Professional Profile

Josep Sanz Campderrós.

August 18, 2020

Contents

1 Personal Data

- Josep Sanz Campderrós.
- Born in Barcelona on December 7, 1976.
- Nationality: Spain.
- Marital status: Married.
- EMail: josep.sanz@saltos.org
- Web: www.josepsanz.net & www.saltos.org
- Github: https://github.com/josepsanzcamp
- Sourceforge: https://sourceforge.net/u/josepsanzcamp/profile
- Linkedin: https://www.linkedin.com/in/josepsanz/
- Mastodon: https://mastodont.cat/@josepsanzcamp
- Facebook: https://www.facebook.com/josep.sanz.56
- ~~Twitter: https://twitter.com/josepsanzcamp~~

2 Academic achievements

- Computer Engineer (UPC).
- Degree of Computer Applications Development.
- Technician in Telecommunications Electronics.

3 Other trainings

- AutoCAD basic course
- Driving license B1
- Seminar on computer network security
- Distributed Java Programming with CORBA
- ALTERA's FPGA Seminar
- Seminar Echelon - LonWorks
- Law enforcement Seminar on Data Protection.

4 Brief resume

- I performed R+D throughout my career.
- In my business project, Wide Spectrum Software Solutions, I directed the SaltOS and RhinOS projects and their release under the GPL-3.0 license.
- I've been a member of the CatPL, Association of Free Software Business of Catalonia.

- I have worked in research environments such as the Institute of Space Studies of Catalonia and the Technical University of Catalonia at Dept. of Applied Physics.

5 Professional experience

5.1 AB Custom Group - Road or rail transportation (since 2019)

Developments for GNU/Linux environments and integration of SaltOS in all business areas:

- Documentation recognition systems using OCR, bar codes and QR codes.
- Integration of SaltOS in all the business areas of the company.
- Automation of processes using embedded systems based on Raspberry PI

5.2 Institute of Space Studies of Catalonia (2011-2019)

Developments for GNU/Linux environments to control robotic telescopes:

- Development of OpenROCS 2.0 (GPL-3.0 license), the control software used by the TJO and SQT telescopes.
- Development of the www.oadm.cat for the divulgation of the TJO telescope, the www.ice.csic.es for the ICE and the www.ieec.cat for the IEEC.
- Development of the MUR application: an online software for sending astronomical proposals.
- Fork of the IndiCCD project to allow the control of multiple Andor cameras.
- User interface and control system for the SQT telescope, the Allsky camera and the IEEC-CSIC telescope.

5.3 Wide Spectrum Software Solutions (2007-2011 in R+D Dept.)

Developments for GNU/Linux, MONO, Firmware, PDAs and web environments:

- Development of the SaltOS and RhinOS projects released under the GPL-3.0 license.
- Project for the NTE/ESA to do some parts of the unit-test of the LISA Pathfinder project.
- Project for the IEEC to make improvements in the GOLD-RTR project (v2 and v3).
- Multiple web projects (portals and online shops) to different customers.

5.4 Enfasystem (2006-2007 in R+D Dept.)

Developments for WEB using LAMP environments (Linux+Apache+MySQL+PHP):

- Improvement of the "admin" control panel (RhinOS in the future)
- Development of the "mecano" project (RhinOS in the future)
- Development of the DBMailer project (RhinOS in the future)
- Several collaborations with IEEC for the PARIS and GOLD-RTR projects

5.5 Information Engineering, IN2 (2005-2006 as team's chief)

Software development for GNU/Linux and Windows CE.

- Use of security tools like Snort.
- Programming of mobile devices using EVC++ 3.0 for PDA devices
- Programming in C, PHP, .NET
- Use of DBMS such as MySQL, ORACLE

5.6 Institute of Space Studies of Catalonia (2001-2005)

Development of software for UNIX environments.

- Design and implementation of hardware and drivers.
- Planning and implementation of software for various projects.
- Programming in C with GTK, Tcl/Tk on Unix tcsh.

5.7 Universitat Politècnica de Catalunya, Dept. of Applied Physics (1999-2001)

Administration of Unix Systems and Microsoft Windows

- Implementation of network security systems (SSL)
- Security audits for the computer systems of the department
- Software development and maintenance of the department's intranet
- Software development for the Generalitat de Catalunya (SIGMA and NivAval)
- Collaborations with the WAFAE association.
- Support to users, and so on.

5.8 INCOSE, ingeniería de contrataciones y servicios (1997-1999)

Installation and maintenance of industrial equipment.

- Programming of PLC's for industrial applications.
- Installation of electrical boards and waste treatment systems.

5.9 GESTHOS, gestión técnica hospitalaria (1996-1997)

Assembly and maintenance of electromedical equipment.

- Repair of medical equipment.
- Specification and implementation of equipment for technical tests.

6 Languages

- Spanish native (read, written and spoken).
- Catalan native (read, written and spoken).
- Technical English (intermediate level for read, write and speak).

7 Annex (detailed professional experience)

7.1 AB Custom Group - Road or rail transportation (since 2019)

Developments for GNU/Linux environments and integration of SaltOS in all business areas:

- Documentation recognition systems using OCR, bar codes and QR codes.
- Integration of SaltOS in all the business areas of the company.
- Automation of processes using embedded systems based on Raspberry PI

7.2 Institute of Space Studies of Catalonia (2011-2019)

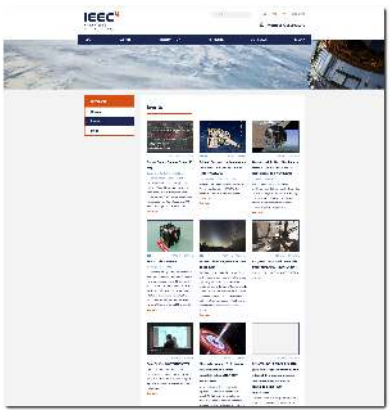
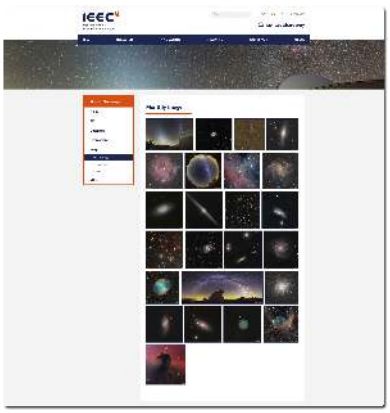
Developments for GNU/Linux environments to control robotic telescopes:

- Development of OpenROCS 2.0 (GPL-3.0 license), the control software used by the TJO and SQT telescopes.
- Development of the www.oadm.cat for the divulgation of the TJO telescope, the www.ice.csic.es for the ICE and the www.ieec.cat for the IEEC.
- Development of the MUR application: an online software for sending astronomical proposals.
- Fork of the IndiCCD project to allow the control of multiple Andor cameras.
- User interface and control system for the SQT telescope, the Allsky camera and the IEEC-CSIC telescope.

