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TESIS DOCTORAL

INSIDE MEDIALAB.

**Un nuevo planteamiento para un Living Lab
Multimedia/Hipermedia y el rescate de las televisiones
locales que cerraron.**

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**Título oficial de Ingeniero en Electrónica-Telecomunicación y
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TESIS DOCTORAL de Ingeniería Multimedia

INSIDE MEDIALAB. Un nuevo planteamiento para un Living Lab Multimedia/Hypermedia

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Julio E. Vigara Campmany:

Nació en Barcelona, España, en 1965, y recibió licenciatura en telecomunicaciones, especializada en electrónica de la Universitat Politècnica de Catalunya (UPC) en 1990, y MS grado en electrónica, especializada en telecomunicaciones de la Universitat Autònoma de Barcelona (UAB) en 1997. Trabajando como profesor desde 1991 y ha realizado cursos de tercer ciclo de doctorado en electrónica y multimedia, pero debido a los numerosos acuerdos con compañías como AENA y la televisión local que no podía tomar el paso final que espero lograr este año y obtener el título de doctor. He publicado un artículo Q1 en Elsevier opiniones de energías renovables y sostenibles de alto impacto, ya que ha sido comprado por más de 300 personas. Espero que éste trabajo afectará de la misma manera y me permitirá crear otro artículo Q1 relacionado. Tanto yo como Francisco Javier Villasevil Marco estuvimos participando en un convenio como directores de la televisión local de Vallirana.

La Tesis consta de un trabajo con objetivos y resoluciones, el diseño de una plataforma multimedia, Resuelta la primera parte y continuamos con la técnica de rescate de las televisiones locales que han cerrado usando la red internet. Ambos trabajos funcionan y solo falta que se pongan en marcha.

1: A new concept flexible MEDIA LAB for research solutions in all fields, electronics, education, communication, Local TV programs and others and Project design for displaying video and other content.2: Using the network for the rescue of local TVs programs and design method and techniques of sending TV programs using the network

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Presidente de la federación de televisiones locales de Cataluña

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FOR THE SUPPORT GIVEN TO THIS WORK, RECOGNITION INSIDE THE RESEARCH TEAM; WHICH THE DIRECTOR IS FRANCESC X. VILLASEVIL THE URL CAN ACCESS IS [HTTP://WWW.CTVG.UPC.EDU/IDIOMA_EN.HTML](http://www.ctvg.upc.edu/idioma_en.html). MY CONTACT E-MAIL FOR ME AS LEAD AUTHOR IS JULIO.VIGARA@UPC.EDU.

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1: Doctoral Thesis Final

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Director: F.Xavier Villasevil Marco.

Objectives:

1: A new concept flexible MEDIA LAB for research solutions in all fields, electronics, education, communication, Local TV programs and others and Project design for displaying video and other content continuing with 2:Using the network for the rescue of local TVs programs and design method and techniques of sending TV programs using the network.

1: Abstract

THIS research will lead MEDIA LAB to a concept of unifying philosophies, helping to publish multimedia content and share research works. This internet LAB is also a multimedia developer-testing platform, allowing experiment with either new technologies or projects.

In this document, we will explain and justify how these philosophies come together, helping researchers, developers, producers and authors to expand their work through multimedia.

Index Terms — Multimedia, Living LAB, ubiquitous computing, open source, dynamic grow, database's, templates, virtual teams.

I – Introduction to LAB philosophy

WE will start explaining why our research proposal allows our laboratory to be different, with features and very broad alternatives. On the web, you can find many successful projects like Source forge, Gnu and others, which are dedicated to the development of free software. Other projects such as Facebook or Twitter are positioned as social networks, while YouTube, Google Video, and online radio stations are broadcast webs. There are other sites like the Encarta Encyclopedia, Wikipedia, Britannica Online, which are dedicated to education, information and journalism. Horizon 2020 may look similar but it really isn't. Some of these projects could be considered to be Living Lab areas for developers or end users.

Many projects in the web present text, images, audio, video, and interactive content. It is clear all these sites present some of these content types. There are many who are engaged in research and development of electronics, hardware, software, and social sciences. Other platforms enable content producers in the net to expose their work, and there are platforms that offer to broadcast your own video and audio content.

Our work is raising a new concept that brings together different philosophies and technologies in one package. It provides numerous solutions to a diverse number of user profiles. This is achieved by means of versatile, reconfigurable core software, allowing the system to grow dynamically, thanks to contributions of different profiles of developers that can store all work in databases.

II - Related work

PREVIOUS research has proven the project is viable. The answer of what the Living Lab philosophy is depends on who you ask, as there are big differences between existing Living Labs [3]. Asbjørn Følstad Abode, and other colleagues of the Georgia Institute of Technology, seems to be the first to use the "Living Laboratory" term to refer to a real world where users have the opportunity to use state of the art technology, while other authors like Inutile or Beige, define "Living Lab" as a test bed of ubiquitous computing environment [3].

Our proposal fits all previous definitions, offering a Living Lab, which has two basic functions, included a multimedia software science research and innovation, and a test area for end users and developers. These could be the defining characteristics of a complete Living Lab, having to consider all aspects which are documented and discussed in literature on this topic [1][2][4][5], while also studying some work that has been under way [6][7][8]. In fact, Owela project [9] is a good example of what can be this kind of laboratory, offering solutions and analyzing possible problems that may occur. Mobility is nowadays a hot topic and their inclusion is not ruled out in this proposal, as described below, and in all referenced literature.

Open Source concept, as described by Ion Ivan in his Open Source Scientific Journal [9], can be summarized as a test of the use being made of a developed software, both by end-users and developers, to improve and develop. Access to source code programs is also allowed. Nowadays these programs almost cover all areas, offering complete solutions to a growing number of end users. But this philosophy is not free of problems like ethics, new guidelines, strategies, development style, licensing, legal aspects, distribution policies, and others. This, as will be seen later when describing Open Source Living Lab, shows that the proposed management system has some difficulties. It is therefore important to assess developer's appropriateness and level to provide certain guarantees, and if possible, collaborating as virtual teams [10].

III Our proposed system

CONSIDERING that this is a research laboratory for the development and use of multimedia technologies, to be applied in education, electronics and other sciences, we encountered a large universe of concepts, technologies, philosophies and possible problems. There is already a problem when you want to define and differentiate between Multimedia and Hypermedia [11]. Multimedia can be used outside the Internet context, while Hypermedia implies network only. Can interactive Multimedia be used? It seems not to be very important to be rigorous with these definitions, as computers and mobile devices make the use of network connectivity implicit. The INTERMEDIA project [12] defines guidelines regarding the sharing of media on network environments, and although specifically its proposal is based on UPnP technology, our proposal will be valid for any number of environments, adapting ideas to Internet environment.

You can clearly see how much multimedia research is dedicated to interactive and indexing search tools, media recovery and database systems, for media and user environments [13] classic or not. In any case, our work supports all possibilities when it comes to Multimedia and/or Hypermedia.

Our proposed system supports dynamic growth, and can be adapted to any multimedia need, it has a core management, and its implementation is based on reconfigurable object technology, instead of being based on ports [15], as well as variables and threads. If objects can recursively call other objects, the system becomes complicated. Reconfigurable software supports the possibility of different uses, but the two most important factors are to prevent execution failures due to lack of an object or an object error, and second, to adapt the execution to the users' needs; they are both referred to in this work. Bruneton et al [14] proposed an idea based on a model of configurable components to be shared, and this is exactly what suits our needs. Therefore, the idea implemented in this research is similar to the model of fractal components exposed [14]. In our proposal, there is no special distinction between components and objects, which both have been renamed "modules" in our work.

After using different technologies in this analysis, we have not found any system equal to this one on the web, therefore we consider it very different, and its basic characteristics are:

- It allows adding any multimedia application as a new research project (Electronics, Education, video, radio, tourism, advertising,)
- It allows testing and validating apps created for final use.
- Within each project, there is a list of multimedia applications (like electronics and education websites, video,)
- It allows adding newly developed framework assistants, to facilitate a complete customization of producer multimedia applications.
- It allows including new modules developed, or using existing ones at any location, to be used as components of final applications.
- The number of users, projects, developments and final applications can grow as needed.
- Any work, software or media content can be shared. There are databases to control all works, activities and statistics.
- It facilitates the translation of all texts used in any language.
- Any documentation needed will be available for the use of this system by all users' categories.

To become a Living Lab, a strong statistical control must be implemented over all system parameters to have feedback of the use and functionality of all innovations. It can be assumed that the term "innovation" may refer to research in the areas of electronics, education, multimedia software, content development, and communication techniques.

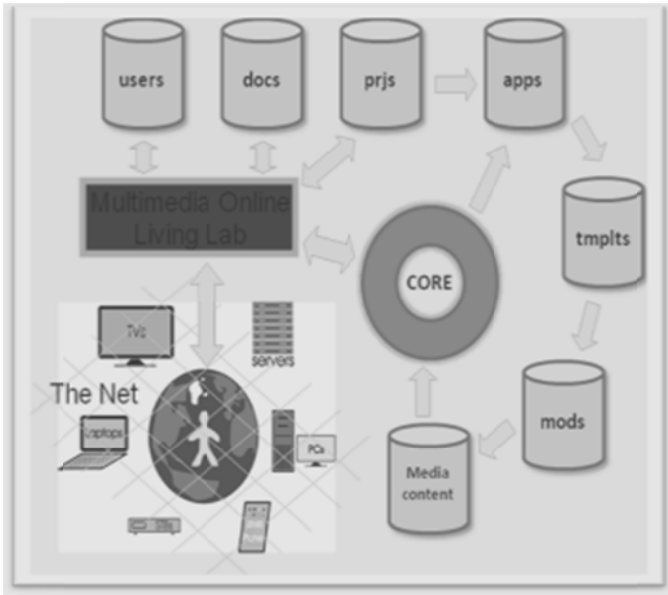


Figure 1: Structure of Multimedia Online Living Lab.

This lab system is targeted at multiple types of users, including a core that incorporates growth techniques and dynamic reconfiguration. All of this is managed by databases, and configuring the system as shown in Figure 1.

There are four user categories, from low to high level of privilege, classified as follows:

1. The “End user”, who has access to content through an internet web link.
2. The “Producer” who has privileges to personalize his web media and content.
3. The “Developer”, who develops modules and/or templates for Producer support.
4. The “Master researcher”, who has all system privileges. A Master research user, except the “end user”, who only has access privilege, must validate lower level users.

The process starts with a specific profile project or research, like electronics, video, radio, education, or any other combination. Research projects have common objectives, shared applications and templates, and use specific multimedia technologies.

A “template” only contains information about modules and their configuration, when performing a thread. A “module” is just an object, a block of code that performs a task or function. Our idea is that the corresponding database contains a set of modules that can perform similar functions, one of them being a reference. The producer will decide which module is suitable to develop his platform. It is necessary that the developer respects its initial configuration parameters when a module is modified or improved, not interfering the previously generated applications.

The CORE’s runtime kernel system is able to process through an application that uses one or more templates and process threads, extracting all necessary information from database. This allows the execution to reconfigure it for each Producer’s preferences, and even automatically replaced by the default module in same class, in case of failure. This can be seen in module 17 of Figure 2. Modules and templates can be allocated in different servers, increasing system growth potential.

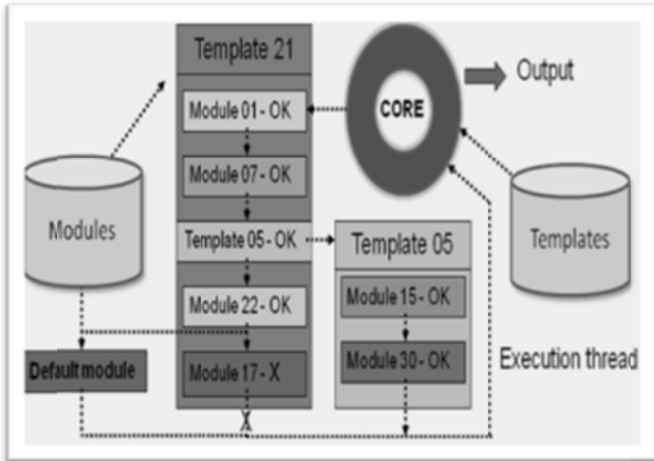


Figure 2: Example of system response to a thread with a module error.

Any input by users should be tested and validated once it has passed final tests for use in specific applications.

At first sight, it might look like the system structure is similar to any programming language that incorporates class libraries and objects executed by a runtime core, but this is not true at all, because the system manages everything from a database. The database keeps the access information to modules and templates that are located in external servers. It is irrelevant which programming language is used, as long as they fulfill their function. It also helps Producers to create their own websites and/or channels to distribute their work.

An important part of this Lab is data collection and usage statistics of multimedia. The usage statistics for the entire system can be collected in specific fields of the existing databases, or also in other database.

To prepare an application or program we are developing a specific template. With this template, you will be able to set up a grid where modules can be placed visible or invisible, to provide the applications' necessary functionalities, as represented in Figure 3.

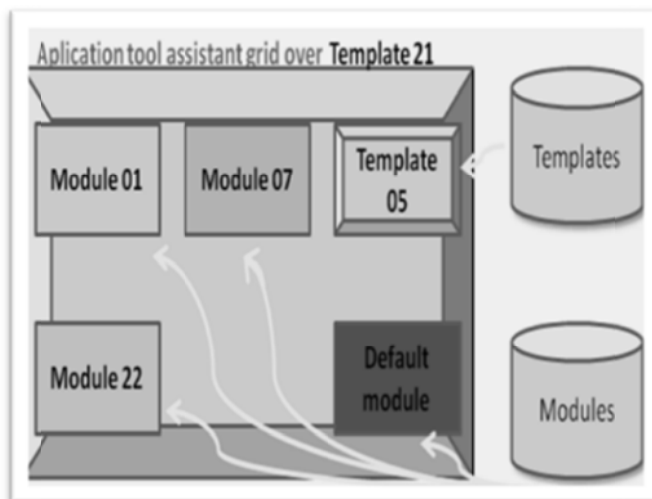


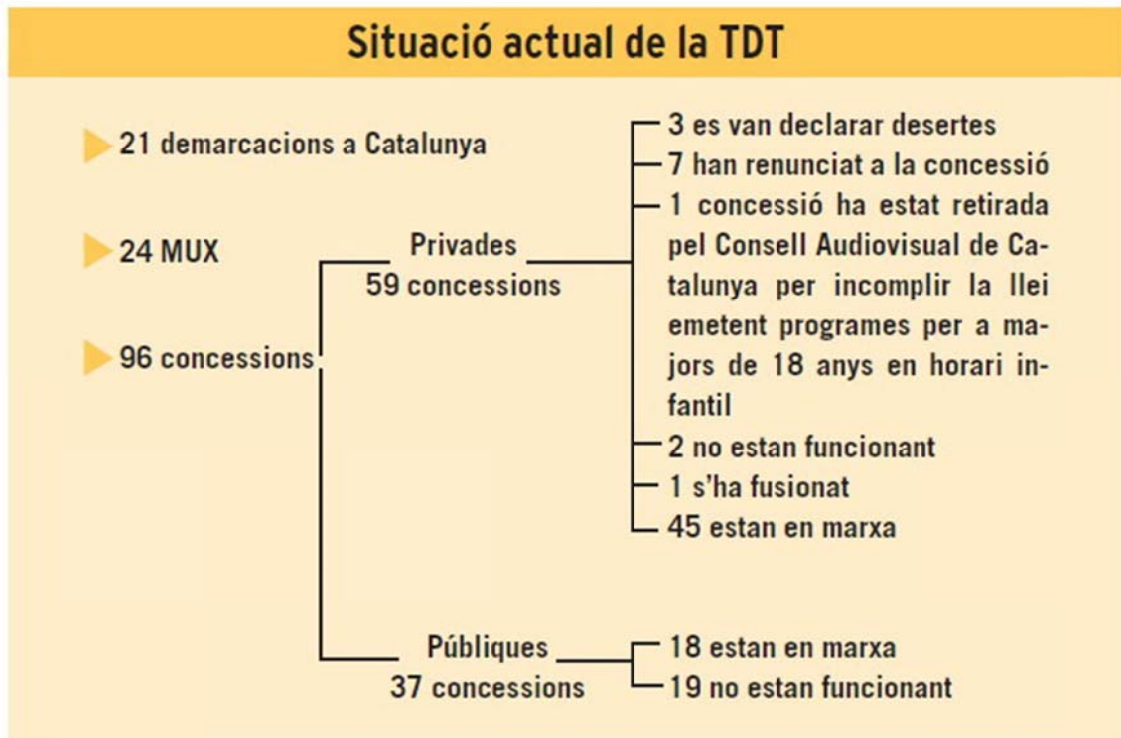
Figure 3: Application design tool using templates and modules on asymmetric grid.

IV=4. Project design for displaying video and other content

4.1. Situation of small stations.

While all broadcasters have tried to make the change from analog broadcast to digital broadcast, several factors have caused the result is not adequate. It is therefore necessary to make a small summary of how the situation has been the transition after the digital switchover.

Of all the concessions that were granted to broadcast in digital, the situation is as follows:



This situation has also been processed in the P2 section giving a solution for the smart TV are receiving TV program through the network.

4.2.Objectives.

The main objective of this project is to support small local broadcasters and everybody who wants to share different types of content.

We also try to provide development tools to customize the way you want to share this content. It will stop operating platform to share both content and programming code for different platforms (web and other devices).

Try a platform that is open to everyone, with many possibilities and a long life. Must be friendly and attractive for different types of users, from those who just want to consume content that wants to publish. Also for those who want to schedule new features.

It will be a platform that should not stop growing even though the project is given as a finish. One goal is to be transformed into a lively platform not stop receiving new features and content in the coming years

4.3 User administration

because we have different types of users, we maintain control of the different roles and differentiate what are the actions that can be performed. For example, a publisher, by creating websites and publish content, but in no way can contribute new code modules.

Management modules

Apart from the management platform, the project will grow by publishing modules. These files are coded to use that functionality to the websites created. Initially, some modules will be provided to give life to the initial system, but it is expected that developers can contribute their different modules to enhance the possibilities of the platform.

Content Management

On another important part of the project is the ability to manipulate multimedia content. To achieve it, we must be able to manipulate a database with different types of content, from video and sound to text and pictures. In principle, this content might hosted on our server or external servers. Limitations in our server makes us rethink the issue and possible accommodation for the content remain limited to external servers.

Variety of projects

Try to accommodate such a variety of projects and content as possible. The idea is that both scientific communities, educational and entertainment can create your website to disseminate its contents. Since it is an open platform where everyone can contribute their piece of code, one of the objectives is to just find the component you need to build your website, whether the subject matter is, regardless of the type of content you want published.

Life time:

As it pursues a development project even after its completion, it will seek leave sufficient documentation in order to expand its features. In addition, the possibility of programming modules can result in new features that were not originally contemplated

That is why, if the project is sufficient external support, it is expected that their life is very long. If it becomes large enough, it can lead to a business opportunity in the form of technical support or other services, not only for project managers, but also for developers and content publishers.

You can also become a platform that gives developers and known to young artists who are no more way to publish their creations. Although the service already offered by other portals on the Internet, this is only part of our project by offering allegedly possibility incalculable.

5. Technology Assessment

Given the variety of tools that can be found for the realization of this project, a study is necessary to determine what are the most appropriate to achieve the objectives. Some aspects to consider are the following:

- › Access.*
 - › Accessibility.*
 - › price.*
 - › ease of use.*
 - › Adaptation.*
-

5.1. Programming languages.

HTML: HTML (Hyper Text Markup Language acronym in Catalan, "Hypertext Markup Language") is a markup language derived from SGML texts designed to structure and relate them in the form of hypertext. Thanks to the Internet and web browsers has become one of the most popular formats exist for the construction documents for the Web.

