live performance.



Part of the success of the Smart Controller as a real-time installation device is its use of the RTEMS real-time operating system in the embedded part of the system, providing unparalleled performance and reliability. RTEMS has enabled the Smart Controller to meet the timing constraints demanded in gesture-based interactive instruments and responsive environments.

The Smart Controller was developed by Dr. Angelo Fraietta who received his Ph.D. from the University of West Sydney. His dissertation, “The Smart Controller: an integrated electronic instrument for real-time performance using programmable logic control” is just one of a long series of publications he has had in this field.

Dr. Fraietta is currently collaborating with Anne Norman in the development of the Bell Garden. The multifunction Bell Garden is for use with movement artists and live musicians, and as an interactive public sound art installation for use in public galleries and arts festivals. It can be performed in multiple ways including with beaters or through movement detectors.

References:

- Smart Controller Home Page
  - http://www.smartcontroller.com.au/smartController/smartController.html
- Power Pole Bells Home Page
  - http://annenorman.com/PPB/index.html
- MP3 of Whirling Wheels: Ezekiel’s Vison
  - http://www.smartcontroller.com.au/music/whirlingWheelsEzekiel.MP3
- RTEMS Wiki Page
  - http://www.rtems.com/wiki/index.php/Smart_Controller