7.2.1 IEEC website project

Development of the IEEC website:

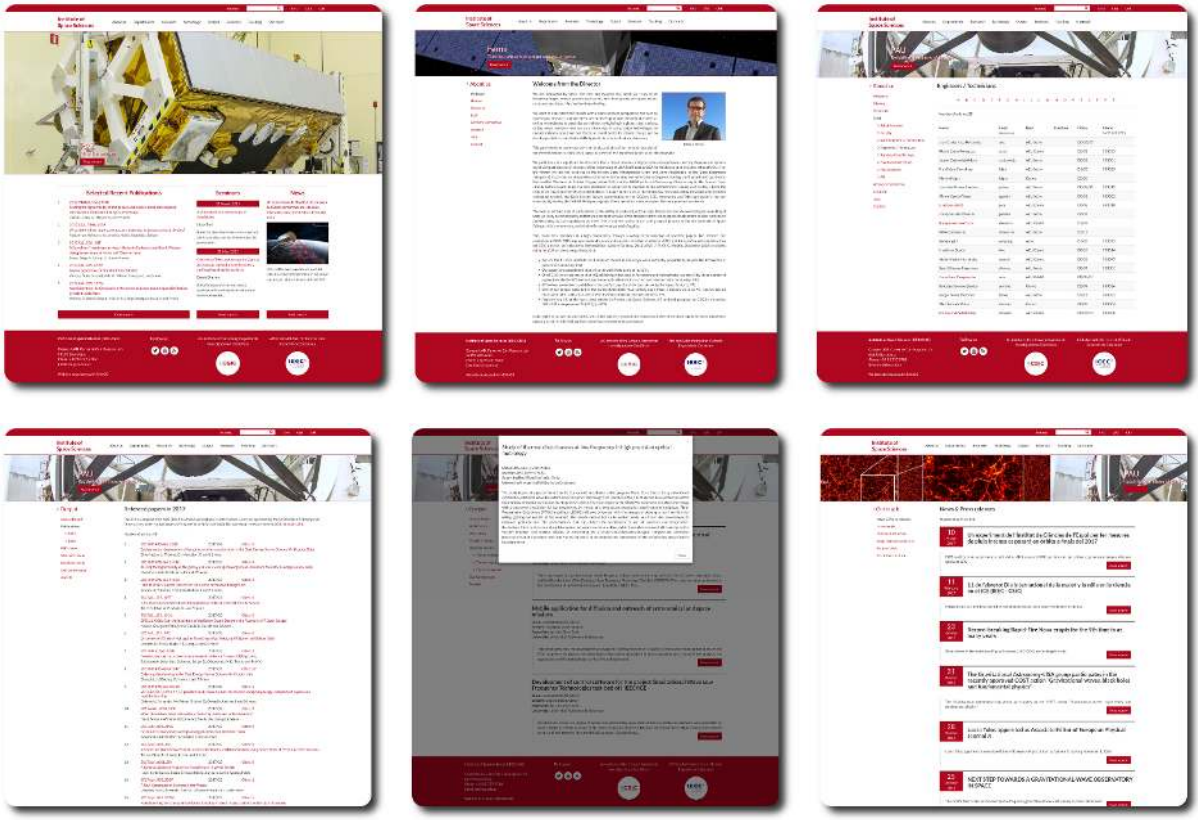
- Based on the RhinOS framework.
- Data synchronization using the databases of the units related to the institute.
- Responsive design that adapts to computers and mobile devices.
- WordPress content migration to the new website.
- http://www.ieec.cat/

7.2.2 ICE website project

Development of the ICE website:

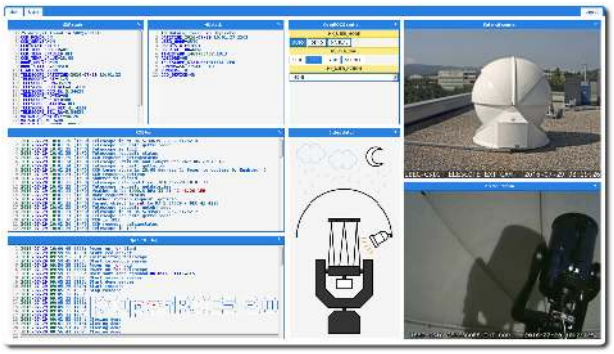
- Based on the RhinOS framework.
- Data synchronization using the databases of the units related to the institute.
- Responsive design that adapts to computers and mobile devices.
- WordPress content migration to the new website.
- http://www.ice.csic.es/



7.2.3 IEEC-CSIC telescope project

Project to automate the IEEC-CSIC astronomical telescope:

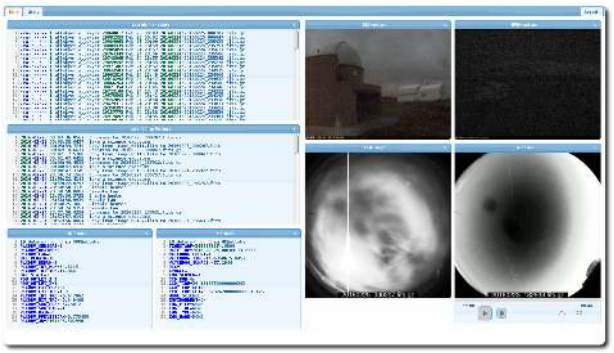
- Control system based in the OpenROCS 2.0 control software.
- Controlled devices using the industrial ROS standard.
- Development of the graphical user interface for control the entire system.
- Controlled devices: A Meade telescope, a Baader dome, an APC pdu, a Vaisala weather station, a cloud sensor and a SBIG camera.
- All system is controlled using only one Raspberry PI 2.



7.2.4 Allsky camera project

Project to automate the IEEC Allsky camera:

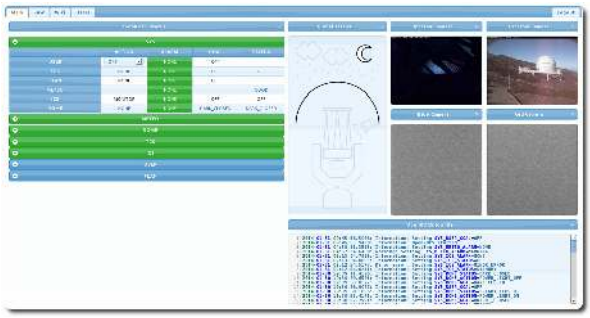
- Control system based in the OpenROCS 2.0 control software.
- Controlled devices using SNMP and INDI protocols.
- Programmation of a driver that communicate with an industrial Siemens PLC.
- Development of the graphical user interface to monitor the entire system.
- Controlled devices: a heater, a fan, an APC pdu and an APOGEE camera.

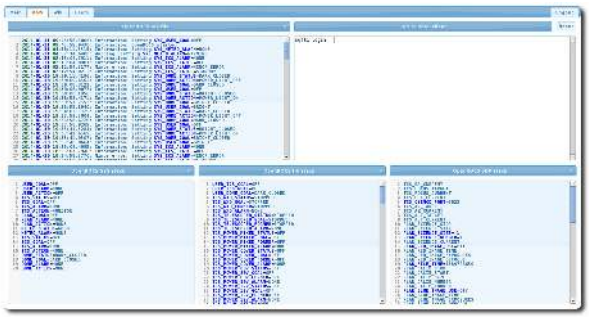


7.2.5 SQT telescope project

Project to automate the SQT astronomical telescope:

- Installation of the operating systems in the two control computers (nominal and redundant).
- Development of some control packages as the dome control and the second motor focus.
- Installation of some specific software packages as talon, OpenROCS and IndiCCD to operate the telescope and instruments.
- Develop of the GUI to allow the remote supervision (useful in the commissioning process).