PHP: PHP is an interpreted programming language used to create dynamic web pages. Runs on the server side, which is why the web browser already arrives HTML page may not display the code php. Although less popular, can also be used to generate command interfaces and applications with GUI executables. It has versions for both Windows and GNU / Linux, and others.

JavaScript: JavaScript is a scripting language based on the concept of prototypes (inheritance by delegation), originally implemented by Netscape, which led to the ECMAScript standard. He is best known for its use in web pages, but also used in other applications.

Despite its name, JavaScript is not derived from the Java programming language, but both share a similar syntax inspired language C. Semantically, JavaScript is closest to the languages Self and ActionScript (also based on the ECMAScript). The name "JavaScript" is a registered trademark of Sun Microsystems.

5 HTML5: HTML (HyperText Markup Language version 5) is the fifth major revision of the core language of the World Wide Web, HTML. HTML 5 specifies two variants of syntax for HTML: a "classic" HTML (text / html) variant, known as HTML5, and a variant XHTML known as syntax XHTML5 which must be used as XML (XHTML) (application / xhtml + xml). This is the first time that HTML and XHTML have been developed in parallel. The development of this code is regulated by the W3C.

5.2. Databases.

MySQL: MySQL is a management system relational database (RDBMS English - Relational DataBase Management System) multi-thread (multithread), multi-user, which uses the language SQL (Structured Query Language).

MySQL has become very popular because of its speed and its run queries natively supported by the PHP (up to version 4.X of this language since version 5 from left-dining it), in the development of web applications in the environment of free software.

5.3. TOOLS USED.

INTERNET INFORMATION SERVICES:

MICROSOFT INTERNET INFORMATION SERVICES (IIS, FORMERLY CALLED INTERNET INFORMATION SERVER) IS A SET OF INTERNET-BASED SERVICES FOR SERVERS USING MICROSOFT WINDOWS.

APACHE:

APACHE HTTP SERVER IS A SERVER HTTP (WEB) OPENS SOURCE PLATFORM DEVELOPED BY APACHE SOFTWARE FOUNDATION.

APACHE HAS AMONG OTHER FEATURES HIGHLY CONFIGURABLE ERROR MESSAGES, DATABASE AUTHENTICATION AND CONTENT NEGOTIATION, BUT WAS CRITICIZED FOR THE LACK OF A GRAPHICAL INTERFACE TO HELP SET IT UP.

ADOBE DREAMWEAVER:

DREAMWEAVER, ADOBE DREAMWEAVER OFFICIALLY CALLED, IS CURRENTLY A POWERFUL TOOL FOR WEB DEVELOPMENT. IT WAS ORIGINALLY CREATED BY MACROMEDIA AS A WEB PAGE EDITOR WYSIWYG, WHILE GRADUALLY INCORPORATING SUPPORT FOR OTHER WEB TECHNOLOGIES SUCH AS CSS, JAVASCRIPT, AND RECENTLY SUPPORTED PROGRAMMING LANGUAGES SERVER (SERVER-SIDE SCRIPTING) AS COLDFUSION, JSP PHP, ETC.

DREAMWEAVER IS AVAILABLE FOR BOTH MAC AND WINDOWS PLATFORMS. ADOBE IS CURRENTLY OWNED SINCE 2005, THE COMPANY PURCHASED MACROMEDIA, AND IS SOLD AS PART OF ADOBE CREATIVE SUITE SOFTWARE PACKAGE.

COMPOSER:

COMPOSER IS AN OPEN SOURCE EDITOR BASED ON THE NVU EDITOR. COMPOSER IS MAINTAINED BY THE SAME USER COMMUNITY THAT BRANCH OFF THE PROJECT, AND A PROJECT ON SOURCE FORGE.

THERE ARE BINARIES AVAILABLE FOR GNU / LINUX, WINDOWS, MACOSX AND OS / 2.

In March 2007 he commented on Download.com, who was considered one of the best free alternatives to Adobe CS3, and compared favorably with Adobe Dreamweaver

Notepad ++

Notepad ++ is a free source code editor which supports several programming languages and works under MS Windows.

This project, based on Scintilla edit component (a very powerful editor component), written in C ++ with pure win32 api and STL (that ensures fast execution speed and smaller program size). It is under the GPL.

Kate:

Kate is a text editor for KDE. KDE Advanced Text Editor Kate means, ie, advanced text editor for KDE.

Kate is part of the kdebase package since version 2.2 of KDE from 15 August 2002. Due to the technology that is part of KDE KParts is possible to place Kate like an editing component to any KDE application . The integrated development environment, KDevelop and web development tool, Quanta are two of the most important KDE applications using Kate as editor component.

Firebug:

Firebug is a Firefox add-on that helps you to edit, test, and monitor CSS, HTML and JavaScript on any web page.

FileZilla:

FileZilla is an FTP client for Windows, Linux, FreeBSD and MacOS X. It is free software and open source, GPL-licensed. It supports FTP, SFTP and FTP over SSL.

FileZilla Server is the server that handles provide FTP service.

OpenProj:

OpenProj is a project management software designed as complete replacement for Microsoft Project, able to open project files Native program. It runs on the Java platform, allows it to be run in a variety of different operating systems.

Visual Paradigm:

Visual Paradigm for UML is a visual modeling tool for all types of UML diagrams. It supports extensive management use case diagrams SysML requirements and design databases (with ERD) and delivers the most effective efforts on the analysis and design of systems.

Day:

Day is a general purpose graphics application for creating diagrams, developed as part of the GNOME project. It is built in a modular way, with different packages for different needs.

6. Initial Planning.

For the development of the project, the work is divided into five main parts:

- > Analysis Requirements.
- > Design.
- > Implementation.
- > Testing.
- > Documentation.

7. Analysis.

7.1. THE PROBLEM.

7.1.1. Problems of local media.

The arrival of new digital channels broadcast both on TV and the radio, has meant a radical change in the approach to the audio-visual production and distribution. On one hand, the teams have changed, remaining analog totally obsolete. They have also changed the post-production techniques and file system content. On the other hand, emission systems, which have had or have to be completely renovated and has modified the distribution of radio spectrum, trying to legalize having surveyed all existing stations.

All the changes have resulted or may involve large initial investments that not all stations can afford and demonstrates closing Localia TV, TV Vallirana and no opening of most local public radio stations. And the digital broadcast DVB and DAB have the advantage of placing radio spectrum use multiple channels on a single broadcast channel is called a multiple channel, and the disadvantage that the broadcasters should share multiple channel reach an agreement or sharing the same coverage area.

Furthermore, Spain was planning multiple channels insufficient to cover the needs of all small public broadcasters exist, pretending that they remain under share issuance and charges, arguing cost and high enough hourly jobs Grilled daily broadcast. This national plan for DTT (DVB-T) has failed mainly public television (municipal) have not come to reach an agreement to jointly issued or have abandoned the project incited by the strong economic crisis is' is experiencing today. In the case of radio, DAB has been parked, because the majority of the audience uses mobile radio, in the car or transport, with analogue receivers.

Does this mean that digital radio media have failed? No, they have not failed. The Empress sufficiently strong and supported by appropriate institutional issues and have made adequate coverage.

In the case of local public television, in some cases, given the poor quality or variety of their audio-visual production has been more interest in publishing local news through other media such as newspapers or the Ancient traditional web, causing problems discussed the closure of the television station.

7.1.2. Internet as unifying and making possible media.

To keep a local environment with low budget solution would be like using the Internet. This platform is expected appropriate for the following reasons:

- Can be used to promote any type of media: press, photography, sound and video, both live and on demand.
- Have sufficient capacity to ensure sufficient technical quality of the content and quality of service.
- The coverage and quality is increasing, and in some cities are implanted optical fiber.
- It is no longer necessary to use the computer to check the contents, and because there settopboxes media players that allow viewing directly on TV, even televisions that can do directly. Nor need a sound system in the case of audio content such as radio.
- It is accessible from mobile devices such as phones, laptops, etc.
- Expand the scope of dissemination without increasing the cost; therefore, any proposal would be valid for the non-local media.
- Can grow the number of broadcasters or publishers of content, encouraging job creation.

Furthermore, we can conclude that it would be very productive and useful to offer a free solution for users based on IP technology, which allows to survive or expand any means of diffusion. The development of its complicated structure based on autonomous growth-oriented levels of users, maintenance and improvement and adaptation to new technologies will be the goal of this project.

7.2. Glossary of terms.

Module will be part of the final website. Will be dedicated to specific functionality. The union of different modules will provide all the website features and functions desired.

Style: This part is responsible to keep the configuration of our website. It will define the font, background colour, language, and other issues.

Web Interface: This is the final result. This will be the visitors or administrators can view or manipulate.

Users

Visitor: Is the person who consults the website. Read news, video display and enjoy your content.

Publisher is that customizes a project to publish content. Also Guest.

Developer: You can create and add modules and templates. You can also create configurations for them. Also Publisher.

Super User: the user is responsible for managing the project. Decide which modules and templates are suitable for use. Manage users. Also Developer.

Content: Is the information. This is what we want to convey to visitors. It may be of different formats: video, text, and image.

Title: This is the part that will serve as head of our interface.

Page: Container content that provide the web.

Navigation bar: Element will allow us to access different parts of the site.

Template: It consists of a schema that defines the shape of the pages contained on our website.

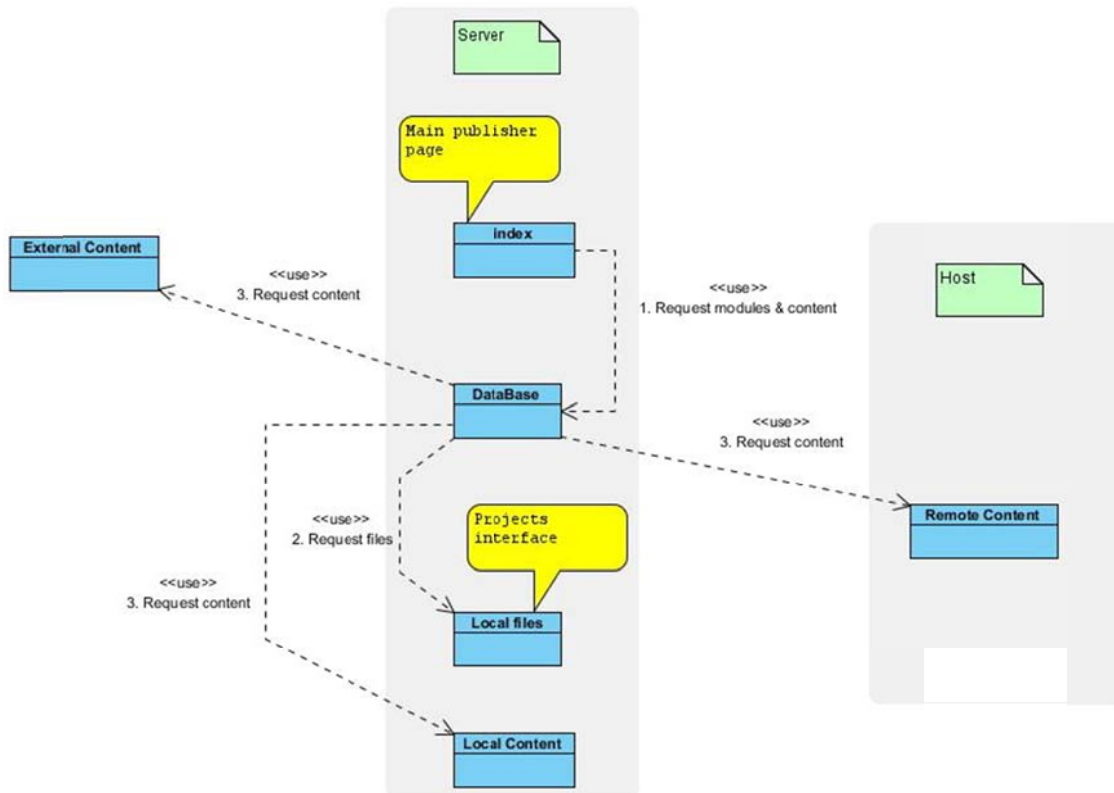
Design: Refers to what kind of data we represent and what elements are involved.

Project: Define the purpose of our website: television, print, video, radio, etc.

8. Design.

The platform for the development of multimedia websites consists of a database and centralized files on our server. Moreover, the media will be decentralized in several external servers and possibly in our centralized server.

The execution of any portal will be in several stages in order to bring together the different elements necessary to show visitors a site is finished and the contents.



Basically, it consists of three stages: the book Web search modules and search content. Then briefly explain how these stages.

Ask the web

The first step is to upload the file that makes "index" for the site in question (upc-esdim.epsevg.upc.es/inside/pages/indes.php). Normally php or html containing basic information to locate the contents. To do so, it calls for the database that contains the information necessary for modules consisting.

Search Modules

At this stage we identify the web database structure and extract it. Within this structure we seek modules which contain and execute in order to shape the web. The modules are those who do the work. Some may give a list of videos, news, forums, etc. Others may be navigation bars, watches, title bars, etc. Others may not be visible but do work as compile statistics.

Search content

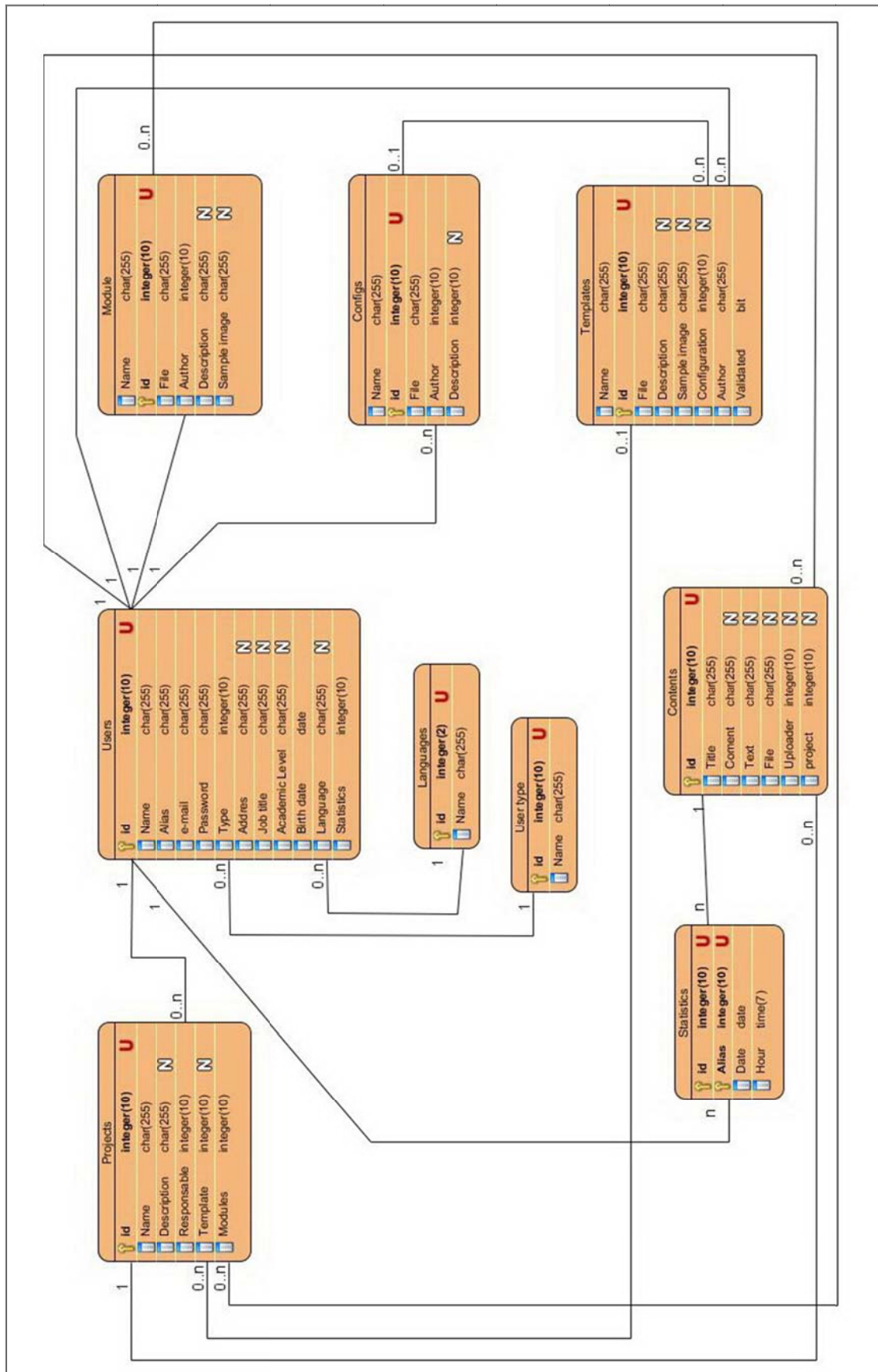
Once we have structured the website, search the contents touches. These will be determined by the modules to be loaded. They have appealed to the database in order to find them, as the case of a module that creates a list of videos.

It is possible that the work does not end here. For example, in the case of a module that builds a list of videos, it is possible that the player belongs to another module. Then he called this and provide you with the necessary information to find the content (video).

9.1. Database.

In order to organize the information on the project and the sites that are derived from it, building a database with several tables. The construction of this is done with the tool phpMyAdmin, which consists of a web platform that facilitates the development of a visual way, instead of using sq. calls.

The result represented the tool Visual Paradigm is the following page:



8.1. Creation of the database.

- PhpMyAdmin SQL Dump
- Version 3.3.9.2
- [Http://www.phpmyadmin.net](http://www.phpmyadmin.net)

-
- Server: localhost
- Time to generation: the 23-01-2012 at 22:17:00
- Server Version: 5.5.10
- PHP Version: 5.2.9

SET sql_mode = "NO_AUTO_VALUE_ON_ZERO";

```
/*! 40101 SETOLD_CHARACTER_SET_CLIENT =@@CHARACTER_SET_CLIENT */;  
/*! 40101 SETOLD_CHARACTER_SET_RESULTS =@@CHARACTER_SET_RESULTS */;  
/*! 40101 SETOLD_COLLATION_CONNECTION =@@COLLATION_CONNECTION */;  
/*! 40101 SET NAMES utf8 */;
```

-
- Data Base: `prometeo`
-

-
- Structure of the table table for `configs`
-

```
CREATE TABLE IF NOT EXISTS `configs` (  
  `Name` char (255) NOT NULL,  
  `id` into (10) NOT NULL AUTO_INCREMENT,  
  `File` char (255) NOT NULL,  
  `Author` `into (10) NOT NULL,  
  `Description` char (255) DEFAULT NULL,  
  PRIMARY KEY (`id`)  
) ENGINE = InnoDB DEFAULT CHARSET = latin1 AUTO_INCREMENT = 10;
```

-
- Structure of the table table for `contents`
-

```
CREATE TABLE IF NOT EXISTS `contents` (  
  `id` into (10) NOT NULL AUTO_INCREMENT,  
  `Title` char (255) CHARACTER SET latin1 COLLATE latin1_spanish_ci NOT NULL,  
  `Comment` text NOT NULL,  
  `Text` text NOT NULL,  
  `File` char (255) NOT NULL,  
  `Uploader` `into (10) NOT NULL,  
  `Project` into (11) NOT NULL,  
  PRIMARY KEY (`id`)  
) ENGINE = InnoDB DEFAULT CHARSET = latin1 AUTO_INCREMENT = 7;
```

-
- Structure of the table table for `languages`
-

```
CREATE TABLE IF NOT EXISTS `languages` (  
  `Id` into (2) NOT NULL AUTO_INCREMENT,  
  `Name` text NOT NULL,
```

PRIMARY KEY ('id')
) ENGINE = Inorb DEFAULT CHARSET = latin1 AUTO_INCREMENT = 5;

-
- Structure of the table table for `modules`
-

CREATE TABLE IF NOT EXISTS `modules` (
 `Name` text NOT NULL,
 `Id` into (11) NOT NULL AUTO_INCREMENT,
 `File` text NOT NULL,
 `Author` `into (11) NOT NULL,
 `Description` text NOT NULL,
 `Sample image` text
 PRIMARY KEY ('id')
 KEY Author` ` (' Author')
) ENGINE = Inorb DEFAULT CHARSET = latin1 AUTO_INCREMENT = 7;

-
- Structure of the table table for `projects`

CREATE TABLE IF NOT EXISTS `projects` (
 `Id` into (11) NOT NULL AUTO_INCREMENT,
 `Name` text NOT NULL,
 `Description` text NOT NULL,
 `Responsible` `into (11) NOT NULL,
 `Template` `into (11) NOT NULL,
 `Modules` text NOT NULL,
 `Id` KEY (' id')
) ENGINE = Inorb DEFAULT CHARSET = latin1 AUTO_INCREMENT = 2;

-
- Structure of the table table for `statistics`
-

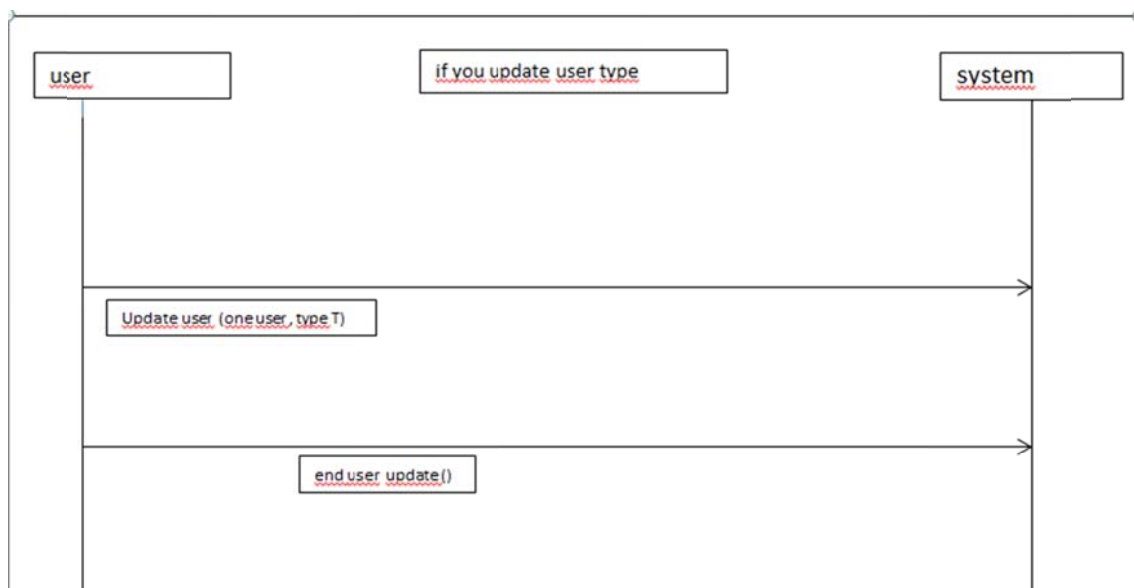
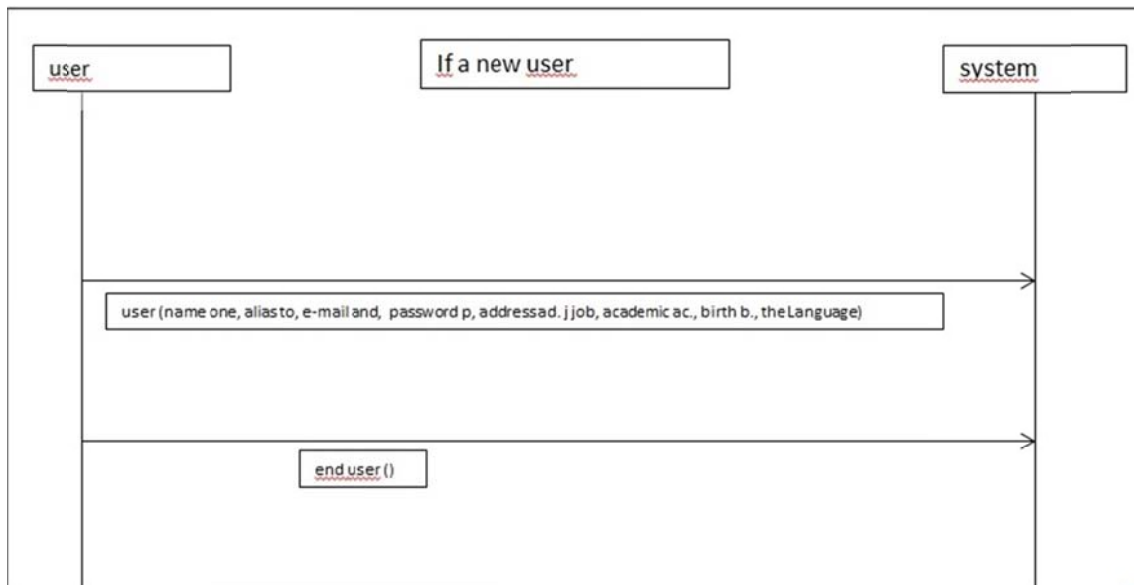
CREATE TABLE IF NOT EXISTS `statistics` (
 `Id` into (10) NOT NULL,
 `Aliases` `into (10) NOT NULL,
 `Date` date `NOT NULL,
 `Hour` time NOT NULL,
 PRIMARY KEY ('id', ` Alias`)
) ENGINE = Inorb DEFAULT CHARSET = latin1;

-
- Structure of the table table for `templates`
-

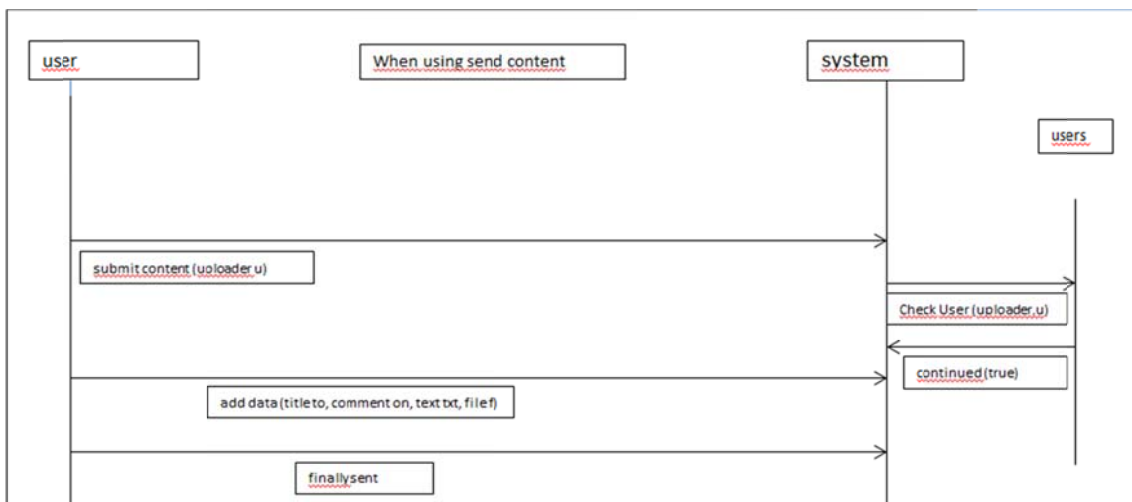
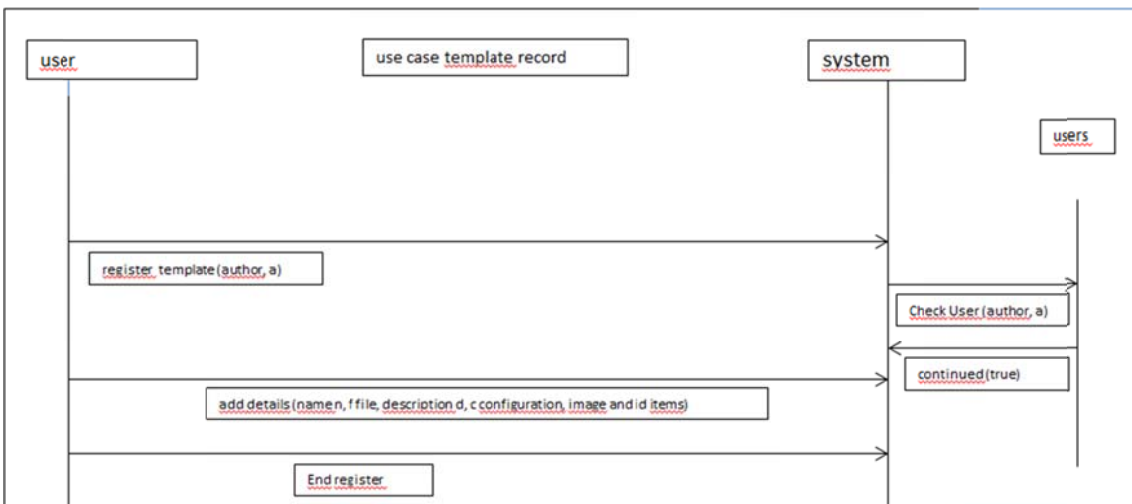
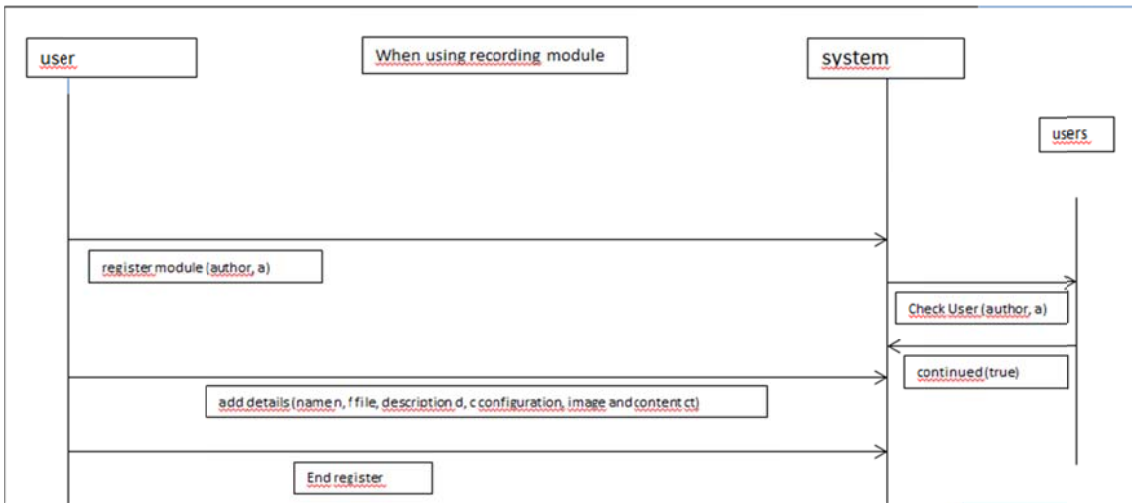
CREATE TABLE IF NOT EXISTS `templates` (
 `Name` char (255) NOT NULL,
 `Id` into (10) NOT NULL AUTO_INCREMENT,

`File` char (255) NOT NULL,
 `Description` char (255) DEFAULT NULL,
 `Sample image` char (255) DEFAULT NULL,
 Configuration `into` (10) DEFAULT NULL,
 Author `into` (10) NOT NULL,
 `Validated` bit (1) NOT NULL DEFAULT b'0'
 PRIMARY KEY (`id`)
) ENGINE = InnoDB DEFAULT CHARSET = latin1 AUTO_INCREMENT = 2;

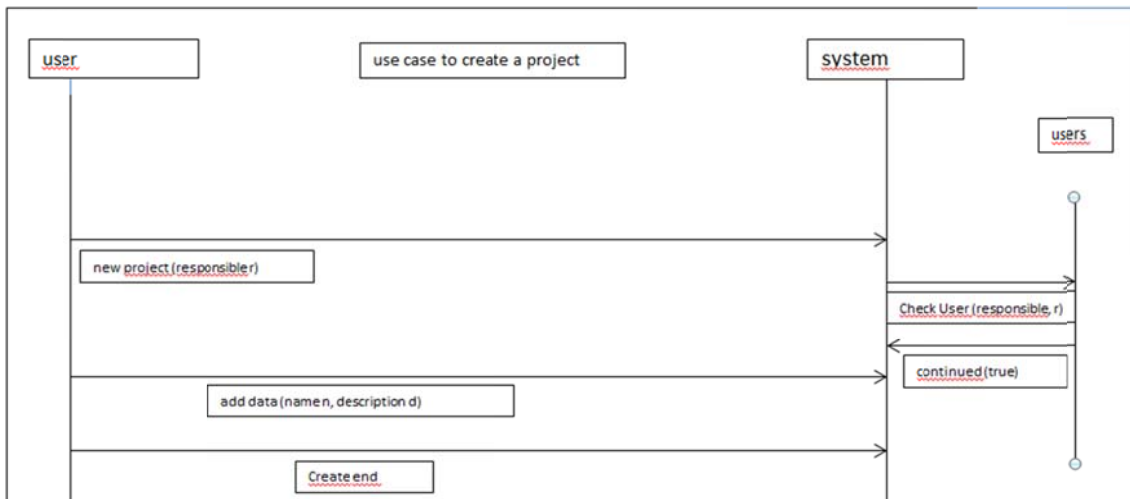
8.2. Use cases of the system.



We send information to a user, identified by his email, and update its kind, according to four user types that exist, visitor, publisher, developer and super user.



We check the user when sending content. Then send the information contained in the database. In the beginning, you could choose to upload a file to our server or enter a URL address to content. Due to the complexity of making uploads via php and limited server capacity, we decided not to give this option and require a URL of the file, leaving the responsibility to host content on a server.



First, we check the user responsible for the project (website). Then add the project data, name and description.

We will use the name to create a php file that will access the website created. For example, if the project name is "Hot Potato", how to access the web browser will be typing:

[http://upc-esdim.epsevg.upc.es/inside/pages/la potato calenta.php](http://upc-esdim.epsevg.upc.es/inside/pages/la%20potato%20calenta.php)

This file contains the minimum information easy to find and necessary modules and content associated with the web.

9. Implementation.

Security

Security in a web platform is a difficult goal to achieve. Nowadays easily collapse server and tools are available to everyone. Perhaps this section is one of the weaknesses of the project and probably need more work in order to guarantee robust platform. Some of the areas for improvement are:

- Encrypt communications.
- Protecting forms sql injections.
- Improve response in case of hacker attack.

However, this is not an objective of the project. Instead, we tried to reliability in other aspects of security:

- management actions that can carry different types of users.
- Limit hosting content.

Identification system

To perform different tasks in our management platform is necessary to identify yourself as a user of this. This allows the system to distinguish and determine the user permissions, because the type of user defined actions that can be made to the management system websites, modules and content. Remember the types of users:

- Guest.
- Publisher: Create and publish web content.
- Developer: Create and publish modules.
- Super User: Manages the system and can change the user type.

In addition, each user can perform the actions of previous users. That is, a developer can exert Publisher and one Super User can exercise Developer and Publisher.
Navigation System

The different sections are accessible from a sidebar on the left. In principle, this bar can browse through the entire platform.

The management platform is in principle closed. This does not mean that you can not modify or update, but paragraphs should remain as they are and do not present much variation in the future. If you need to add new functionality can be covered to create a website with the relevant section and add the correct modules.

9.1. Management modules and content.

The programming platform for managing content and modules was carried out with technology html and php using forms. Has provided the html form on the web, while the PHP provides communication with the database.

Most transactions have been made with the database have been insertions and SQL queries, and some updates. For example, consider the postal charge to register a new user to the database:

```
<? php

$ name = $_POST ['name']; // Take variables form.
    $ alias = $_POST ['alias'];
    $ email = $_POST ['email'];

    $ pass = $_POST ['password'];
    pass2 $ = $_POST ['password2'];
    $ addr = $_POST ['addr'];
    $ title = $_POST ['title'];
    $ academic = $_POST ['academic'];
    $ birth = $_POST ['hours']. "-". $_POST ['month']. "-". $_POST ['year'];
    $ lang = $_POST ['language'];
    require_once ('conexion.php'); // Data connections are in a separate file.
    $ link = mysql_connect ($ server, $ User, $ password); // Connect to the server.
    if (! $ link) {die ("Could not connect: ". mysql_error ()); // Control errors. }
    mysql_select_db ($ database, $ link); // Select the database.
    $ sql = "SELECT email FROM users WHERE email = '$ email'; // Check that the email is not
        repeated
        $ result = mysql_query ($ sql, $ link);
        if (! $ result) {die ("Error:". mysql_error ()); }
if (mysql_num_rows ($ result)! = 0) {header ("Location: email.php not permitted"); die ("Error:
    email repetition ');
    }

    $ sql = "SELECT FROM users WHERE Alias Alias = '$ alias"; // Check that the alias is not
        repeated.
    $ result = mysql_query ($ sql, $ link);

        if (! $ result)
            {
            die ("Error:". mysql_error ());
            }

        if (mysql_num_rows ($ result)! = 0) {
        header ("Location: alias.php not permitted");
```

```

        die ("Error: repetition Alias");
    }

    $ sql = "INSERT INTO users (Name, Alias, email, Password, Address, title, level, Birth,
        Language)
        VALUES
        ('$ name', '$ alias', '$ email', '$ pass', '$ addr', '$ title', '$ academic', '$ birth', '$ lang') ";
    // The sentence above defines that execute SQL statements. Insert the new user data in the table
    users.

    if (! mysql_query ($ sql, $ link)) // This line that performs the query (mysql_query) in the
        database.
    {
        die ("Error:". mysql_error ());
    }
    echo "added one record";

    mysql_close ($ link); // Close the connection to the database.
header ("Location: redirect.html"); // This file does not display information on screen, redirect
to another.
?>

```

This piece of code can distinguish various parts running in order to ensure the proper functioning of the call. These parts are:

- Collect html form data.
- manipulate these data, if necessary.
 - Connect to the database.
- Check that there are no repeated data (names, emails, etc).
 - Building SQL statements.
 - Perform SQL query (query).
 - capture errors.

Sometimes we need to update the information contained in the database. Then we will see how to modify a user to change their type and give different permissions:

```

    $ link = mysql_connect ($ server, $ User, $ password);
        if (! $ link)
        {
            die ("Could not connect: '. mysql_error ());
        }

        mysql_select_db ($ database, $ link);
    $ sql = "UPDATE users SET Type = '$ type' WHERE email = '$ email";
        // SQL query.

        if (! mysql_query ($ sql, $ link))
        {
            die ("Error:

            mysql_close ($ link);

```

In this case, UPDATE used to change one or more fields in one or more rows of a table. This operation changes the type of user, which allows you to make some actions or others.