7.2.6 IndiCCD driver project

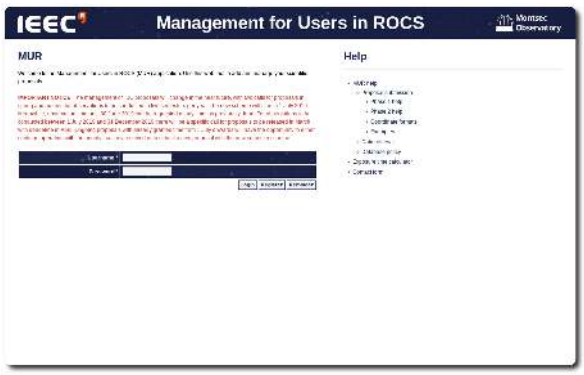
Fork of the XmCCD v.4.2.1 project:

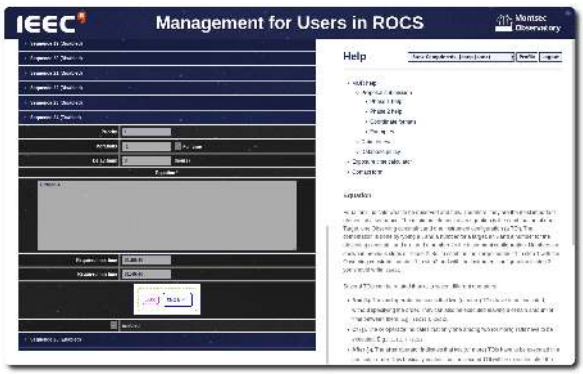
- Added improvements to the cameras control (indiccd).
- Added support to the Andor and Finger Lakes Instruments cameras.
- Added support to use simultaneous cameras.

7.2.7 MUR project

Project that must allow the end users to send astronomical observing proposals:

- Design and implementation of the corporative website with private areas and user roles.
- Create a new broadcasting model for the OAdM webcams (using VLC) to prevent DoS.
- Data model specification to store the different phase data of the proposals.
- Language definition to allow end users to specify the observing sequences (using the toi concept).
- Implementation of tools to validate and plot the sequence equations.
- Front-end for each end user role that are involved in the different acceptation phases of the proposals (admin/CAT)

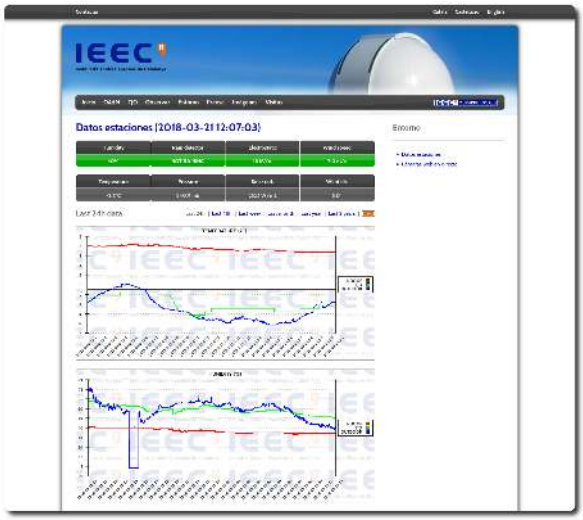




7.2.8 Proyecto OAdM/TJO

Improvements in the infrastructure, and in the different software parts that are involved in the normal operation:

- Audit and automate execution of the PbCdlComm software for the data collection of the SMC weather station.
- Programmation of drivers to communicate with the follow hardware equipments:
  - DAVIS Weather station.
  - Previstorm.
  - Boltwood Cloud Sensor II (using the BWCloudSensorII code).
  - Rain detector.
  - Vaisala (using the Indi protocol).
- Configuration of the SNMP server to publish all data collected by the previous drivers.
- Improvements in the configuration and distribution of the network devices.
- http://www.oadm.cat/

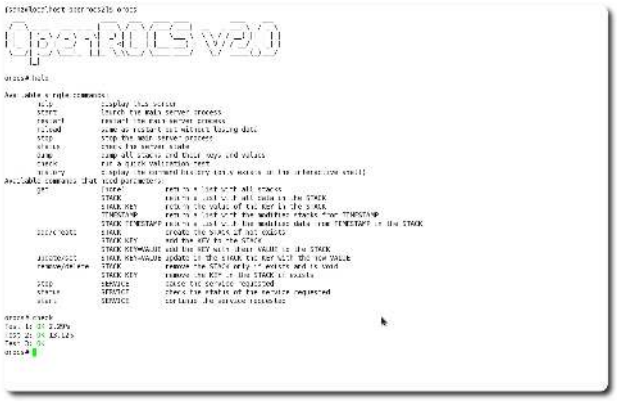


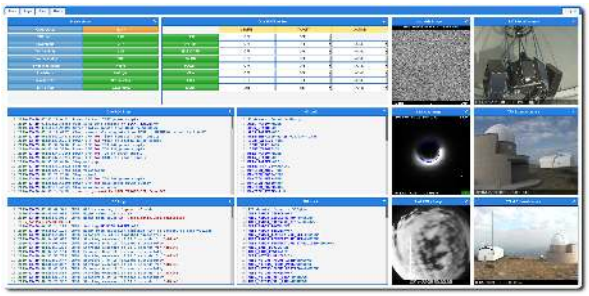
7.2.9 OpenROCS v2.0 project

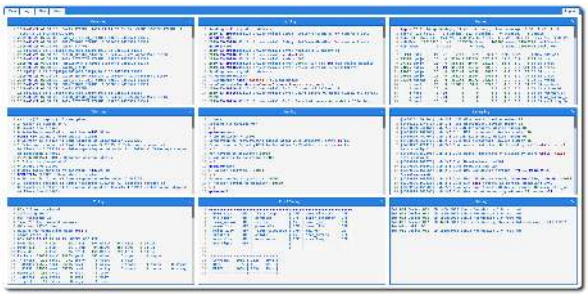
Software for unattended control of TJO (OAdM) and SQT astronomical telescopes.

- Design, implement and test control software using the following architecture.
- A server service that serves the requests from port 2323 to provide remote storage and accessible using predefined commands.
- A broadcast service that allows you to synchronize others remotely OpenROCS using broadcast techniques.
- A monitor service that the main task of this service is update the SDP and HK to be used by the scheduler.

- A scheduler service that lets you execute the actions that controls the telescope when you change the SDP or HK.
- This project is released under GPL-3.0
- https://sourceforge.net/projects/openrocs/
- https://upcommons.upc.edu/handle/2099.1/26215







7.3 Wide Spectrum Software Solutions (2007-2011 in R+D Dept.)

Developments for GNU/Linux, MONO, Firmware, PDAs and web environments:

- Development of the SaltOS and RhinOS projects released under the GPL-3.0 license.
- Project for the NTE/ESA to do some parts of the unit-test of the LISA Pathfinder project.
- Project for the IEEC to make improvements in the GOLD-RTR project (v2 and v3).
- Multiple web projects (portals and online shops) to different customers.

7.3.1 NTE/ESA - LTPS project

SW HR for LTPS project:

- Unit-test tasks using ANSI C
- Validation-test tasks using Python

7.3.2 IEEC - GOLD_RTR v2.0 project

Improved control software for GOLD-RTR:

- Creation of 2 working roles (user and administrator)
- Modification of the predictive calculation model of GPS satellites
- Generation of the documentation

7.3.3 IEEC - GOLD_RTR live CD project

LiveCD with installer for easy tasks in campaigns:

- Allows working on LiveCD or installed with wizard on HDD.
- Useful for quick restore of the entire system.

7.3.4 IEEC - GOLD_RTR v3.0 project

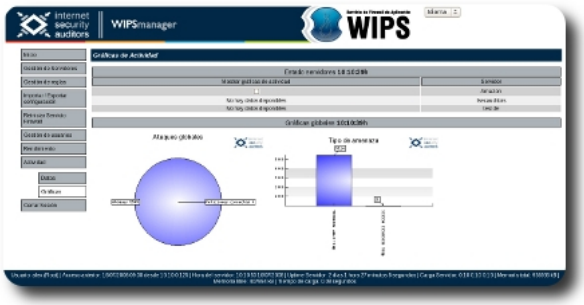
To carry out campaigns of experiments in Antarctica, it is necessary that the system is autonomous and can work remotely with and without communication in unattended mode:

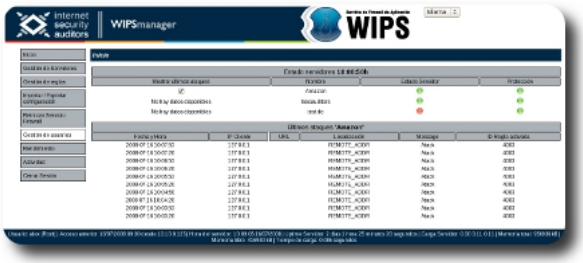
- Improved control software GOLD-RTR
- Add a new algorithm for the integration of waveforms
- Validation of the new algorithm using unit-testing and validation-test.
- Generation of the documentation
- Deployment of a scheduler control system
- Management of the scheduler using pseudo-language files
- Integration with SVN commands to synchronize the results
- Notification system for monitoring the status of experiments
- Installation of the control system based on scheduler
- Generation of the documentation

7.3.5 ISEC Auditors - MANAGER WIPS project

Developing a security manager application for online servers:

- Import and management of the Apache logs server
- Generation of reports and security alarms
- Application that be used with multiple users, multiple servers and multiple roles.





7.3.6 AXA Winterthur - Tracking project

Several online applications:

- Follower for online campaigns (LAMP environment)
- Online shop for AXA Club

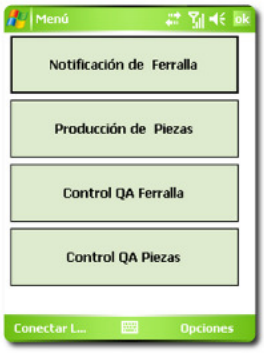
7.3.7 VUELING - PUNTO 2 project

Functional improvements project.

7.3.8 AIDA CENTRE - PDA HORMIPRESA project

Application for mobile devices that be used in process management:

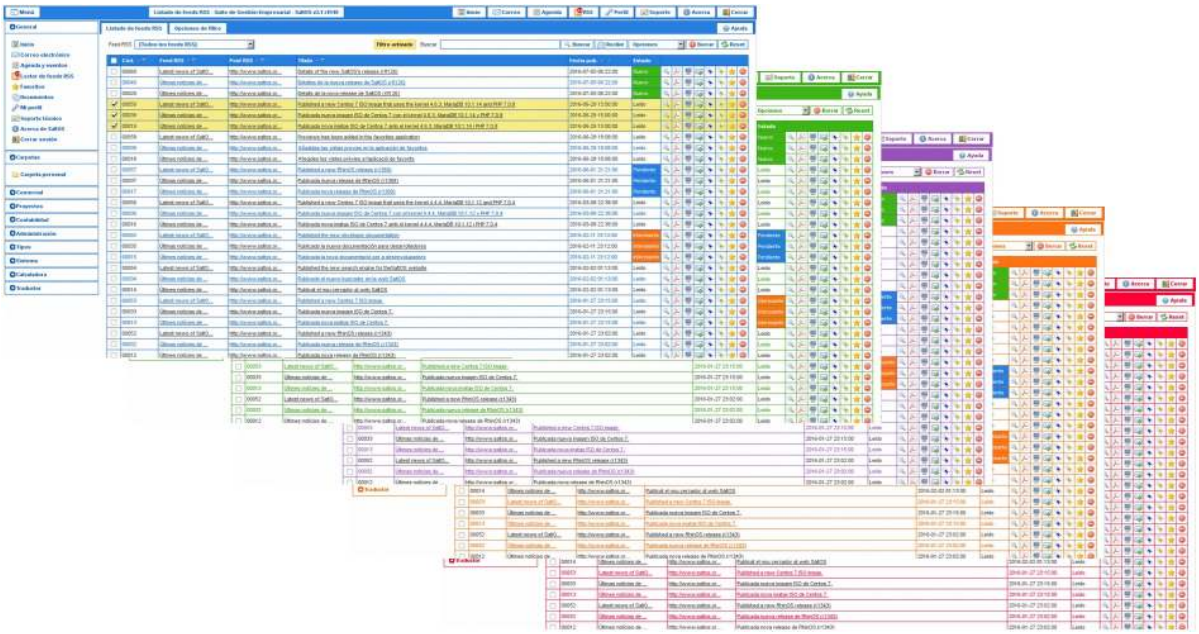
- Integration of RFID reader to read passive tags.
- Operating Modes using GPRS and WIFI networks or desktop connectivity.
- Desktop application for data synchronization