Sometimes, to create the form, we need to call for information:

```
<? php

    require_once ('conexion.php');

    $ link = mysql_connect ($ server, $ User, $ password);
    mysql_query ("SET NAMES 'utf8'"); // <- ¡Acentos and Enes!
    mysql_select_db ($ database, $ link);
    $ sql = 'SELECT id, name FROM modules';
    $ result = mysql_query ($ sql, $ link);
    close = $ mysql_close ($ link);

    $ Dato 'page';

    while ($ registry = mysql_fetch_array ($ result)) {

        $ id = $ registry ['id'];
        $ name = $ registry ['name'];
        echo '<option value = "'. $ id."> '. utf8_decode ($ name). </ option>'; // Construction of form.
    }

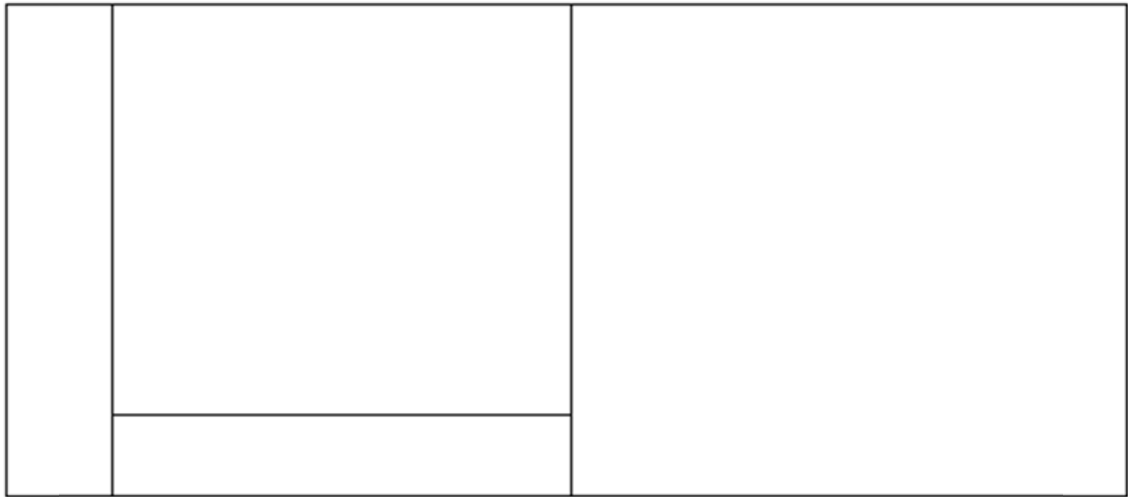
?>
```

This code is used in the section in which we configure our website. To set up a website assign modules in different parts of this: a title bar, footer, the body of the page, etc. To do this we have gathered a list of available modules. We do it the same way to change the look of it.

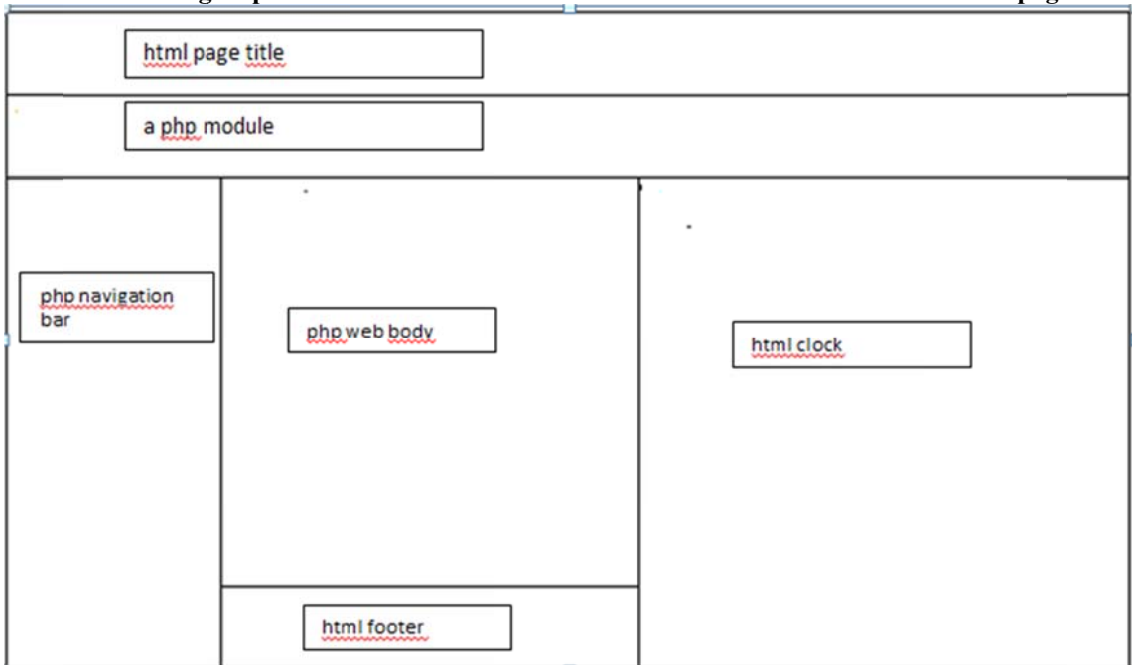
A peculiar aspect of this code is that the result is displayed on screen by a selection box. The form has to show php information display is, among others, the function echo. Anyway, the result is a mix of HTML and SQL query result. That is why the result is a concatenation of text and php variables. When typing the code should be carefully and slowly so as not to make mistakes.

9.2. Modules.

A module is a set of code encapsulated in a file (usually php or html) that performs one or more functions. This module is used to fill the space available in a template. A template is a file (usually PHP) that defines how a web page. For example, a template structure:

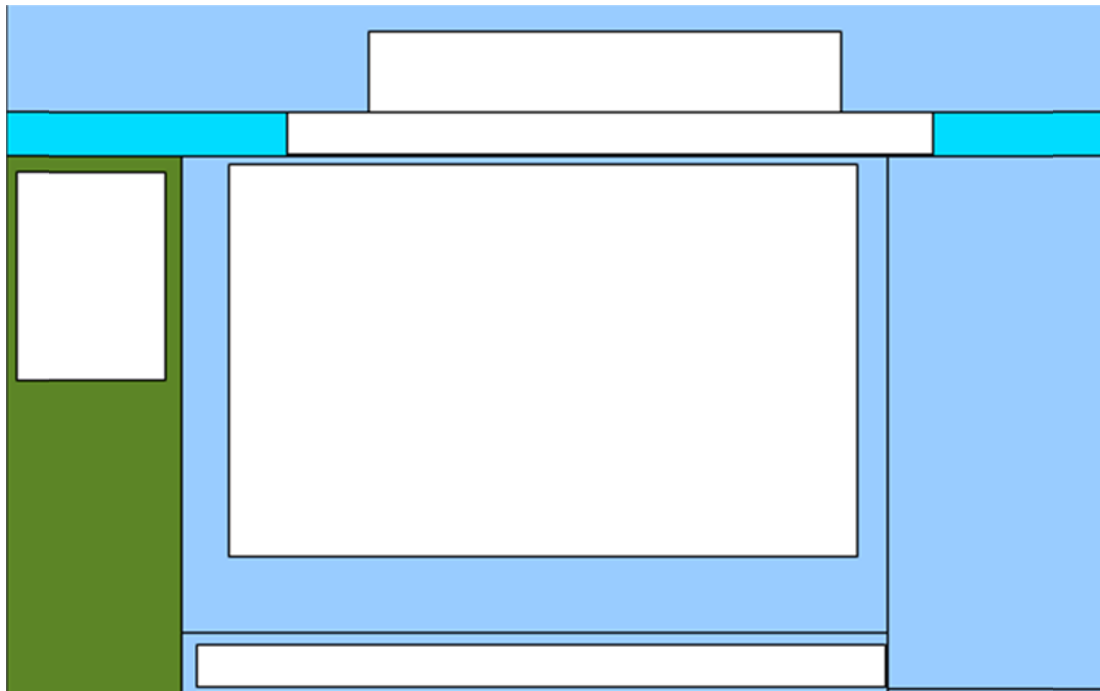


Within this group will have a series of modules that will function and / or aesthetics page:



Thus, it would look like this:





To do this, we create every website contains a number of variables that store information which module is in each place. These variables must be obtained from the database. As you identify the web have a separate file containing this information, for example:

```
<? php $ name = "movie trailers"; $ projectid = "1"; include_once
    "../modules/plantillajjm.php"; ?>
```

A template variables must consult the database:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01//EN"
    "http://www.w3.org/TR/html4/strict.dtd">
<html> <head>
```

```
<? php
```

```
header ('Content-Type: text / html; charset = utf-8 ');
require_once ('../conexion.php');
```

```
$ link = mysql_connect ($ server, $ User, $ password);
mysql_query ("SET NAMES 'utf8'");
mysql_select_db ($ database, $ link);
$ sql = 'SELECT * FROM projects WHERE Name ='. "' . $ name". " ";
$ result = mysql_query ($ sql, $ link);
$ TOTAL_COUNT = mysql_num_rows ($ result);
close = $ mysql_close ($ link);
```

```
while ($ registry = mysql_fetch_array ($ result)) {
    Project = $ $ registry ['Name'];
    if ($ name == $ proyecta) {
        $ = $ modulos register ['Modules'];
    }
}
```

```
list($titulo,$subtitulo,$barra1,$barra2,$barra3,$barra4,$body1,$body2,$pie,$estilos,$title,$varia
```

```

ble1,$variable2) = Explode ("", $ modulus);

?>

```

Then we put each module in place. To do this, use the include command that inserts the contents of a file in the code is running. For example:

```

<meta content = "text / html; charset = UTF-8" http-equiv = "content-type"> <title> <? php
echo $ title;?> </ title>

<link rel = "stylesheet" type = "text / css" <? php echo 'href = "'. $ styles." '? >>
</ head>
<body>
<table style = "width: 1024px; height: 116px; text-align: left; margin-left: auto; margin-right:
auto;" border = "0" cellpadding = "2" cellspacing = "2">
<tbody>
<tr>
<td colspan = "3" rowspan = "1" style = "width: 150px;" class = "t"> <? php include "$ title";
?> </ td>
</ tr>
<tr>
<td colspan = "3" rowspan = "1" style = "width: 150px;"> <sub> <? php include "$ subtitle"; ?>
</ sub> </ td>
</ tr>
<tr>
<td colspan = "1" rowspan = "2" style = "width: 150px"> <? php include "$ barra1"; echo
"Flat"; echo "Flat"; #include "$ barra2"; ?> </ td>
<td style = "width: 696px;"> Madame <? php include "$ body1"; echo "Flat"; echo "Flat";
#include "$ body2"; ?> </ td>
<td colspan = "1" rowspan = "2" style = "width: 150px"> <? php include "$ barra3"; echo
"Flat"; echo "Flat"; #include "$ barra4"; ?> </ td>
</ tr>
<tr>
<td style = "width: 696px;"> <br> <? php include "$ pie"; ?> </ td>
</ tr>
</ tbody>
</ table>
Flat
</ body> </ html>

```

The command include "\$ body1"; will be replaced by the contents of the file stored in the variable \$ php body1. If this is called llistat.php the content that will be printed on the web, and as if it contains the code.

One of the examples used in the project is to make a list of videos. To make this work we use a module called listado videos.php. The contents of the file are as follows:

```

<? php

header ('Content-Type: text / html; charset = utf-8 ');
require_once ('../conexion.php');

```

```

$ link = mysql_connect ($ server, $ User, $ password);
mysql_query ("SET NAMES 'utf8'");
mysql_select_db ($ database, $ link);
$ sql = 'SELECT * FROM happy ORDER BY id DESC ";
$ result = mysql_query ($ sql, $ link);
close = $ mysql_close ($ link);

while ($ registry = mysql_fetch_array ($ result)) {

    $ title = $ registry ['title'];
    video = $ $ registry ['File'];
    $ text = $ registry ['text'];
    Comment $ = $ registry ['commenting'];
    $ id = $ registry ['id'];
    $ = $ registry project ['project'];
    if ($ == $ projectid project) {
echo '<a href=" ../modules/reproducer.php?id='. $id.'">';
echo '<body_title>'. $ title. </ body_title> ';
echo '</a>'. 'Madame';
print '<pre WIDTH = "100%">'. $ Comment. </ pre>'. '<br> <br>';
print '<pre WIDTH = "100%">'. $ text. </ pre>'. '<br> <br>';
echo '<div align = "center"> = OOOOoooooo oooooOOOO ----- </ div>'. 'Madame';
    }
    }
?>

```

At no time use html except the end when we present the information received from the database. Failure to include HTML tags such as <head> or <body> will not give problems, because these tags are the template from which part.

We understand, then, that the programming of websites are modular. This facilitates the configuration pages, then we just have to choose which module functionality which we use and what position. We also have the possibility, if we have knowledge of our own program if any of the modules available that meets our needs.

Then we analyze the economic cost that this project could have on the market. Bear in mind:

- consider the physical equipment needed for the project has not been bought, because it used existing computers such as personal computers and some of the school.
- The software used is largely free, and it was not used at the university. Therefore, the licenses were already acquired and has not made any additional expense.
- have a computer that we use as a Web server, database and FTP. Therefore neither do any additional expense. If you need a server, there is available a lot of companies that have available web server with support for database free of charge. If growth project could consider hiring a more powerful server.
- The human resource is the only one that can generate an expense. Contant working days 3 hours for the realization of this project to 12 € per hour, the total cost amounts to € 7,020. However, due to my little experience is possible that the project could have been ended with fewer hours.

10. Manual to program modules.

This section is intended as a tool for developers who wish to build modules and style files for the project. As these parts have to live with others of different authors, must meet a series of requirements to ensure that the implementation is satisfactory and not cause conflicts with other modules.

However, the requirements will be the simplest possible and not looking to complicate the work of those who want to work with our platform.

10.1. Structure of the workforce.

As mentioned in previous sections, the template is the basic structure on which to build Web content that publishers want to work. This consists of a basic scheme in the form of host table where different modules:

That is why one of the first requirements is to respect the dimensions of the module depending on the position to be occupied in the table. For example, the title bars must be horizontal, as is the space reserved for them in this way. It is also possible to insert a title bar in the body of the workforce, as it has two parts, and can be used for a title and another for the body of the page. All this depends on the needs or tastes of publisher content. In this case, if the bar is very wide, the body may be slightly distorted.

In addition to these parts, it was considered the incursion of two modules outside this table. Its function is at the discretion of the developer. The modules are not, in principle, impact on the appearance of the website and the website can give the ability, for example, play background music or prepare various statistics.

In total, the spaces are filled title, subtitle, barra1, barra2, cos1, cos2, footer, barra3, barra4, and Variable1 Variable2. The last two are the modules that would be off the table.

11. Structure of the archives of styles.

Cascading Style Sheets (CSS in Catalan Cascading Style Sheets) is a style sheet language used to describe the presentation semantics (the look and formatting) of a document written in a markup language. Its most common application is to design web pages written in HTML and XHTML, but the language can also be applied to any kind of XML document, including SVG and XUL.

We will use this language to set a visual style web pages created by the publishers of content. The structure of a stylesheet is stored in a file with extension css and the following:

```
/* CSS Document */

body {
background-color: white;
color: black;
}

{.t
font-size: 250%;
color: white; charset "utf-8";
```

```

background-color: black;
    }
    {body_title
font-size: 22px;
color: blue;
    }

```

Then give each party:

body

It is the body of the web page. Here you can define the page background and text font. In addition, you can add as many effects as the developer deems appropriate. Examples are the source, the decoration of text, size, separation between letters, margins, etc.

.t

We define the appearance of the title of the web page. In the example increase the font size, color and background color.

body_title

This section is to highlight the titles that we use in the body of the web page, for example, the title of a story.

Apart from this simple fields, others are expected to increase in the future. This documentation will be available on the Web administration and will grow with time. Apart from that, each developer can add your own fields, and as long as the modules used, the web may be more attractive.

11.1. Structure of modules.

As previously mentioned, the modules will be embedded in the structure of the group, composed of a table. Therefore, the modules do not need to include html tags to ensure its presentation, as the template incorporates these elements. For example:

```

<? php

header ('Content-Type: text / html; charset = utf-8 '); // <- ¡Acentos and Enes!

require_once ('../conexion.php');

$ link = mysql_connect ($ server, $ User, $ password);
mysql_query ("SET NAMES 'utf8'"); // <- ¡Acentos and Enes!
mysql_select_db ($ database, $ link);
$ sql = 'SELECT * FROM happy ORDER BY id DESC ";
$ result = mysql_query ($ sql, $ link);
close = $ mysql_close ($ link);

$ Dato 'page';

while ($ registry = mysql_fetch_array ($ result)) {

    $ title = $ registry ['title'];
    video = $ $ registry ['File'];
    $ text = $ registry ['text'];

```

```

    Comment $ = $ registry ['commenting'];
    $ id = $ registry ['id'];
    $ = $ registry project ['project'];
    if ($ == $ projectid project) {
    echo '<a href=" ../modules/reproducer.php?id='. Sid.'">';
    echo '<body_title>'. $ title. </ body_title> ';
    echo '</a>'. 'Madame';
    print '<pre WIDTH = "100%">'. $ Comment. </ pre> '. '<br> <br>';
    print '<pre WIDTH = "100%">'. $ text. </ pre> '. '<br> <br>';
    echo '<div align = "center"> = OOOOooooo oooooOOOO ----- </ div>'. 'Madame';
    }
    }
    ?>

```

This snippet includes only sentences php, html structure unless required to show results. The last six lines insert HTML code using print and echo commands to present the results of implementing the code.

This does not mean that a module can not be composed of HTML code. In the following example we will see html to decorate a title bar with a background image:

```

<table border = 0 = black bordercolor align = center cellpadding = 3 width = 1000 = 2 cellspacing
background = "http://upc-esdim.epsevg.upc.es/inside/contents/1103565510-HalfLife2_1600.jpg">
    <tr>
    <td>
    <? php echo utf8_decode ($ title); ?>
    </ td>
    </ tr>
</ table>

```

At other times, they can be used more programming languages, provided they are compatible with files from other code. For example, this time we use javascript to present the current date:

```

<script language = "JavaScript" type = "text / javascript">
// ----- GLOBAL LOCALIZEABLE
    var d = new Date ();
    var = new MonthName
Array("Enero","Febrero","Marzo","Abril","Mayo","Junio","Julio","Agosto","Septiembre","O
ctubre","Noviembre","Diciembre");
    d.getDate var = TODAY () + "to" + MonthName [d.getMonth ()] + "to" + d.getFullYear ();
// END ----- LOCALIZEABLE
</ script>
<tr bgcolor = "# CCFF99">
<td colspan = "7" height = "50"> & nbsp; & nbsp; <script language = "JavaScript" type =
"text / javascript">
    document.write (TODAY) </ script> </ td>
</ tr>

```

In addition to these examples php, html and javascript, in theory there should be no problems in using other languages. To check compatibility, look in the web documentation of every programming language you want to use.

10. Manual to publish content.

In this chapter, we will focus on explaining to content publishers the overall functioning of the administration web project. Discuss issues such as file hosting, creation of a website, its configuration and recording content.

12.To browse the web can use the menu on the next page:



12.1. File hosting.

The first step to publish content on the Internet to host files. Initially, it was considered the option to accommodate multimedia files on our server, but the risk of overload it is very high and we decided not to give quest service. That is why we recommend looking for a service that meets the needs of each publisher.

Today, most ADSL providers offer their customers a web server hosting files. This space can be used to accommodate female media files that you want to use our service.

In addition, there are a number of network services that offer free space, and can improve the service by small installments. This possibility is left to the discretion of the publisher.

Will be studied in the future, the option of offering file hosting our server. At the moment it is ruled out that option.

12.2. Creating a website.

In the menu "Create Web" have a form that will allow us to register a new website. It is enough to enter a name for it and a short description, although the latter is not essential:

Nueva web

Nombre: *

Descripción:

* Estos campos son obligatorios.

12.3. Configuring the Web.

On the menu we have the option below to configure various aspects of our website, changing the modules that comprise or visual style. The first step is to add a module that adds some functionality

Configurar su página web.

Elija sus módulos:

Seleccione su proyecto:

Seleccione el campo: *

Seleccione un módulo:

* Consulte el esquema más abajo.

To do so we must choose our website, which was the first case we have only one, and select the field you want to change. Then we present a list of modules in the project. We can insert any module in any position, but we must take care that makes sense.

On this page, you can also choose the visual style we like. This will include the colors and style of the font. A little further down, we just have to pick our website and one of the style that appears in the drop-down menu:

O bien, cambie su aspecto:

Seleccione su proyecto:

Seleccione un estilo:

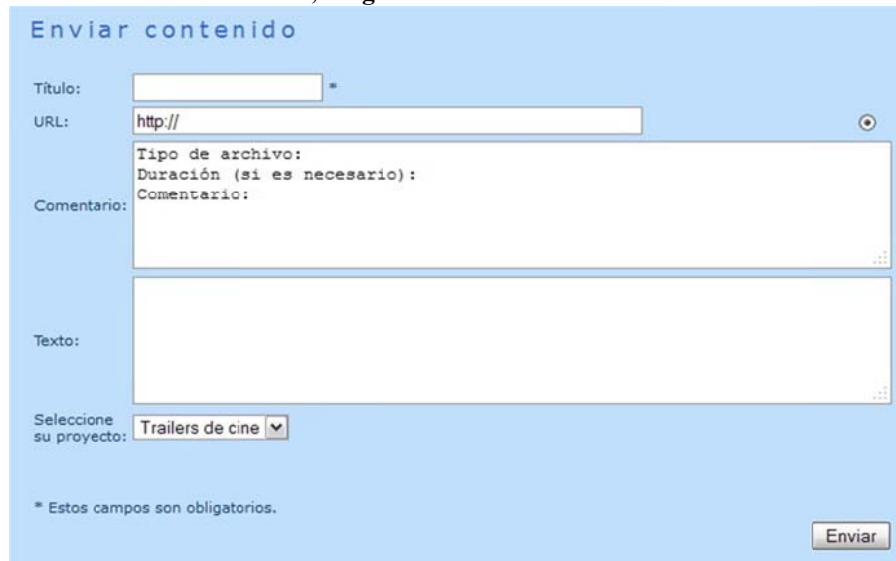
The change, in any case, applies the option to click "Submit". However, this page can only option once. That is, we can not set a module to change the style of the web in a single operation.

12.4. Recorded content.

The only work that remains is then publish content to the site. As we advance, the file hosting be done on an external server. Therefore, in order to publish content, we need the address on file. For example, if we want to publish a video file called "concierto.mp4" need an address like this:

<http://www.servidor.archivos.com/files/concierto.mp4>

Once we have this direction, we go to the "Submit Content" and fill out the form:



The last section is used to choose the site you want to associate the content being recorded. This will make it possible to have different websites, each with different content.

12.5. Visit the website created.

Finally, you will want to visit our creation. How can I do? Well, if our website is called "Trailers cinema", its address will be:

[http://upc-esdim.epsevg.upc.es/inside/pages/trailers of cine.php](http://upc-esdim.epsevg.upc.es/inside/pages/trailers%20of%20cine.php)

We just have to change the name in bold part of our website. No problem using blanks in the name, and not case sensitive, but be careful not to use strange symbols in the name of our website. The result would be something like this:

Example web finalized



13 Conclusions 1

OUR research leads to a Multimedia and/or Hypermedia Living Lab that manages and controls the development of multimedia software and content research fields.

This Lab is not a closed system, but is merely an application consisting of an Open Source platform based on a core that can make threads containing modules (components or objects), not necessarily on a single server with fractal structure and reconfigurable execution. The system core allows to access the modules to allow their reconfiguration or automatically replace them if damaged or missing.

All the particular configurations, feedbacks, control and management information of the users, is performed by a suitable database system.

The complexity of an open source system, with numerous technologies and social aspects involved, should make us understand that this will not be exempt of problems, which are expected to be resolved over time. It is also important to make an effort to translate the entire system into as many languages as possible.

To prevent malware or other not desirable software, a mirror system should be used, one for test and validation, and the other one for final user operations.

Producers may later decide if their contributions are free or paid.

To finish this research, our expectation is to incorporate teams interested in doing more research, developing practical solutions for the end users in the field of Multimedia Engineering research, generating new projects for different technology categories, such as electronics, education, and video. It will also be important to study and predict system growth, to avoid system overbooking.

With the completion of this project we have achieved a tool for publishing different types of content. It is an easy to use tool that requires no technical knowledge to build your website but if you have knowledge of web programming, you can expand by adding new modules.

If you're a content publisher, you have a platform that allows you to build a website and configure it to your liking. Lets you share all types of content in a simple and agile. The functionality provided by the developers of extensions granted wide opportunities to setup your Internet space.

If you're a developer, you have a platform to share your knowledge with everyone and help others to build a website that meets your needs and tastes.

I think if we can properly promote our platform, the community can become a rich and interesting for many people, from programmers and users who want to share something with the community of the Internet.

Also, do not doubt that, over time, some aspects can be improved to provide more functionality and making it aesthetically appealing. Although the project is completed as, new ideas are always welcome and taken into consideration. If I am motivated and interesting ideas emerge, I will continue working to improve the work done.

This work may seem a final project but is actually a research work that has given good results.

To prevent malware or other not desirable software, two twin systems should be used, one for test validation, the other for final user use.

Finally, our expectations are that this research work related to multimedia and TV broadcast, can help other regions with same problem.

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13: Appendix: Software used. In 1

Operating Systems

Windows XP: The OS used at home.

<http://windows.microsoft.com/es-ES/windows/products/windows-xp>

Windows Server 2003: the server operating system used by the university.

<http://support.microsoft.com/ph/3198/es-es>

Ubuntu: Using the laptop. As a support system and testing.

<http://www.ubuntu.com/>

Design and documentation

Day: A program that allows the creation of different types of diagrams.

<http://live.gnome.org/Dia>

Visual Paradigm: This program also allows the creation of diagrams.

<http://www.visual-paradigm.com/>

LibreOffice: free alternative to Microsoft Office.

<http://www.libreoffice.org/>

Coding

Dreamweaver: Tool editing web pages.

<http://www.adobe.com/es/products/dreamweaver.html?promoid=BPBIM>

Notepad ++: Editor source of many programming languages.

<http://notepad-plus-plus.org/>

Kate: Editor source of many programming languages.

<http://kate-editor.org/>

KompoZer: A tool for editing web pages.

<http://kompozer.net/>

Databases

MySQL: Database Manager.

<http://www.mysql.com/>

Other

WAMP: Package including web server, database management system and PHP support. Used for testing. Version of Windows.
<http://www.wampserver.com/en/>

LAMP: Package including web server, database management system and PHP support. Used for testing. Linux version.
<http://www.lamphowto.com/>

Filezilla: FTP Client and Server, used for file transfer server.
<http://filezilla-project.org/>

IZArc: Compressor files used for backup.
<http://www.izarc.org/>

Traductor de Google para empresas:Google Translator ToolkitTraductor de sitios webGlobal Market Finder

2: Using the network for the rescue of local TVs programs also using the work described above.

Keywords — Network distribution, Local TVs, TV firmware, Regular TV channel, Cable TV.

16. ABSTRACT

In this work, we will explain and justify how is possible to recover the missing local TV channels with low cost network architecture. We do not want to use existing web platforms, our research is to have our own system and not depend on others. We also don't want to use either cable or satellite TV devices. Our proposal is a new firmware standard that allows smart TVs identify and link with local channels, and other possible solutions if smart TV manufacturers do not want to change the firmware. What is novelty?, this work has never done With this cost-effective solution and can give happiness to recover local TV of many villages and small towns.

16.1 – Introduction - what happened to arrive at the fall of local televisions?

The crisis and the deficit of municipalities forced the closure of a large majority of local televisions. Our first investigation was to evaluate the losses TVs. The zone object of our analysis is Catalonia and Balearic Islands from Spain in Europe, bordered black line as shown in Figure 1. this research is valid from 2014-2015.



Figure 1: Catalonia and Balearic Islands Local TVs zone.

147 are the amount of Local TVs of our research object. From 2005 until 2008 is a period which all of these TVs stations (100%) were doing analog broadcasting. This was a big deal because population wanted to know what was happening in their little town, listening their own language (Catalan and Mallorcan), watch their sons, the local commerce, the Town Hall politic decisions and other local important events. Also a good opportunity for Audiovisual and Multimedia Journalism assistant scholars before their career end getting enough experience to work for important national TVs or radio stations in the future.

Actually in 2014 the scene was been changed, but why? The answer is not simple. DVB-T multiplex and related Spanish laws forced to channel share between nearby cities. At firsts years the problem was a disagreement between Town Halls, due to politic interests. Then, economic crisis either fully or partially removed local TVs of budget estimations. For these reasons many public and independent local TVs fell. Some of these TVs stations nowadays can broadcast DVB-T, other TVs only can offer web Video On Demand (VOD), the rest disappeared or merged their resources with the survival TVs as shown in figure 2.

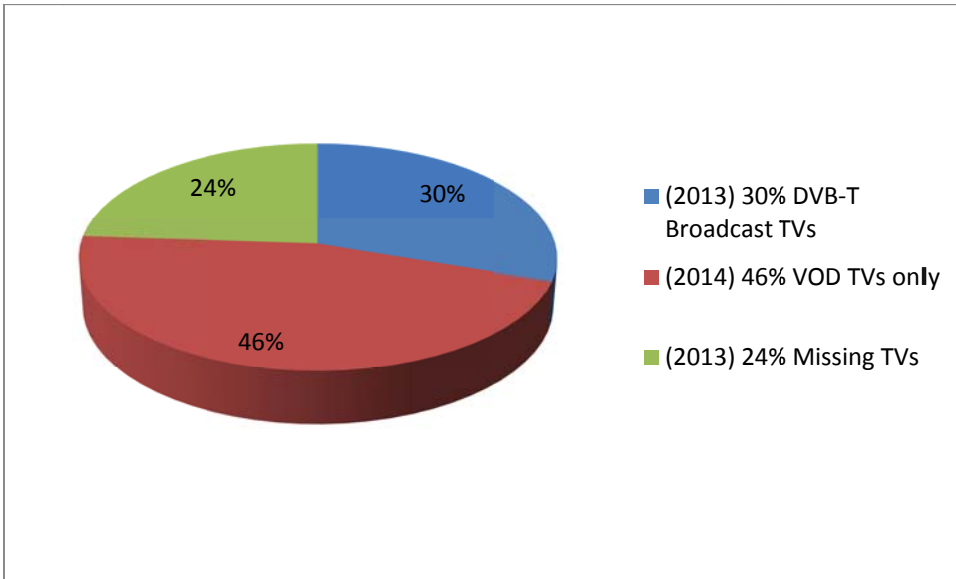


Figure 2: 2014 Catalonia and Balearic Island local TV stations scene.

The question is, are other parts of the world same way affected? The statistical research shows broadcasts cessation evolution [figure 3].

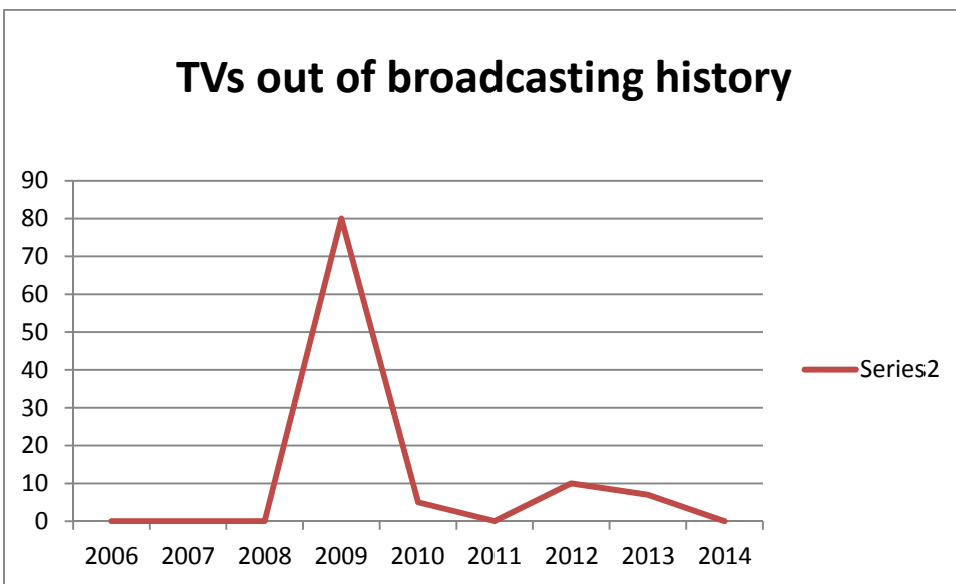


Figure 3: Broadcast cessation report history 2005-2014.

The following known equations with variable x_i as a number of TV stations broadcast cessation at i year and n as a number of years (2009 to 2014 = 6 years), the arithmetic mean is decided by:

$$\bar{x} = \left(\sum_{i=1}^n x_i \right) / n$$

The Standard deviation defined by:

$$\sigma = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n}}$$

Square deviation considering arbitrary 2009 value variable **A** as:

$$S = \sqrt{\frac{\sum_{i=1}^n (x_i - A)^2}{n}}$$

And Coefficient of variation:

$$v = \sigma/\bar{x}$$

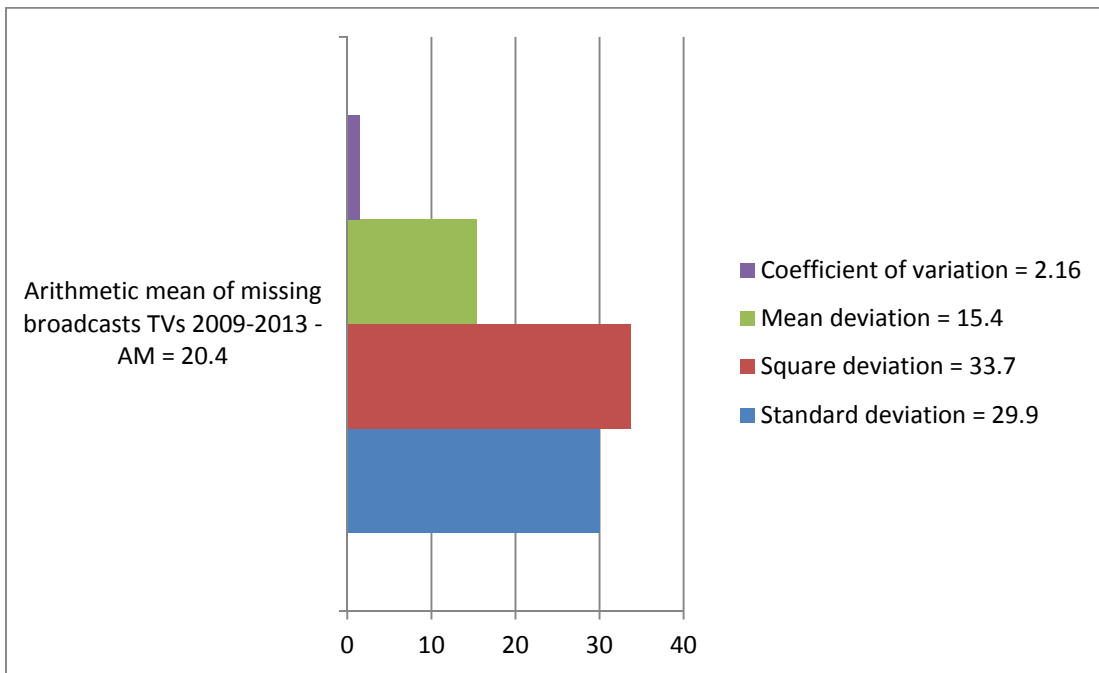


Figure 4: Broadcast 2009-2014 cessation Statistical graphic.

As we can see in figure 4, in this 2009 to 2014 period the calculated deviations are considerably big. This is because the most part of little cities cannot reach an agreement while had too much budget deficits at the beginning of period. Neither is logical that, by example seven towns, must share a DVB-T channel, and four DVB-T similar multiplexed channels must broadcast using the same frequency, covering a big region, absolutely breaking the local TV proximity concept. This justifies our effort to revive the lost TVs broadcasts.

17 - Related work: There is no job like this, so it is novel, but if there are tools to provide a solution to rescue local TV so they can issue their daily programs known as other TV stations. This is what we have been satisfactorily resolved.

18 – TV concepts

But before proceeding we should analyze and take into account a number of concepts about what is or is not a television. If we analyze the television word (remote viewing) all is valid, but availability of different audiovisual content distribution systems some controversy be generated. For us On Demand Video is very similar to the concept of video rent store, a video library to choose from. This category also includes the most popular internet video sites.

Therefore, a television implies some structure and content profile and has a program schedule. It therefore offers real-time streaming, delayed or live, that is able to be watched through media players, TVs directly, or on mobile devices. On Demand video does not match this concept, and this is the reason because we do not consider it a real TV channel.

In the future, it is possible that dominant concept will be On Demand Video, because people can choose what to watch on their devices. Actually TV broadcasting is on, and most of population likes to change channels, as always, and their local television loss hurts to them, 70% of TVs as we show in [1] manuscript point.

18.2 – Playlist alternatives

Two methods would be possible for regular broadcast TV online. The first of the two methods consist of a video server with classic playlist functions, which would begin programming on time and programming emit as online streaming through the corresponding server, see in Figure 4. In this case you will need a module or tool to playlist video broadcast in our system. Powerful TV channels use this method for DVB and online broadcast. This could be expensive for local TV channels.

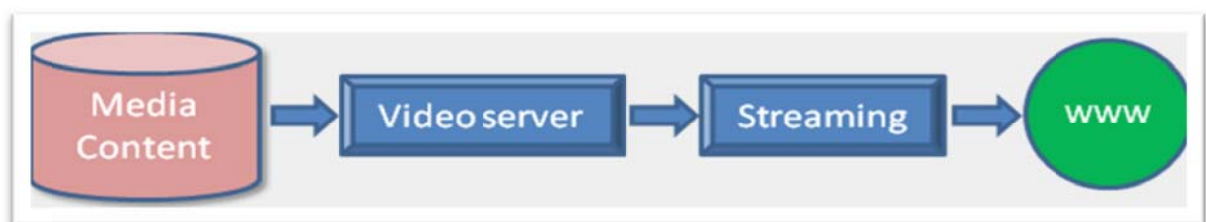


Figure 4: Set of classic TV broadcast.

The second method, which is our preferred, is a player module which manages its own playlist from database. This module, whose functionality is depicted in Figure 5, calculates the programming start time using length time of each clip, allowing it to be at right start point in the playback to the current time corresponding . This second option is more economical and produces the same effect on the end user.

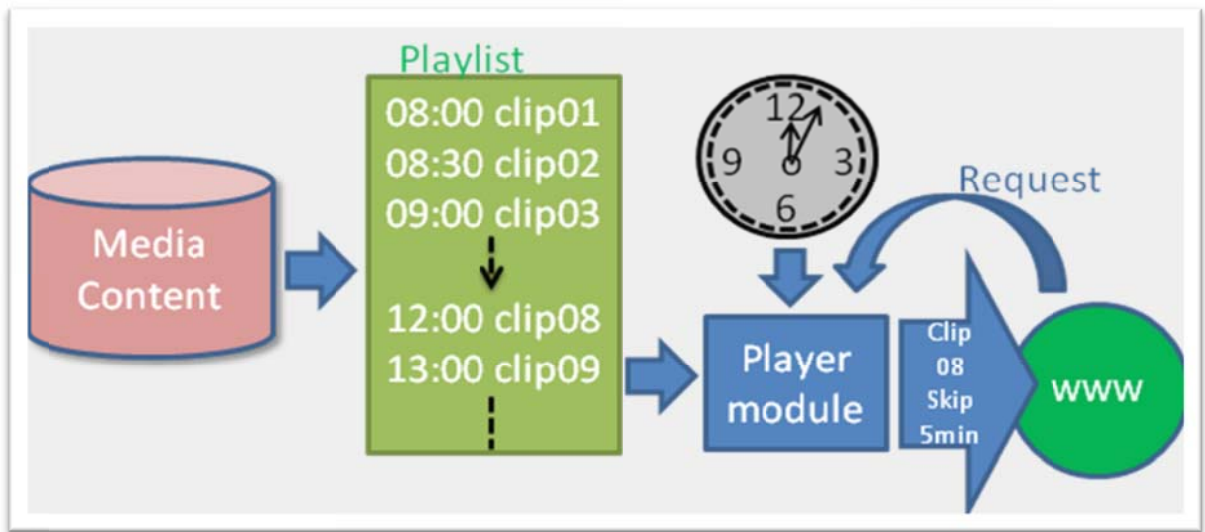


Figure 5: Method of regular broadcast TV with the player module.

To solve this algorithm, with described variables below:

IT = initial local time playlist start

LT = local time at this moment.

VT_n = video duration time, where ' n ' is the number of video from playlist.

IT_n = initial video number ' n ' time start from playlist.

IT_n will easy be defined with the following expression:

$$IT_n = (LT - IT) - \sum_{n=1}^{IT_n < 0} VT_n$$

19 – IEE possible standard to Watch IP video streaming as a regular channel on a smart TV or mobile device

At present, smart devices, TVs, mobile, tablets and others have access to TV channels or On Demand Video over downloaded apps, also with webs that manage a list of channels. For smart TVs we think it is desirable that its embedded firmware should have local IP channels search option, based on ZIP code and TV channel name.

It could be defined a new IEEE standard that lets smart TVs find these channels using a particular string format, by example: (country code-ZIP code-TV channel name). Using a standard internet search tool the TV will find all channels with country and ZIP code specified by the user. Finally, these channels could be added to TV channel list with their respective number. The complete local TVs revival is possible if all of our research work and system is well performed.

If smart TV manufacturers do not want to modify the firmware have a direct alternative to using the fiber optic net 300mbs being supplied daily local television program through its server. Then we explain the method, wiring and how to use local TV the server without requiring internet service provider TV avoiding an economic cost.

20 - How it can be connected to a smart Internet TV program To receive the local TV channel.

Step One, the smart TV is connected to the router using an RJ45 adapter and two RJ45 inputs and outputs. One of the outputs is going directly to the RJ45 of the smart TV, the other uses an RJ45 adapter cable to HDMI. Knowing the IP of the local TV a request is made from the smart TV that receives by the two outputs, if the HDMI port is selected can see the local daily TV program.

Second step, we proceed to present the diagram of connections and components used. The request for the IP of the local TV is through the internet option - web browser of the remote control. The daily program of local TV will be RECEIVED in the web browser, and also in the selected HDMI. Installation for home as it is shown in Figure 6.

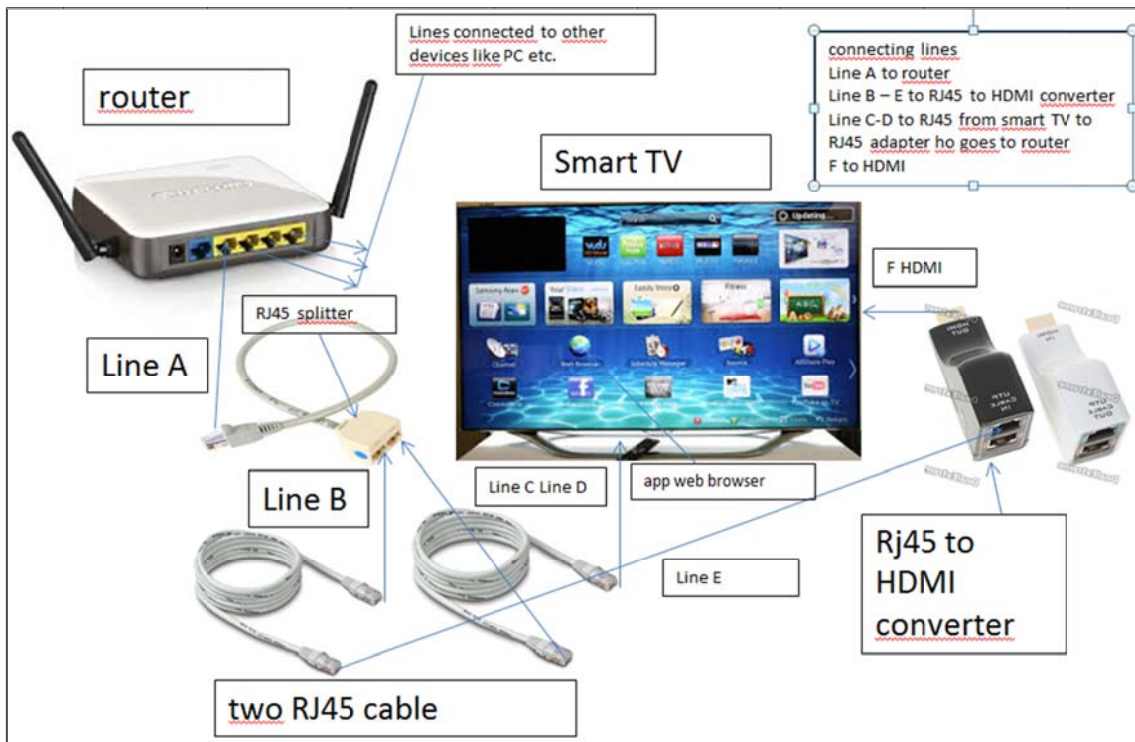


Figure 6: Installation for home.

21. Design plan for local television

22. Introduction

A brief explanation of the architecture of a local television station and will be made to

playlist locate equipment within the route of the television signal.

A description of the flow of the television signal will be made at that is generated until it reaches the end user. Special emphasis will be placed on the equipment of the production of the station.

The following figure graphically represents the steps followed by the signal flow, starting with the contribution network and reaching the end user. Primary network, secondary network, contribution network, collection network, Transport Network, broadcast network, reception for customers, and return channel.

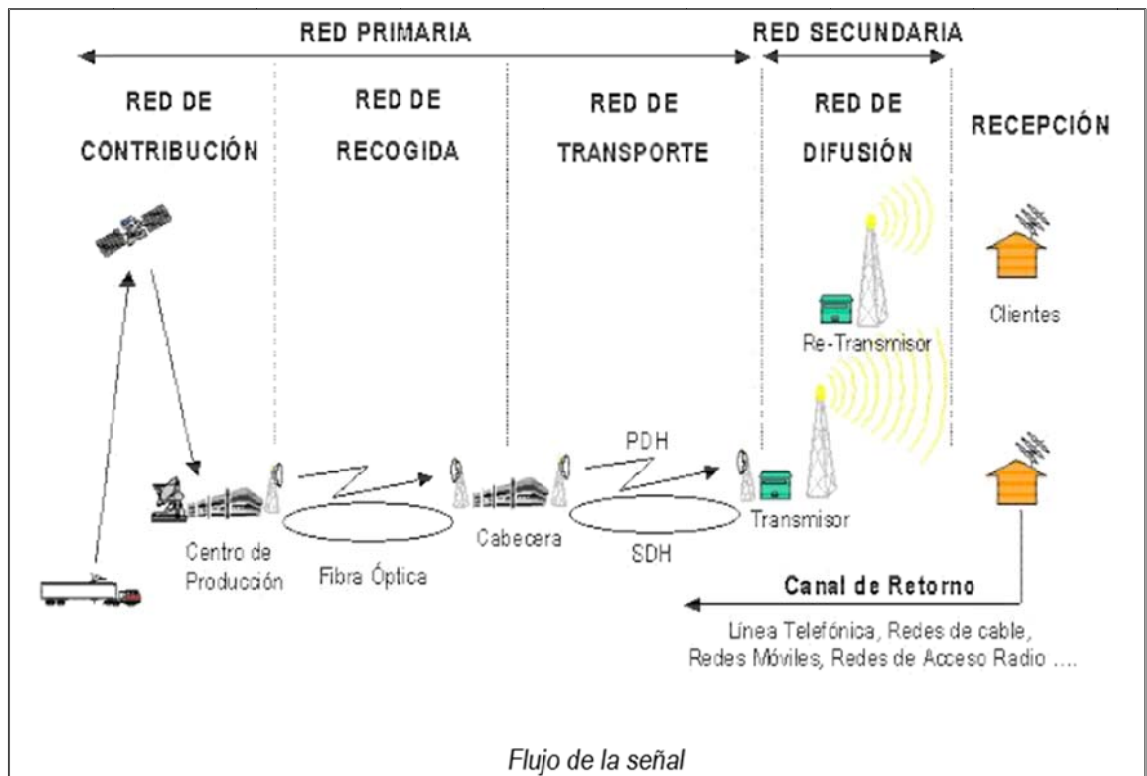


Figure 7: signal flow

First will be the contribution network that makes carrying signals service providers from the places where events are generated until the studios and between studios. Therefore, at this stage you can differentiate the event and sending the information recorded to the production centre.

If the event is recorded to be broadcast delayed, it will be transported personally by the team that generated the event. Instead, when you want to broadcast live, if the place from which the event will issue permits, a dedicated from that point to the production center will be leased link. In the event that the event is emitted from a secluded spot and not presents the possibility of wired connections, radio link is needed.

The production center is the place where it is generated and processed a series of contents.

Depending on the size and capacity of the station, it can be reduced to a simple content editing center, or may even contain special equipment sets and to generate own production.

The following figure shows a diagram with the processes and areas involved in a production:

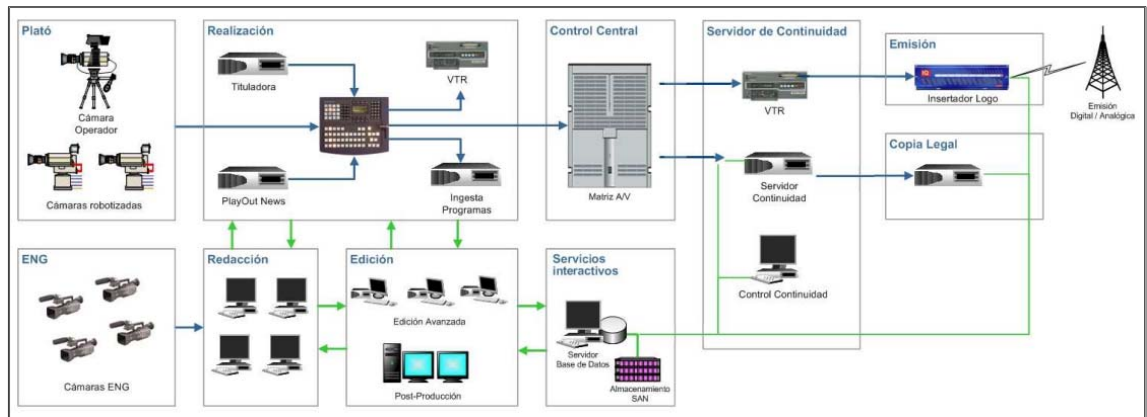


Figure8: Set, performance, central control server continuity, broadcast, recording legal tools such as cameras, writing, editing, and interactive services.

In the regional and local television of considerable size it is common to have at least two sets. The largest of these is usually a multi-tiered set to accommodate the public, aimed at competitions, debates, performances, etc., and the smaller is intended to carry out informative.

From the living embodiment the production process controls and visual and auditory treatment program is decided. One can distinguish four main areas:

- Production area: it is the place from which the director directs the program.
- Video ENG Control Area: It is the place from which the light and the technical quality of the image goes.
- Audio control area: where the quality of the audio signal is guaranteed.
- VTR Area: it is the place where the recorders and players are placed to sandwich previously recorded image sequences.

The mobile unit is in charge of covering those acts, events or events that are considered of interest for dissemination.

The mobile team will have different equipment depending on whether broadcast live or recorded event and then make the corresponding realization in the study.

And in the case where it is wanted broadcast live, in addition to recording the event, it should be given the desired signal to transmit at the same time format, through a radio link or through a leased connection.

The newsroom is where journalists write the scripts for the program.

After recording a program and its implementation, or the arrival of information through a mobile computer is passed to the post-production and editing room. In this room they are cut, spliced, effects, texts are introduced, etc. in different videos to the desired end result.

Also in this room the soundtrack of a program is built, uniting voices, ambient sound, music, sound effects, etc. In live programs, the sound is recorded while the recording. For this, an audio mixer that besides pick up the signal from the microphones study also adds music and sound effects used previously recorded.

This room is also responsible for creating optical illusions by manipulating the recorded images. Apart from the effects of the mixer (such as fades, wipes, etc.), today's effects come from external analog sources and are digitally generated by computer.

The broadcast room, continuity and technical control is responsible for monitoring the quality of content broadcasting and continuity of the issue.

It will consist of a digital video recorder and digital video server that allows precise and playlist generation and modification, editing and replacing an agile way.

This room will be the main part of the chain, from which you select both audiovisual content as interactive services and data broadcasting. Therefore, the necessary redundant elements to ensure at all times the operation of the canal, including items providing redundant power (UPS and generator) to the video server computers and continuity will be implemented.

Also, requirements and legal, we need a computer to copy all programming that is emitted by the chain, recording and storing such content for the minimum time limit.

Another important new part of the digital television system of analog block, are the technical means for the development of content for interactive services.

The inclusion of this information on the transport stream intended for broadcast network is done in the digital header provided by the broadcast operator. Therefore, the equipment for the production of interactive content in production is limited to an application server with the necessary software. In many cases, especially at the local level, the provision of such services is left entirely broadcast operator, so the production site completely lacks this type of equipment.

These signals are sent to the multiplexing or head downtown. This shipment is usually performed by a dedicated, usually with wireless link. Generally, in the field of local digital television, the header file is usually very complex, and can be located even in the same location as the broadcast center.

In the head these signals are multiplexed to form a single transport stream for distribution called "Transport Stream". This frame includes information on the various programs and service information, program guides, interactive applications, etc. of different programs.

Once the multiplexing, the resulting frame is sent to distribution centers by transport network. This network is usually composed of radio links due to the complexity of access to high points where the centers are often located dissemination. The broadcast center (Transmitter) receives the multiplex from the transport network, modulates the signal according to DVB-T, and emits radio frequency, within a channel of 8 MHz in the band EBU-IV or boiling V UHF toward the coverage area.

The "shadow zones," or areas where there is no coverage of major distribution centers, can be covered by relay transmitters (or gap fillers), which are based on a re-amplification of the RF signal from the main centers.

The last link in the chain of transmission of the TV signal receiver is the user, who in any case must be able to modulate the RF DVB-T broadcast signal and extract the transport stream for subsequent decoding. Custom Installation consists exclusively of an antenna system, identical to that used in the case of conventional analog TV, an amplification system that ensures sufficient signal level in the channel to receive and a DTT decoder addresses perform demodulation and decoding DVB-T aforementioned.

The return channel can be implemented on the telephone line, cable networks, mobile networks, radio access networks, etc. The user equipment communicates with the service provider being used at this time to allow the user to interact with applications that provides DTT. The return channel would signal the user to an application server provided by the content provider.

In parallel to the exposed stages, a network management interconnecting elements Manage / oversee the DTT network can be as headers, distribution centers Transmitters, etc. and ensuring the continuity and quality of service at all times.

Above described equipment playlist as a digital video server that allows playlist generation and modification, editing and replacing a quick and precise manner, all within the broadcast room, continuity and technical control.

Depending on the size and capacity of the station, the team can share room with block equipment, and can be a PC or laptop.

There are several software vendors for TV playlist, with very different products several manufacturers playlist software for TV, with products of very different range. This software type with the required functionality and high reliability, has a high cost price.

Video LAN is a free software that allows playback of media content, and in turn allows the application developer to access its functionality through the libvlc library.

Hence the purpose of this PFC, which is to develop software for functional TV playlist, reliable, more economical and more importantly, because developable VideoLan equipment works continuously provide greater functionality for player arises.

23. Background

Different layouts manufacturers in the market, which allows for a great competition and, consequently, different ranges depending on the budget available.

A brief description of some of the layouts that found most interesting, is made either by its sales success in the market, its advertising network, its user interface, performance and compatibility with other equipment, and technical service.

23.1 Igson-Automatización.TV

Igson-Automatización.TV company offers a wide range of programs to automate the issuance of a television channel.

Has several solutions like Igson-Playout Automation, a very complete automation solution for TV stations that unites all functions necessary for on-air playout in one program scrutinize playlist (playlist), control playout equipment and management of databases, thus operation of the compact and easy to use.

Your video intake program is designed to automate introduction video, computer-controlled process, the intake from VRT (video-recorder), satellite or any other source. For those who need to find a solution quickly, it offers a video server type "channel in a box" (channel in a box) that includes software playout, automation software, scheduler, graphics and character generator, and ingestion. As a complete solution, it is ideal for demanding television channels.

Your Igson-MAM (Media Asset Management) solution is capable of transferring files between storage "on-line" and "off-line" based on user-created filters can also group files, assign metadata, and search the of data. Furthermore, it communicates with automation playout, among other features.

To superimpose images, text, clock and issuing alerts offer complete solutions for the graphic on TV.

They also have compact solutions for small and medium channels, community or local channels and closed-circuit channels.

23.1.1 Igson-Playnow

It is a flat layout with Automator to ensuring the continuity of the issuance of a community channel, a local television channel or a closed circuit, among others.

Totally reliable and easy to use, it is designed to meet the requirements of broadcasters who want a professional Automator and playout with inserter graphics and logos, and maximum value.

Igson-Playnow is a new product within the broad spectrum of solutions for television, because although it is directed to community television, local television stations and TV channels closed circuit or not very high budget, which emphasizes the high level of professionalism with a maximum degree of reliability and stability, and low cost. It can be used in low-definition (SD) and high definition (HD). Supports file formats most commonly used as MPEG2, MPEG4 and H.264 (MPG, MP4, MOV, MXF, AVI ...). It offers a software-based automation for SD and HD playout can be used with standard PC system. Includes option to webcast (streaming) Windows and Flash.

It includes:

- Two channels of playout HD or SD video (one playout channel + 1 channel preview)
- Automation of continuous broadcasting, playlist with unlimited number of events
- Supports all commonly used files in the same playlist. Among them, mpeg2, mpeg4, h264, MXF and GXF (AVID), Mov, AVI, WMV, XDCAM SD / HD, Avid DNxHD MXF MPEG-2 Long GOP MXF AS-03, Quicktime, Windows Media.

- Playout of static images: JPG, PNG, etc. (eg, if the issue is not 24h, image for downtime of the issue, without -bucle- video loop).
- Functionality "time-event" event is played at a precise time (eg. News).
- Functionality "Timer" for football matches, debates, etc. countdown
- Possibility of last minute changes in the playlist
- Reports instant operation (as-run reports).
- Database with several metadata
- Channel preview of the videos on the PC screen.
- logo inserter (up to 2 at a time)
- Ability to print playlists.
- Countdown clock duration playlist.
- Search the database user ID and description, sorts the results by ID, description, duration, file type, among others.
- Control of audio through the Master
- Save the audio levels for each clip and automatically set at the beginning of issuance.
- Folders containing files are organized in a tree.
- Choice of live-event in the playlist, for live broadcast events.
- Direct applies through video passing the DeckLink card (must be SD or HD keyer)



Figure 9.

23.1.2 PlayNow Plus Igson options:

The option of completing the playout Igson-PlayNow with a program of logos and graphics inserter, overlaying alerts, tickers, images, text and clocks are provided. Text alerts and tickers can be transient background colors with various levels of transparency and Unicode character support both from right to left and vice versa.

- graphics and character generator
- Crawls
- Tickers
- Watches
- Image sequences
- Effects: motion, blur, drop shadow



Figure 10.

23.1.3 Igson - Playout Automation

This is an application of playout with unparalleled reliability and easy handling. It is playout software for intuitive television stations, an automation solution that unifies all functions necessary for on-air playout in a single application. Performs control of the playlist (playlist), machine control playout and management of databases, thus achieving a design as possible simplified system for ease of use.

The computer control is achieved using COM ports or TCP / IP converters com ports, so it does not engage / involve the proprietary hardware. It also handles video servers from different manufacturers in the same playlist.

It is distributed with other software, separate to create playlists, which is an interface to application traffic from different manufacturer's application.



Figure 11

Characteristics:

- Includes drivers for 64 teams.
- It has an expandable system of easy installation and expansion. Installation (set up) can take only 10 minutes.
- Controls video servers into a single playlist, even if these servers are in different brands.
- Multiple redundancy options: 1 + 1 (mirror), N + 1, only equipment
- Server crash detection
- Web Interface monitoring - monitors what is in the air using an Internet browser (Internet Explorer, Firefox, etc.).
- Editing drag and drop playlist, Edit List also available separately.
- Several audio alerts
- Multiple timers, real time clock and stopwatch.
- Manual control and status feedback information for all devices at all times.
- Timer for all devices that puts in play, allowing semi-automatic equipment control.
- Folders (folders) definable easy for users to create, and subfolders (subfolders) that organize the database as required.
- Search the database by several parameters (ID, decryption, etc.), support wildcard, ranked results.

23.2 DVD Player

DV Player is a solution of continuity professional MPEG2 TV channels used for automated broadcast TV.

Everyday use in real television showed their strongest sides and now the software is known as an ideal for small and medium TV thanks to their capabilities and low cost that has a solution. Especially television operators that do not have 24 hours and perform their signal from video files.

In the latest version, DV Play 6 based on its successful predecessor DV Play May and requests from customers, we have added significant new enhancements such as libraries Meta tag, modern Windows 7 style interface (allowing adjust and attach each window). The main objective of DV Play 6 is to create playlists and design faster and easier titles. including titles at no additional hardware cost, as a mixture of titles on the signal made from a video player device. New titles v.6 have an option to play 3D animations and supports Unicode.

The first middle-class with a CPU like Intel i3 or i5, 3GB RAM, HDD SATA 1TB (not necessary RAID configuration) and specialized hardware - - a graphics card in common to work with the DV Play software stage two computers will be needed and Matrox (for analog signal) or Deck link (for SDI signal). You will also need a second computer with specifications like an ordinary office PC, which used to creating playlists and design titles.

<http://dv-play.com/espanol/index.htm>

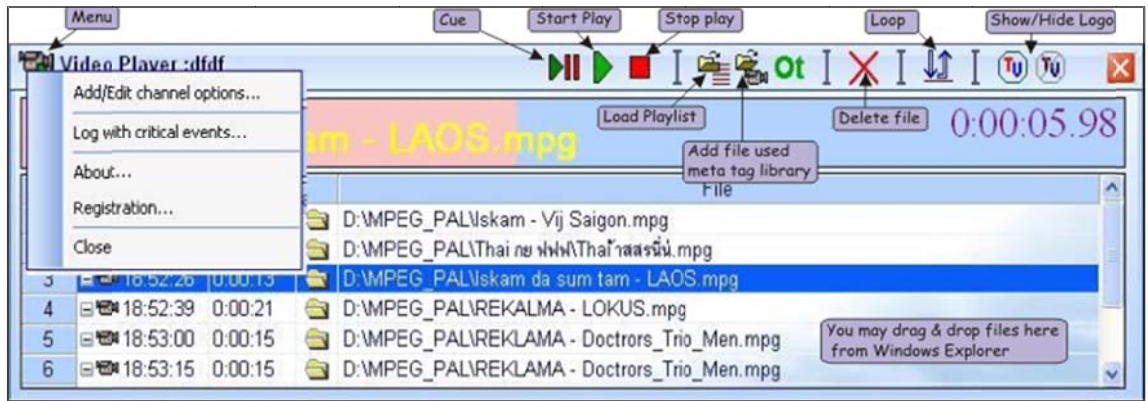


Figure 12

23.3 VSN LIVECOM

LIVECOM VSN is a studio playout system based on engine vsnmulticom, automation solution VSN continuity with over 20 years of history and hundreds of customers worldwide. Controls up to 16 channels of video server, with provides 4 rundown A / B / C / D, 4 auxiliary channels and redundancies. It supports MOS protocol and integrates with the tool journalist VSN, VSNNEWS and systems news from third parties as news or ENPS, among others, making integration with existing systems is quick and perfect to ensure solid and robust playout.