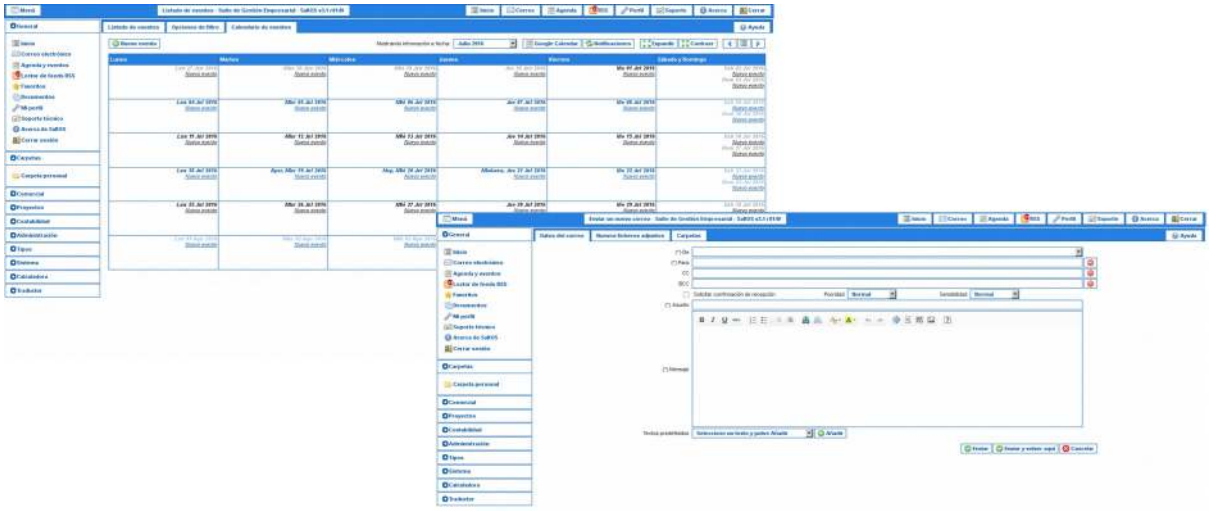


7.3.9 WS3 - SaltOS Project (www.saltos.org)

Development of a framework for developing Rich Internet Applications:

- Based on XML + XSL technology on LAMP environments.
- Integration of management system for SMEs.
- Management of permissions on each system layer.
- Applications as: mail client, documentary manager, RSS and ATOM client, and more...
- User interface based in jQuery UI
- This project is released under GPL-3.0
- I continue developing this project on my own.
- https://sourceforge.net/projects/saltos/
- https://github.com/josepsanzcamp/SaltOS

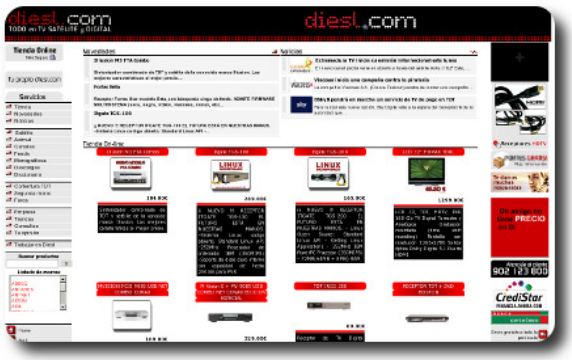




7.3.10 WS3 - RhinOS Project (www.rhinos.es)

Development of a framework for developing web sites:

- Designed for LAMP environments.
- Includes 2 layers (CMS and CPS).
- Pseudo-code for the interpretation of the RhinOS templates.
- Separation of logical layers (presentation and business)
- This project is released under GPL-3.0
- I continue developing this project on my own.
- https://sourceforge.net/projects/rhinos/



7.3.11 CVA - SISAC project

Project for the Catalonia Agency of Water

- Its objective is service to the citizen.
- Based on eZpublish.
- Pilot project for 2000 users.

7.3.12 IEEC - GOLD-PRO project

Software develop for embedded system

- Use of XILINX hardware
- Programming MicroBlaze processors
- Programming LEON3 processor (space-certification)
- Routing Ethernet communications at low level (raw data)

7.3.13 RETEVISION - TRACEBOX Audit

Audit the software developed by HYR, TraceBox, that has been customized to service a client of Abertis Telecom:

- Identify the origin of the problems in streaming video.
- Propose a viable solution according to the current development.
- Generate a detailed technical report of the problem and proposals.
- Audit the correct deployment of the proposed solution and accepted

7.3.14 Alliaria (IN2 GROUP) - FIR@KEY project

Access control project for the fairs at the Fira de Barcelona:

- Development in VB6.0 using SOAP (by client requirements)
- Integration of RFID reader for user identification
- Installation wizard without dependencies for Microsoft operaring systems.

7.3.15 WEB Projects

Shop online CADAICO

Improvements to the initial online shop

Web site for the EUSS school

Web site and intranet for this university:

- Technology has been used RhinOS.
- There have been several evolutions with successful results.
- Customizing Moodle e-learning application

Web site for the COACB company

Functional enhancements of its corporate portals

Web site for the MEDIATORS OF INSURANCE ASSOCIATION

Custom deployment of an e-learning online tool.

Web site for the VERTEX company

Development of the corporate portal and intranet

Web site for the APQ company

Development of the corporate portal and intranet

Web site and online shop for the SEVIBE company

Several online applications:

- Development of corporate website
- Some promotional portals

- Development of online recruitment system and backoffice
- Integration of Wordpress News management.

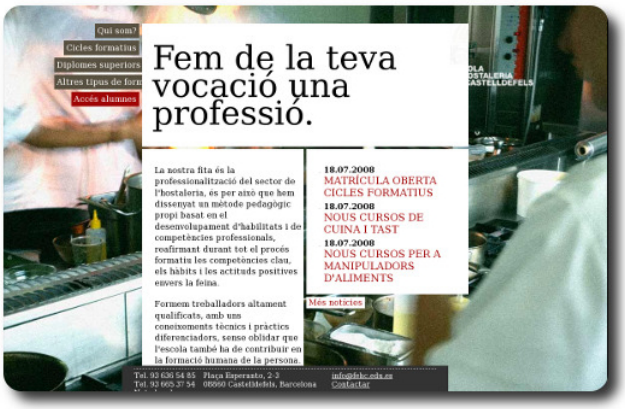
Web site for the TRITON restaurant

Development of the corporate portal and intranet

- Online Reservation System

Web site for the Castelldetels's hostelry school

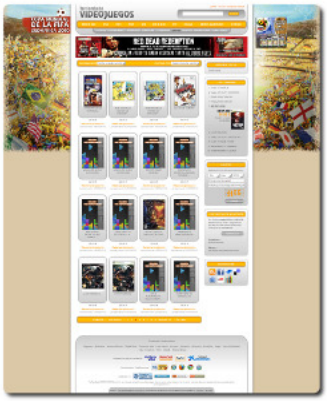
Development of the corporate portal and intranet

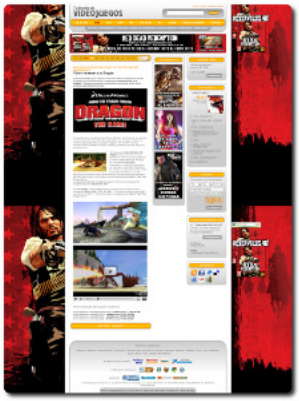


Online shop for the TUTIENDADEVIDEOJUEGOS.COM company

Several online applications:

- Development of the corporate website, online shop and intranet
- System for mass data import
- System for mass mailings sending
- Management of personalized dispatching





7.4 Enfasystem (2006-2007 in R+D Dept.)

Developments for WEB using LAMP environments (Linux+Apache+MySQL+PHP):

- Improvement of the "admin" control panel (RhinOS in the future)
- Development of the "mecano" project (RhinOS in the future)
- Development of the DBMailer project (RhinOS in the future)
- Several collaborations with IEEC for the PARIS and GOLD-RTR projects