Figure 13

Revolutionary architecture

VSNLIVECOM is designed seeking simplicity, reliability, flexibility and high availability. It has a revolutionary architecture composed of a playout engine and a new client-server model allows multiple clients to connect to the application at the same time playback engine with different configurations and controlling different channels, making it one of the systems most advanced market playout.

Channel Management and Playlists

The VSN playout system manages multiple rundowns (playlist) in parallel, being able to control up to 4 channels (A / B / C / D) mode list, in sequence, and with manual handling of events that can be chained different order of the playlist, enter loop mode, etc.

Channel video server

Operation of up to 8 channels (CH) auxiliary server. They used to emit different playlists to the contents; for example, to project studies plasmas. On these channels playout system allows study VSNLIVECOM clip lists with loop functions, trim, slow motion, etc.

Dynamic configuration

VSNLIVECOM playout system lets you change settings without stopping the operation. The configuration change to enable or disable the equipment without stopping the broadcast. You can customize the view of operation of the interface, for each study and operator, so that always keeps the customization by the user and / or study.
<https://www.vsn-tv.com/es/soluciones-broadcast/sistema-de-noticias/playout/>

23.4 Stream Labs

Stream Labs, founded in 1991, is a designer and manufacturer of automation systems for emissions and design TV channels broadcast market leader. Stream Labs offers high quality solutions for TV studios, central and regional channels, cable or satellite TV. The excellent cost-benefit ratio, high quality products, the latest technologies based on the latest innovations in the television industry, and a knowledgeable technical support, are some of the factors of our success in the markets of automation and design local and international broadcast.

Among the software that produces the following are selected by way of example:

TV: Tele is a robust server for playback and qualifications contained in the air.

This software provides automation of air emission study tv by inserting into a schedule of programs to be issued, inserting regional advertising within the timeline of the

issuance of the central channel, adding titles, overlaying fixed or animated logos, generating clocks and much, much more.

The application does not require any additional equipment (synchronizers, mixers, transcoders, nonlinear editing systems, etc.) and allows to execute graphic information, video and audio overlay directly on the signal passing through the plate.

Oplan: OPLAN v2.3 is a system for automating the process of producing a television company. The system supports all stages of the operation. From the content ingest, description and preparation, creating preliminary arrangements and daily broadcasting schedules, registration of commercials and arrangement of commercial blocks, preparation and dissemination of automation, control and analysis broadcasting the results.

Alpha Pro 2.0: Alpha Pro 2.0 is an application for character generation, simple and friendly interface. Alpha Pro lets you create and display titles, rolls, crawls, commercial blocks, logos and more.

The program guarantees freedom infinite design possibilities, all sources, three-dimensional shadows, semitransparent masks, textures, complex multilayer compositions, animation, etc.

23.5Other

Channel.Maker

<http://www.wtvision.com/es/channelmaker>

VirtualPowerVideoServer

<http://www.impactovirtual.com/VirtualPowerVideo/>

24. Tools used in development

Here they are to mention the tools used for application development, as well as necessary for use.

For the development of the application:

- 1) Delphi development environment
- 2) software library VideoLan and libvlc
- 3) specification of the switching matrix V / A TZMXXX

To use the application:

- 1) PC or laptop with 2 video outputs
- 2) 2 monitors
- 3) switching matrix V / A TZMXXX

24.1 Programming Environment

Embarcadero Delphi, formerly known as CodeGear Delphi, Inprise Delphi and Borland Delphi is a software development environment designed for general purpose programming with an emphasis on visual programming. In Delphi programming language used as a modern version of Pascal called Object Pascal. It is commercially produced by the American company CodeGear (formerly Borland developing it), acquired in May 2008 by Embarcadero Technologies, a group company of Thoma Cressey Bravo, a sum of around \$ 30 million. In its various forms, can produce executables for Windows, MacOS X, iOS, Android, GNU / Linux and the .NET platform.

CodeGear was spun off from the company Borland, where Delphi was originally created, after a process that was first intended sale department development tools [1].

24.1.1 Use and variants

A common use of Delphi, but not the only, is the development of visual applications and database client-server data and multilayers. Because it is a multipurpose tool, it is also used for projects of almost any type, including console applications, web applications (eg web services, CGI, ISAPI, NSAPI modules for Apache), COM services and DCOM, and operating system services. Among the most popular applications currently stands Skype, a program of IP telephony.

Delphi initially only produced binary executables for Windows: Delphi 1 for Win16 and Win32 Delphi 2 was introduced.

24.1.2 The programming language

Delphi is based on a version of Pascal called Object Pascal. Borland in recent years argued that the correct name of the language is Delphi, possibly due to claims of brand, but in their own manuals name appeared as Object Pascal language, so the developer community has largely adopted this change (called Enlightenment, as Borland). Object Pascal expands the functionality of the standard Pascal:

- Support for existing object oriented also from Turbo Pascal 5.5 programming, but more evolved in terms of:
- Encapsulation: declaring private, protected, public parties and published classes
- Properties: new concept would then have adapted many other languages. The properties allow using the syntax allocation for setters and getters (in Delphi, setters: write and getters: read).
- Simplification of the syntax of references to classes and pointers.
- Support for structured exception handling, significantly improved error handling of user and system.
- Programming events (event-driven), possible thanks to the active event delegation technique. This technique allows the method to assign an object to respond to an event launched on another object. It was adopted by Niklaus Wirth, author of Original Pascal, and incorporated into its other languages like Component Pascal.
- Implementation Methods, which contain procedures and functions.
- Management of simple inheritance, allowing the reuse of code, widely used in the development of components.
- An important part, which is highlighted, Multithreaded Programming.

The power of Delphi programming language, is based primarily on the management and administration of database concept in which it is repotenció to become an important tool for developers, requiring speed and handling large amounts of data, based on a widely varied programming language Object Pascal.

This allowed the novice (beginner) and advanced developers have a clear and easy to use, modern, capable of running at high speed, intrinsic procedimentos, allowing immediate results and low cost tool. Among its main

features, highlights the attractiveness of the final product, due to the support of its graphical interface development, so it is in the category of visual languages, but not all goodness, a disadvantage to non-visual programs, is the great amount of memory it used and its executable is too large compared to one made in C, but this disadvantage is offset by the development time of an application; space is sacrificed, but speed gains.

This development tool allows characteristics emulate the so-called low-level languages. He works both in console mode, as in Windows graphical environment, there is currently a Linux version.

24.1.3 Components

Delphi gave a very good idea to use components that are reusable pieces of code (classes) that can interact with the EID at design time and perform a specific function at runtime implementation. From a more targeted approach of the tool components are categorized as all objects that inherit from the class TComponent where necessary to interact with the development environment functionality, dynamic loading from streams and freeing memory is implemented using a hierarchy . A large part of the components are available for Delphi controls (derived from TControl), which encapsulate the elements of user interaction such as buttons, menus, scroll bars, and so on.

Delphi includes a well-designed class library called VCL (Visual Component Library, Library of visual components) and, versions 6 and 7, a parallel platform called CLX hierarchy. This is also included in Kylix. These hierarchies of objects include visual and non-visual components, such as those belonging to the category of data access, with which you can establish connections natively or via intermediate layers (such as ADO, BDE or ODBC) to most of the bases relational data on the market. The VCL is also available for .NET development.

In addition to using a program in these standard components (buttons, grids, data sets, etc.), you can create new components or improve existing ones, extending the functionality of the tool. On the Internet there are a large number of components, both free and commercial, available for projects that do not suffice them that already come with the tool.

24.1.4 Events

Delphi can easily run pieces of code in response to actions or events (events) occurring during the time a program is executed. For example, when a button is pressed, the VCL captures the standard Windows notification, and detects if there is any method associated with the OnClick event of the button. If so, orders the execution of the method.

Events may be generated due to the reception of signals from elements of hardware such as a mouse or keyboard, or can be produced by performing an operation on an element of the application (such as opening a data set that generates the BeforeOpen / AfterOpen events). The VCL has proven to be well designed and the control you have over the events it is sufficient for most applications.

24.1.5 Databases

One of the key features and benefits of Delphi is its ability to develop applications with connectivity to databases from different vendors. Delphi programmer has a lot of components to connect, handling, presentation and data capture, some of them released under open licenses or free code. These data access components can be linked to a variety of visual controls, using the object-oriented features, thanks to polymorphism language.

In the component palette can be several tabs to make a connection to databases using different layers or motor connection.

There are engines which allow you to connect to databases from different vendors such as BDE, ADO or dbExpress, which include drivers for the most popular formats.

There are also components for direct connection to a number of specific databases: Firebird, Interbase, Oracle, and so on.

A brief summary (still currently collected) connecting the layers available for most popular data base:

- Interbase / Firebird: IBX (InterBase Express) IBO (IB Objects), MDO (Mercury Data Objects), * dbExpress, BDE, FIBPlus, Zeos
- Oracle: DOA (Direct Oracle Access), NCOci8
- dBase: BDE
- FoxPro: BDE
- Paradox: BDE
- Microsoft SQL Server: BDE, ADO, dbExpress *
- MySQL: Zeos (native) * dbExpress, BDE and ADO (using ODBC)
- PostgreSQL BDE, ADO, ZEOSDBO

3.2 VideoLan

VideoLAN is a complete software solution for video streaming, developed by

students from Ecole Centrale Paris and developers from around the world, under the GNU General Public License (GPL). VideoLAN is designed to stream MPEG video over networks with large bandwidth capacity.

24.2.1 Overview

The VideoLAN is a free software distributed under the GPL which integrates various audio and video codecs, as well as different types of containers and various protocols

streaming. It allows multiple streaming and video on demand (VOD). It can also be used as a server both transmit unicast and multicast in IPv4 or IPv6. It uses libavcodec library from the FFmpeg codecs [17] project to handle audio and video formats you work, using the libdvdcss DVD decryption library to play encrypted DVDs.

It is one of the most independent players in terms refers platform, with versions for Linux, Microsoft Windows, Mac OS X, BeOS, BSD, Pocket PC and Solaris. In Windows, Linux and some other platforms, VideoLAN includes a Mozilla plug-in that lets you view some Quicktime and Windows Media files on web pages without having to use an external player.

From version 0.8.2 on, VideoLAN distributed an ActiveX plugin that allows you to view video inlaid in HTML pages when browsing with Internet Explorer.

24.2.2 Diagram

The VideoLAN is an application that can perform both the task of transcoding as to reproduce, as can be seen in Figure 14

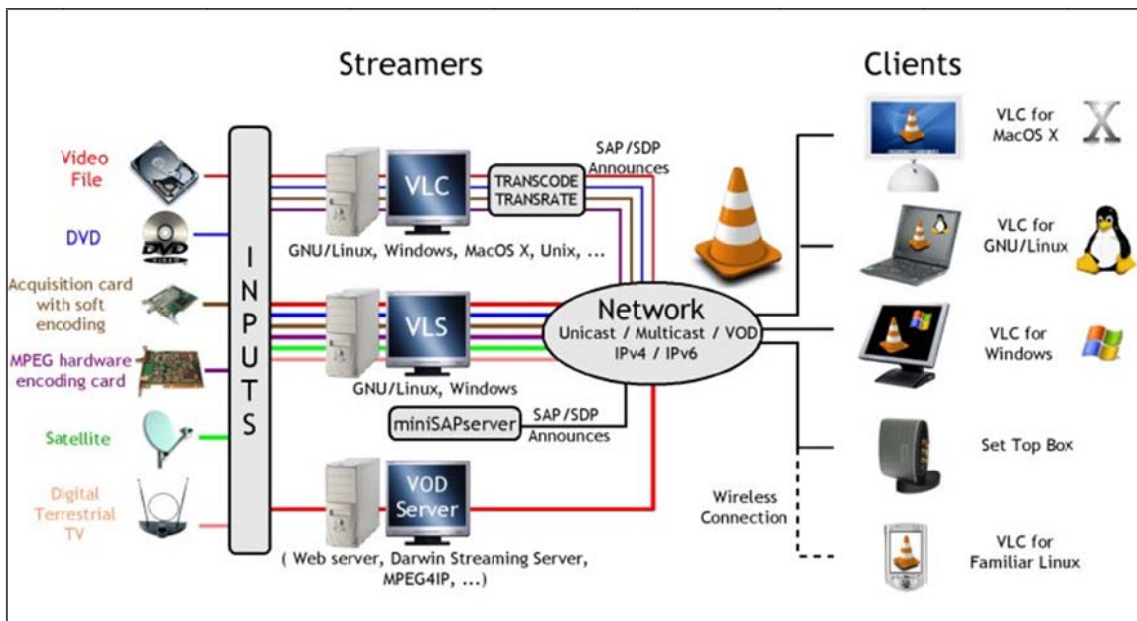


Figure 14

24.2.3 Composition of VideoLAN

VideoLAN is a software development project consists of two multi-platform applications:

- **VLS (VideoLAN Server)**. Streaming media server. You can stream MPEG-1, MPEG-2 and MPEG-4, DVD, digital satellite channels, digital terrestrial television channels and live videos on the network in unicast or multicast. Ideal for distributing video over high-bandwidth networks files Band will allow streaming directly to a machine by IP unicast, multicast set of machines IP. It plays videos from files and DVD, MPEG capture cards and DVB cards. Currently it is not in high development, so we recommend using the streaming capabilities of the VideoLAN client.
- **VLC (initially VideoLAN Client - VideoLAN Client)**. A media player. It is capable of reproducing audio and video formats most widely completely autonomously with an excellent result thanks to a subsequent image processing and superior quality sound. It can be used as a server to stream MPEG-1, MPEG-2 and MPEG-4, DVD and live videos on the network in unicast or multicast files; or used as a client to receive, decode and display MPEG streams under multiple operating systems. It supports for platforms such as Windows, Linux, Mac and even set-top box.

24.2.4 New work

Recently, we are developing a project called VLMA (VideoLAN Manager). This is an application to treat television broadcasts, received digital terrestrial or via satellite. It is also capable of streaming audio and video. It consists of a daemon (called VLMad) and a web interface (VLMaw). It is being developed under a GNU Public License like VLC media player.

24.2.5 formats

- Files can read: UDP / RTP unicast or multicast, HTTP, FTP, MMS, DVD, VCD, SVCD, CD Audio, DVB (Windows and Linux only), Video acquisition (via V4L and DirectShow), RSS / Atom sources, and files stored on your computer
- formats with audio and embedded video: 3GP, ASF, AVI, FLV, MKV, QuickTime, MP4, Ogg, OGM, WAV, MPEG-2 (ES, PS, TS, PVA, MP3), AIFF, Raw audio, Raw DV, FLAC, MOV.
- Video formats: Cinepak, DV, H.263, H.264 / MPEG-4 AVC, HuffYUV, Indeo, MJPEG, MPEG-1, MPEG-2, MPEG-4 Part 2, Sorenson, H.263 (video deYouTube), Theora, VC-1, VP5, VP6, WMV
- Subtitles: DVD, SVCD, DVB, OGM, SubStation Alpha, SubRip, Advanced SubStation Alpha, MPEG-4 Timed Text, Text file, Vobsub, MPL2, Teletext
- Audio formats: AAC, AC3, ALAC, AMR, DTS, DV Audio, FLAC, MACE, MP3, QDM2 / QDMC, RealAudio, Speex, Screamer 3 / S3M, TTA, Vorbis, WMA

24.3 libvlc Library VideoLan

The library libvlc represents the underlying API VideoLAN. The VideoLAN player,

VLC called, it is in fact a simple wrapper libvlc access to library. The

libvlc developers can use the library to take advantage of features implemented by VideoLAN complex.

The libvlc library is distributed as a shared library, which allows the application developer to access the functionality of the VideoLAN without having to start from scratch encode the same.

PasLibVlc is the interface to this library for developers in Pascal.

The libvlc library consists of eight modules.

24.3.1 Exception Handling

Exception handling is the functionality provided by the library for error handling.

The functions defined in this module and their description is detailed in Table 1.1:

REPRESENTATION

24.3.2 Core access to VideoLAN

The functions of this part is the most important, as are those that allow you to create or destroy instances of the VideoLAN application.

The rest of the modules that are highly dependent on the body that has been generated, that is, if you have not created an instance before, will not be able to do anything in any of the other modules as it is always used from an instance .

The functions defined in this module and their description is detailed in Table 1-2:

<u>libvlc_new</u>	Creates and initializes an instance <u>libvlc</u>
<u>libvlc_release</u>	Increases counter <u>libvlc</u> instance, and destroyed if reaches 0
<u>libvlc_media_new_location</u>	Create a media object to a particular <u>mrl</u>
<u>libvlc_media_new_path</u>	Create a media object for a given file path
<u>libvlc_media_release</u>	Increases counter media object, and destroys the object if reaches 0
<u>libvlc_media_get_mrl</u>	Gets the <u>mrl</u> from a media object
<u>libvlc_media_player_new</u>	Creates a media player object empty
<u>libvlc_media_player_new_from_media</u>	Creates a media player object from a media object
<u>libvlc_media_player_release</u>	Increases counter media object player, and destroys the object if it reaches 0

Table 1