7.4.1 ADMIN project (www.rhinos.es)

Dynamic content manager for online applications

- Use of GPL software as TinyMCE and other

7.4.2 Mecano WEB project (www.rhinos.es)

System for generating dynamic web sites with the following characteristics:

- Programming using multi-tier architecture (templates and code)
- Design and implementation of high-level language
- Generation of thumbs in realtime (images)
- Generation of multimedia content in realtime (audio)
- Documentation generation in real time (PDF)

7.4.3 DBMailer project (www.rhinos.es)

System to sending mass mailings

- Controled by database
- Control panel for maintenance
- Trigger and checks via crontab for detection of errors and system crashes

7.4.4 EXIT Foundation - Social participation project

Portal of the social participation:

- Analysis and design of the database for the project
- Implementation of the control panel to administer and coordinate the fundation.
- Compliance with the Data Protection Act (Spanish Organic Law on Data Protection)
- Quality control for the processes of information

7.4.5 IEEC - GOLD_RTR project

Software for IEEC in the GOLD_RTR project:

- Segmentation of the configuration files
- Reorganization of the configuration lines according to the GPS data
- Improvements in the graphical interface

7.4.6 IEEC - PARIS signal processor subsystem project

Programming a NIOS2 microprocessor

- Design and implementation of a program to be used inside a ALTERA NIOS2 microprocessor
- Transmission of more that 4Mbytes/seg using an ethernet connection (UDP)
- Parser for evaluate commands and validation of these
- Optimization of the ALTERA libraries to improve timings
- Control via digital oscilloscope to monitor timings and guaranty the correct work.

Programming a software (for GNU/Linux platforms) for reception of UDP frames

- Design and implementation of a program for reception of UDP frames
- Validation of the frames and checking their integrity
- Saving data to local disk at high speed (using DMA technology)

Configuration of the computer systems for data reception

- Installation of GNU/Linux Slackware 11.0
- System Setup (remove unneeded processes)
- Software Installation for UDP frame reception
- Empirical calibration and performance certification document

7.5 Information Engineering, IN2 (2005-2006 as team's chief)

Software development for GNU/Linux and Windows CE.

- Use of security tools like Snort.
- Programming of mobile devices using EVC++ 3.0 for PDA devices
- Programming in C, PHP, .NET
- Use of DBMS such as MySQL, ORACLE

7.5.1 SNIFFER project

Capture and system control for network communications TETRA

- Using Snort software to capture IP frames
- Shell scripts using Python
- Download real-time data using FTP and HTTP protocols
- Generation of reports by using web technology.

7.5.2 IVP project

Urban maintenance software for PDA devices

- Using EVC++ 3.0 using GIS software Adobe OnSiteView
- Communication link using Bluetooth to GPS receivers and NMEA 0183 protocols for parse outputs.
- Using HP libraries to integrate camera inside the software
- Use of XML for IO transfers

7.5.3 WEB CONTROL project

Software for monitoring network status

- Using SNMP v1.0 and v2.0
- Programming in C for the daemon service
- PHP programming language for the user interface
- Using MySQL 4.0.23 for massive data storage (daemon and web)

7.5.4 SICAT project

Software demonstration of TETRA network operation

- Wizard for DB module design
- DB module WebService
- Using MySQL for DB module
- Terminal Module (TETRA terminal emulation)
- Module DB (dynamic application defined by Wizard)
- GIS Module (programming using SDK's for TomTom GPS network)

7.5.5 Upgrades for some applications at BAMESA

Development of applications software to migrate from Portal to PHP

- Table maintenance programming
- Generation of reports of various types: lists, graphs, calendars
- Conversion from DB triggers to PHP code
- Using AJAX to create dynamic filters
- Import and export of all filters
- Using the ORACLE DBMS

7.6 Institute of Space Studies of Catalonia (2001-2005)

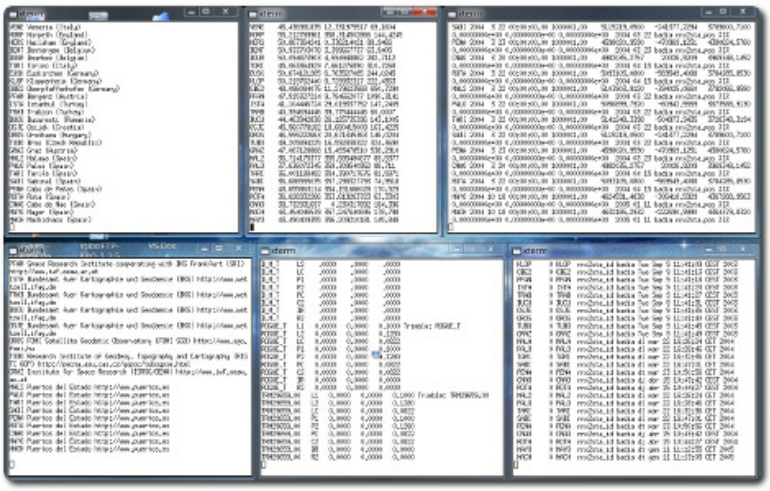
Development of software for UNIX environments.

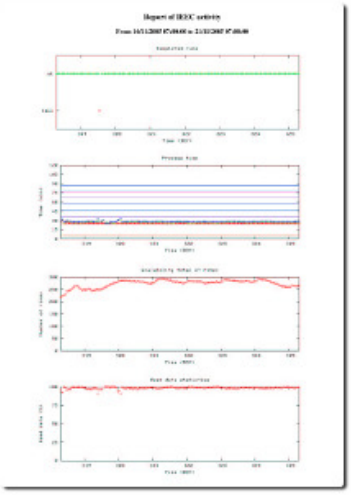
- Design and implementation of hardware and drivers.
- Planning and implementation of software for various projects.
- Programming in C with GTK, Tcl/Tk on Unix tcsh.

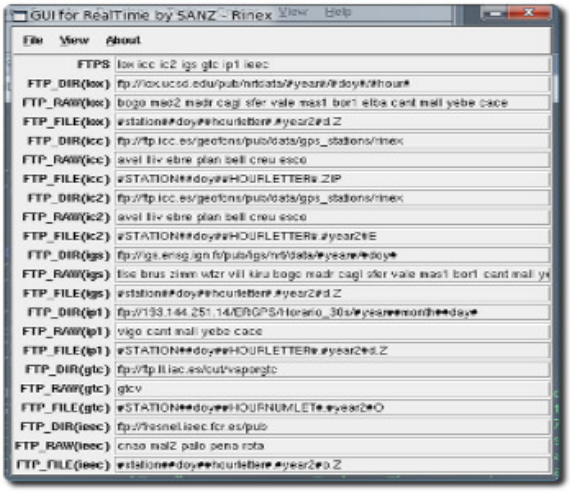
7.6.1 REALTIME (COST716) project

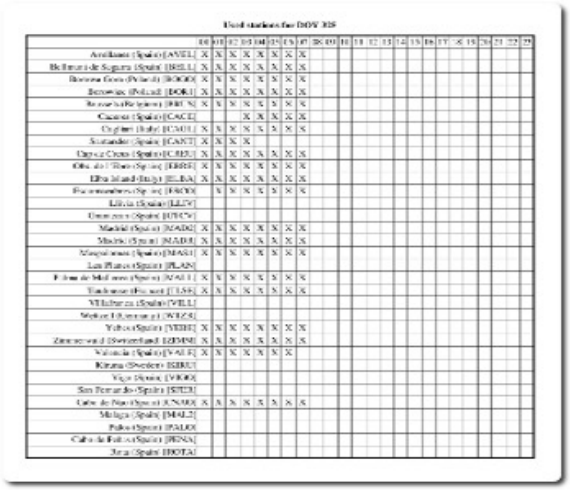
Automation of the calculation of Total Zenith Delay

- Shell scripts using tcsh, tcl/tk, etc ...
- Download realtime data using FTP, HTTP, SSH
- Generation of 'reports' by using web technology and LaTeX.
- Management processes on the Linux kernel.
- Detection of bugs in the file system Solaris 2.6









7.6.2 DD_RCVR and LOTTOS projects

Software for processing mass data using shell scripts

- Graphical interfaces for scientific use

7.6.3 GRACE-II project

Calibration software for the altimeter of ENVISAT satellite

- Graphical interface for use by data processing operators
- System for automated data transfer to the ICM institute

7.6.4 STD/IEEC Group Intranet

Specification and implementation of the online portal:

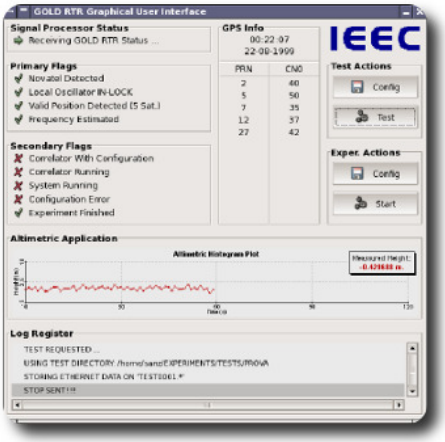
- Using by web technology such as PHP
- User Authentication
- Use secure protocols (SSL) on apache
- Accessing Data with MySQL and PostgreSQL

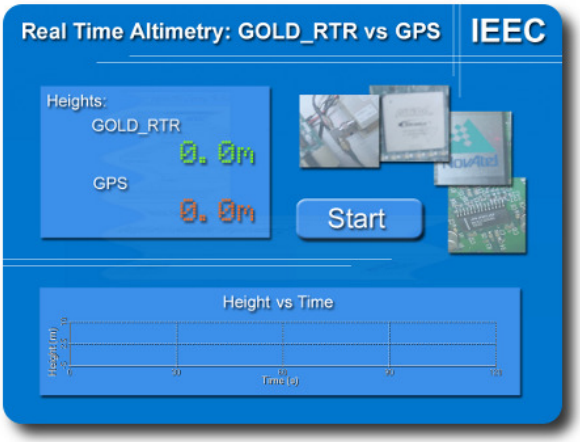
7.6.5 GOLD_RTR (PARIS) and MDPP3 (SMOS) projects

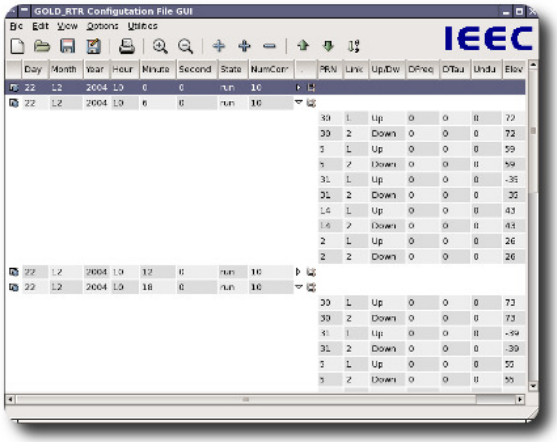
for ALTERA programming environments:

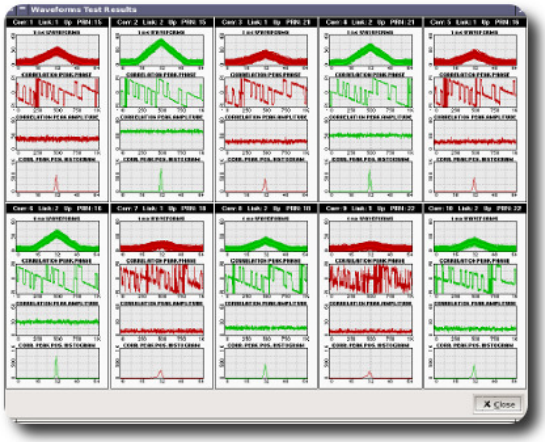
- Communications with GPS receivers (Novatel, Ashtech).
- Software and hardware for ALTERA development boards

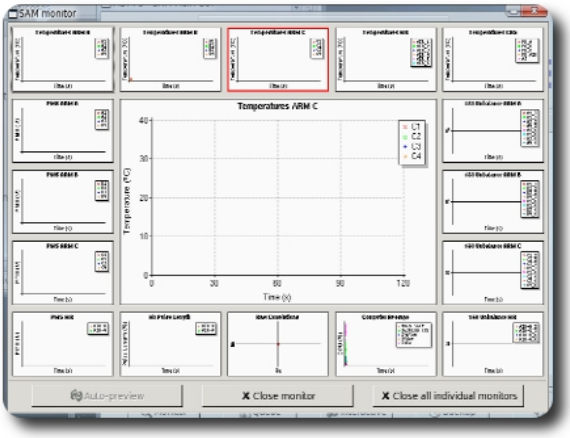
- Multiprocessor systems and realtime applications.
- Specification of ALTERA NIOS2 microprocessors
- Software for GNU/Linux in C and GTK
- Design of communication protocols over UDP/IP
- Transmission of data in realtime mode
- Reception and realtime storage data (12 Mbytes/sec)
- System monitoring graph in realtime mode











7.7 Universitat Politècnica de Catalunya, Dept. of Applied Physics (1999-2001)

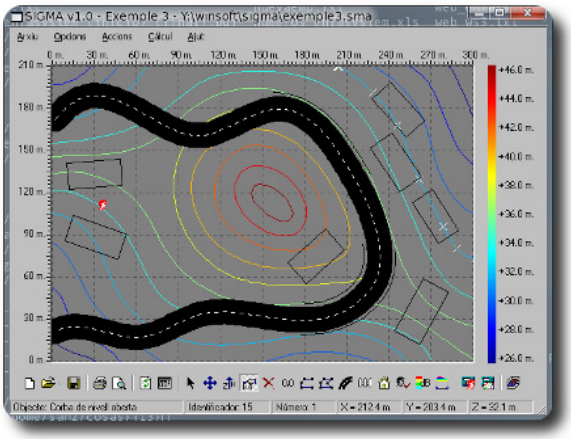
Administration of Unix Systems and Microsoft Windows

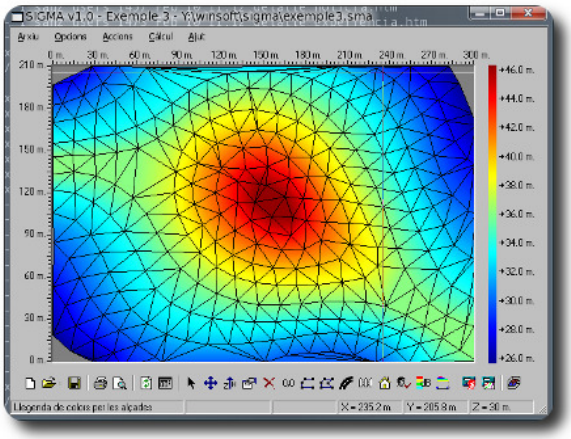
- Implementation of network security systems (SSL)
- Security Audits of computer systems department
- Software development and maintenance of the department's intranet
- Software development for the Generalitat de Catalunya (SIGMA and NivAval)
- Collaborations with the WAFAE association.
- Support to users, and so on.

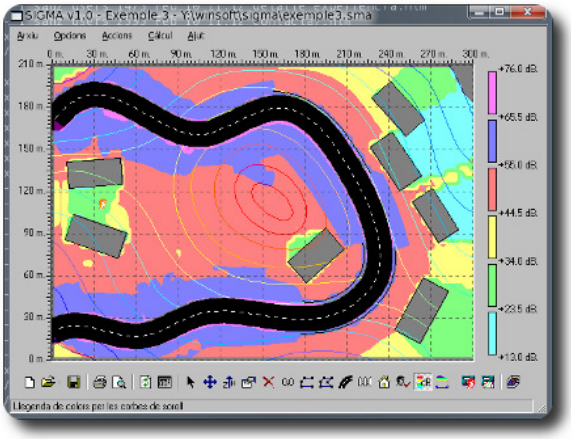
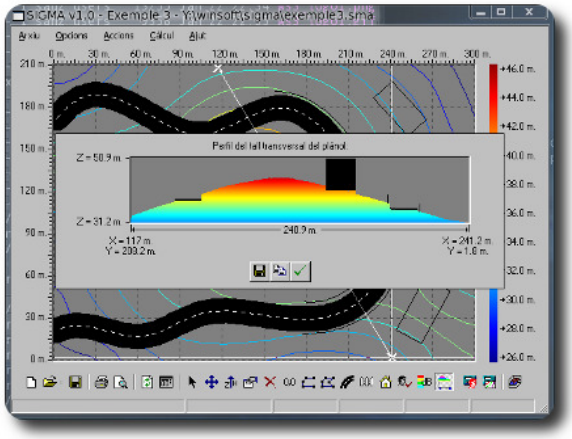
7.7.1 SIGMA, Sistema Informàtic de Gestio i Modelització Acústica

Project of an application with graphical environment for calculating levels of noise pollution:

- Develop an easy and intuitive graphical interface, using Visual Basic, to provide to the user all the necessary elements to enter the input data to the model.
- Develop a set of libraries programmed in Visual C++ to provide all the computing power and speed that only C can offer.
- To perform the topographical simulations and obtain a valid model for the model calculation, a 3D representation mechanisms were implemented using Delaunay triangulation and cubic spline interpolation.



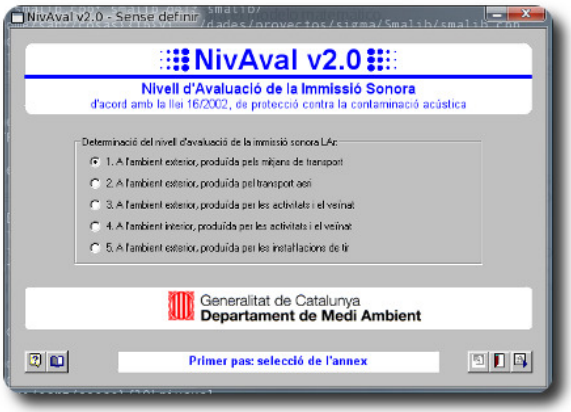


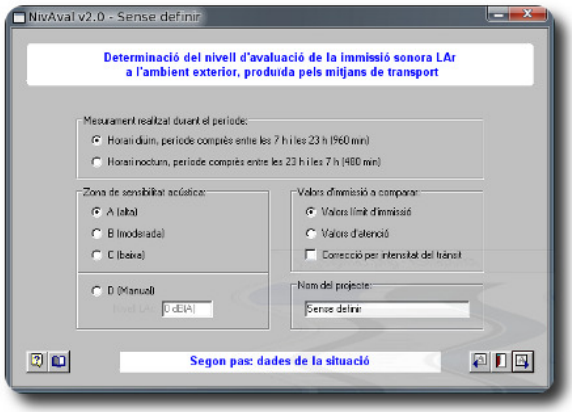



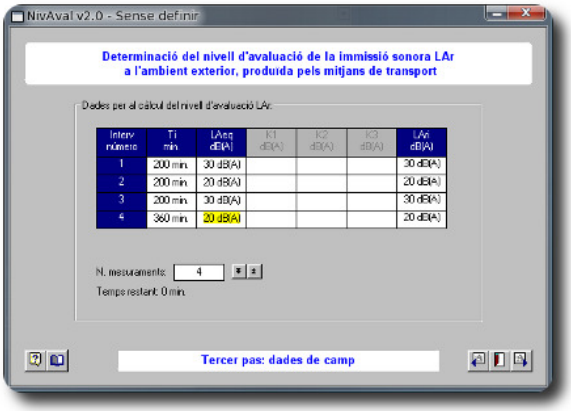
7.7.2 NivAval, Nivell d'Avaluació Lar

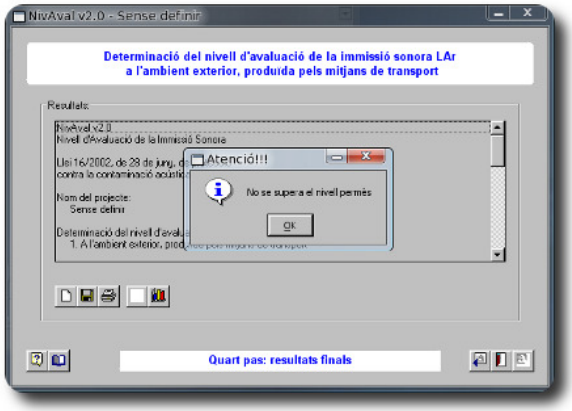
Project to evaluate the results of acquisition campaigns of noise levels using sound level meters:

- Develop a graphical interface using Visual Basic for data entry.
- Implement the model defined in the law 16/2002 of protection of noise pollution.
- Generating reports in text and graphical format highlighting the relevant information established in each case by the acoustic law.









7.8 INCOSE, ingeniería de contrataciones y servicios (1997-1999)

Installation and maintenance of industrial equipment.

- Programming of PLC's for industrial applications.
- Installation of electrical boards and waste treatment systems.

7.9 GESTHOS, gestión técnica hospitalaria (1996-1997)

Assembly and maintenance of electromedical equipment.

- Repair of medical equipment.
- Specification and implementation of equipment for technical tests.