<u>libvlc_media_player_set_media</u>	It sets the media object that will be used by the media object player
<u>libvlc_media_player_get_media</u>	Gets the media object <u>object</u> used by the media player
<u>libvlc_media_player_set_hwnd</u>	Sets a window handle (HWND) API Win32 / Win64 where the object should display the media player video
<u>libvlc_media_list_new</u>	Create an empty media object list
<u>libvlc_media_list_release</u>	Increases counter media object list, and destroys the object if it reaches 0
<u>libvlc_media_list_set_media</u>	Associates an object with a mean average list object
<u>libvlc_media_list_media</u>	Gets the media object from the media object list
<u>libvlc_media_list_player_new</u>	Creates a media player object list
<u>libvlc_media_list_player_release</u>	Increments the counter of a media object player, and destroys the object if it reaches 0
<u>libvlc_media_list_player_set_media_player</u>	Set the media object player that will be used by the media object list player

Table 2

24.3.3 Management playlist

These functions include all methods related to the functionality of playback control. That is, it allows us to control any current reproduction, add or remove items from the play list application. The functions defined in this module and their description is detailed in Table 3:

<u>libvlc_media_player_is_playing</u>	Does the media object player playing?
<u>libvlc_media_player_play</u>	Set to play the media object player
<u>libvlc_media_player_pause</u>	Pause or resume playing the media object player
<u>libvlc_media_player_stop</u>	Stop playing the media object player
<u>libvlc_media_list_add_media</u>	Add a media object to media object list
<u>libvlc_media_list_insert_media</u>	Insert a media object in a given position of the media object list
<u>libvlc_media_list_remove_index</u>	It removes a half board subject to a given position of the object list
<u>libvlc_media_list_count</u>	Gets the number of elements of the media object list
<u>libvlc_media_list_item_at_index</u>	Gets the media object from a position given the media object list

Table 3

<u>libvlc_media_list_lock</u>	Block the elements of a media object list
<u>libvlc_media_list_unlock</u>	Unlock the elements of a media object list
<u>libvlc_media_list_player_play</u>	Plays the media object list
<u>libvlc_media_list_player_pause</u>	Pause or resume playing the media object list
<u>libvlc_media_list_player_is_playing</u>	Are you playing the average list?
<u>libvlc_media_list_player_play_item_at_index</u>	Plays the item from the list that has a given index
<u>libvlc_media_list_player_play_item</u>	Plays the given media object
<u>libvlc_media_list_player_stop</u>	Stop playing the media list
<u>libvlc_media_list_player_next</u>	Plays the next item in the media list
<u>libvlc_media_list_player_previous</u>	Plays the previous item in the playlist
<u>libvlc_media_list_player_set_playback_mode</u>	Set the playback mode to the playlist

Table 4

24.3.4 Handling audio

In any multimedia application we need that we can control the audio level, well, the library provides functions that allow us to control the volume on the application. Allowing the audio level control and even to control the mute state.

The functions defined in this module and their description is detailed in Table 5:

<u>libvlc_audio_toggle_mute</u>	Enable / disable the mute status
<u>libvlc_audio_get_mute</u>	Gets the current state of mute
<u>libvlc_audio_get_volume</u>	Gets the current audio volume
<u>libvlc_audio_set_volume</u>	Sets the current audio volume

Table 5

24.3.5 Management of the video

The functions defined in this part of the video rendering control current, ie, the graphic processing of the sequence of images one after another at a rate of certain images are arranged is made. You can also customize the size of the window in which the video is rendered, taking into account both the width and height. Similarly, you can control the full screen option can turn on or off, as desired.

The functions defined in this module and their description is detailed in Table 6:

<u>libvlc_toggle_fullscreen</u>	<u>Enable / disable full screen</u>
<u>libvlc_get_fullscreen</u>	<u>Gets the current state of the fullscreen</u>
<u>libvlc_video_get_size</u>	<u>Get the pixel dimensions of a video</u>
<u>libvlc_video_get_scale</u>	<u>Gets the scale factor of the current video</u>
<u>libvlc_video_set_scale</u>	<u>Sets the scale factor of the video</u>
<u>libvlc_video_get_aspect_ratio</u>	<u>Gets the aspect ratio of current video</u>
<u>libvlc_video_set_aspect_ratio</u>	<u>Sets the new aspect ratio video</u>
<u>libvlc_video_take_snapshot</u>	<u>Take a snapshot of the current video window</u>
<u>libvlc_video_get_marquee_int</u>	<u>Gets an integer value of the option indicated marquee</u>
<u>libvlc_video_get_marquee_string</u>	<u>Gets a string of marquee the right choice</u>
<u>libvlc_video_set_marquee_int</u>	<u>It sets an integer value for the specified option marquee</u>
<u>libvlc_video_set_marquee_string</u>	<u>Sets a string for the right choice of marquee</u>
<u>libvlc_video_get_logo_int</u>	<u>Gets an integer value of the option indicated Logo</u>
<u>libvlc_video_set_logo_int</u>	<u>It sets an integer value for the specified option logo</u>
<u>libvlc_video_set_logo_string</u>	<u>Sets a string for the right choice of logo</u>

Table 6

24.3.6 VideoLAN Manager

This module corresponds to all functionality and transcoding server streaming, allowing transmission of transcoded stream through an IP network. In developing the system the idea is that the creation module Media Object Creator units receive the transcoded stream through a local interface.

The functions defined in this module and their description is detailed in Table 7-8:

<u>libvlc_vlm_release</u>	Increases counter <u>libvlc</u> instance, and destroyed if reaches 0
<u>libvlc_vlm_add_broadcast</u>	Add an emission, with an entrance
<u>libvlc_vlm_add_vod</u>	Add a video on demand, with an entrance
<u>libvlc_vlm_del_media</u>	Deletes half (video on demand or broadcast)
<u>libvlc_vlm_set_enabled</u>	Enable / disable a media (video on demand or broadcast)

Table 7

<u>libvlc_vlm_set_output</u>	Sets the output for a average content
<u>libvlc_vlm_set_input</u>	It establishes an average entry <u>Mrl</u>
<u>libvlc_vlm_add_input</u>	Add a <u>Mrl</u> average entry
<u>libvlc_vlm_play_media</u>	Reproduces <u>the received broadcast</u>
<u>libvlc_vlm_stop_media</u>	<u>Stops the broadcast received</u>
<u>libvlc_vlm_pause_media</u>	Pause <u>the received broadcast</u>

Table 8

24.3.7 Operation of the input signal

These functions allow you to collect information on the state of playing a video or song, for example, the total playing time, the current playback time. In addition, in the case of the video on demand outside allow us to deploy advanced features of type forward playback, rewind, etc.

The functions defined in this module, whose description is detailed in Table 9 are:

<u>libvlc_media_get_duration</u>	Gets the duration (in <u>ms</u>) of the media object
<u>libvlc_media_parse</u>	Extract metadata (local) and tracking information media object
<u>libvlc_media_player_get_length</u>	Gets the duration of the current movie (in <u>ms</u>)
<u>libvlc_media_player_get_time</u>	Gets the current movie time (in <u>ms</u>)
<u>libvlc_media_player_set_time</u>	Adjusts the movie time (in <u>ms</u>)
<u>libvlc_media_player_get_position</u>	Gets the position in the film as a percentage between 0.0 and 1.0
<u>libvlc_media_player_set_position</u>	Sets the position in the film as a percentage between 0.0 and 1.0
<u>libvlc_media_player_get_title</u>	He gets the title of the film
<u>libvlc_media_player_next chapter</u>	<u>Puts the next chapter</u>
<u>libvlc_media_player_get_fps</u>	Gets the fps of the movie

Table 9

24.4 Matrix video / audio switchable Elpro TzM 883 VA



Figure 15

24.4.1 Connection from Remote Host

The remote host can connect to the TZM883VA via an RS232 serial connection, and also through an Ethernet 10/100 base T.

Annex XXX these connections are explained in more detail.

24.4.2 Commands from the remote host

Regardless of the type of connection used, all functions of the matrix can be controlled by sending a series of strings of hexadecimal and ASCII characters.

The protocol consists of:

- Commands sent by the host to the array and responses confirmation or denial of the host matrix
- Requests sent by the host state to the parent and the parent responses to the host with status information

NOTE: A command or status request is closed with CR character and not with the pair of CR + LF characters are normally sent when the ENTER key on a PC keyboard is pressed.

The commands and status requests are described below; in his description, control characters are shown as follows:

<CR> or hexadecimal 0D: close character of a command or status request

<ACK> or hexadecimal 06: character positive response to a command

<NACK> or hexadecimal 15: character negative response to a command

3.4.2.1 Switching Video and Audio

To switch input video and audio from the same source to the same output video and audio, the host must send the following sequence:

42 uu ii <CR>

where

uu are 2 characters indicating the number of audio and video output (from "01" to "08")

ii are 2 characters that indicate the video and audio input (from "01" to "08"). If ii = "00", the video output goes high impedance and the audio output is set to 0 volts.

<CR> is the end character string (hexadecimal 0D)

The matrix responds with:

<ACK> if the action has been completed successfully

<NACK> if detected transmission errors or invalid control parameters

Example:

To switch the video input and audio output number 5 to number 7, you must send the following string:

XXXXXXXXXXXXXXXXXX

It is also possible comutar a video input and an audio input from different sources into a single output video and audio. The string becomes:

42 vv uu aa <CR>

where

vv are 2 characters that indicate the video input ("01" to "08"). If vv = "00" video output goes high impedance.

aa is 2 characters indicating the audio input (from "01" to "08"). If aa = "00" audio output is set to 0 volts.

Example:

To switch the video input 5 Audio input 2 Exit 4, you should be sent following string:

42 30 34 30 35 30 32 0D

24.4.2.2 Video Switch

To switch video input to output, the host must send the following sequence:

56 vv uu <CR>

Example:

To switch the video input 1 output 4 should be sent the following string:

56 30 34 30 31 0D

24.4.2.3 Switch Audio

To switch an audio input to an output, the host must send the following sequence:

41 uu aa <CR>

Example:

To switch the audio input 1 at Exit 4, you should be sent following string:

41 30 34 30 31 0D

24.4.2.4 Switching Video and Audio at the output Preview

A video and audio input can be switched on if it has been pre-configured output; The host must send the following sequence:

62 ii <CR>

Example:

To switch the video and audio input number 5 in the previous output, to be sent the following sequence:

62 30 35 0D

24.4.2.5 Prior Switch Video Output

A video input can be switched on if it has been pre-configured output; The host must send the following sequence:

76 vv <CR>

Example:

To switch the video input number 5 in the previous output, to be sent the next string of hexadecimal characters:

76 30 35 0D

24.4.2.6 Prior Switch Audio output

An audio input can be switched on if it has been pre-configured output; The host must send the following sequence:

Aa 61 <CR>

Example:

To switch the audio input number 5 in the previous output, the following should be sent hexadecimal string:

61 30 35 0D

24.4.2.7 Silence in the previous output

The silence audio, video or both can be set to the previous output if configured. The host must send the following sequence:

6D x <CR>

where

x is a character indicating the kind of silence for the previous output:

"0": mute disabled

"1": silence audio

"2": silent video

"3": silence audio + video

Examples:

To set audio only silence in the previous output to be sent the following sequence of hexadecimal characters:

6D 31 0D

To set audio and video silence on the previous output, to be sent the following sequence of hexadecimal characters:

6D 33 0D

24.4.2.8 Create Program

Through a host command, the parent can create up to 8 internal programs. The programs are created from the current status of the matrix and are maintained in the event of a blackout.

Remember that programs can be created and called from the matrix keyboard. The programs are overwritten; therefore, the settings applied by the host can cancel and replace the keyboard, and vice versa.

The host must send the following sequence:

53 pp <CR>

where

pp are 2 characters that indicate the program number to save (from "01" to "08").

Example:

To save the current state of the connections in the No. 08 program, the host will send the following hexadecimal string:

53 30 38 0D

24.4.2.9 Activate Program

Through a host command, the parent can activate one of the programs previously saved.

The host must send the following sequence:

52 pp <CR>

Example:

To activate the No. 5 program, the host must send the following sequence of hexadecimal characters:

52 30 35 0D

24.4.2.10 Enable / disable the default settings

When the default setting is activated, the current state of video and audio connections is set as the default. In the later on, the array starts with this configuration, regardless of their status in shutdown.

The host must send the following sequence:

43 X <CR>

where

X is 1 character indicating the status of enabling the default settings:

"0" disables the default setting

"1": Enables the default configuration and sets the current status of connections as default

Example:

To activate the default configuration, the host sends the following sequence of hexadecimal characters:

43 31 0D

24.4.2.11 Enable / disable output Previous

The host must send the following sequence:

70 X <CR>

where

X is 1 character indicating the enable state of the last output as preview:

"0": The last departure is normally used

"1": the final output is used as a pre-departure

Example:

To program the last output as previous output, to be sent the next string of hexadecimal characters:

70 31 0D

24.4.2.12 Setting the switching times

The switching times can be set to a single output or all outputs:

57 uu t <CR>

where

uu are 2 characters that indicate the number of the output for which the time (from "01" to "08") is set. If uu = "00" the time is set for all output t is 1 character

indicates the timeout:

"0": 300 ms

"1": 500 ms

"2": 1 second

"3": 2 seconds

Example:

To set a switching time of 1 second to exit 4, you must send the following string of hexadecimal characters:

57 30 34 32 0D

while for 1 second to set all outputs to be sent the next string of hexadecimal characters:

57 30 30 32 0D

24.4.2.13 Status request for connection

The host must send the following sequence:

44 0D

and the parent responds with the status of connections:

44 vv1 aa1 VV2 Aa3 Aa2 VV3 VV4 aa4 VV5 aa5 VV6 aa6 VV7 aa7 vv8 AA8 0D

where

vv_n aa_n are 16 pairs of characters each of which indicates the input video and audio

(Vv: video, aa: audio) connected to the output n. The value range is from "01" to the

"08". If vv = "00" or aa = "00" means that the corresponding output is high

impedance if video, and 0 volts if audio

Example:

The host sends the following string:

44 0D

A matrix which has all the inputs connected to the outputs of the same name answer the following string:

44 30 31 30 31 30 32 30 32 30 33 30 33 30 34 30 34 30 35 30 35 30 36 30 36 30 37 30 37 30 38 30 38 0D

24.4.2.14 Application global state

The host must send the following sequence:

64 0D

and the matrix responds to the following sequence:

**64 vv1 aa1 VV2 Aa3 Aa2 VV3 VV4 aa4 VV5 aa5 VV6 aa6 VV7 aa7 vv8 AA8 DIPM t1 t2
t3 t4 t5 t6 t7 t8 0D**

where

d is 1 character indicating the status of the default settings:

"0": default configuration disabled

"1": default configuration enabled

i is 1 character indicating the status of the IR receiver enabling:

"0": disabled IR receiver

"1": enable IR receiver

p is 1 character that indicates whether the output is used as a pre-departure:

"0": The last departure is normally used

"1": the final output is used as a pre-

m is 1 character indicating the mute state of the previous output:

"0": mute disabled

"1": audio mute activated

"2": video mute activated

"3": video and audio mute activated

Example:

The host sends the following sequence:

64 0D

A matrix having:

- All inputs connected to the outputs with the same name
- The default setting is not enabled
- Active IR receiver
- Exit 8 used as Preview
- Activated audio and video mute
- Switching time set to 500 msec for all outputs

will answer cadana the following features:

**64 30 31 30 31 30 32 30 32 30 33 30 33 30 34 30 34 30 35 30 35 30 36 30 36 30 37 30
37 30 38 30 38 30 31 31 33 31 31 31 31 31 31 31 31 0D**

24.4.2.15 Application switching times

The host must send the following sequence:

77 0D

and responds with the matrix:

77 S1 S2 S3 S4 S5 S6 S7 S8 0D

where

S1..S8 are 8 characters that indicate the switching time of the outputs, the first character corresponds to output 1, the second output 2, etc .:

"0": 300 ms

"1": 500 ms

"2": 1 second

"3": 2 seconds

Example:

The host sends the following sequence:

77 0D

A die having established a switching time of 500 msec in the first 4 outputs and a time of 1 second in the other outputs will answer with:

77 31 31 31 31 32 32 32 32 0D

24.4.2.16 Application identifier connected matrix

The host must send the following sequence:

69 0D

and the parent responds with its identifier

69 H 35 0D

where

H is 1 character that identifies the parent TzM883 (hex 48)

35 is 1 character that identifies the version of firmware

Example:

The host sends the following sequence:

69 0D

The matrix will reply with the following string:

69 48 35 0D

25 Design

Some flowcharts that explain and help you understand the general operation of the application are shown.

25.1 Add file to the list

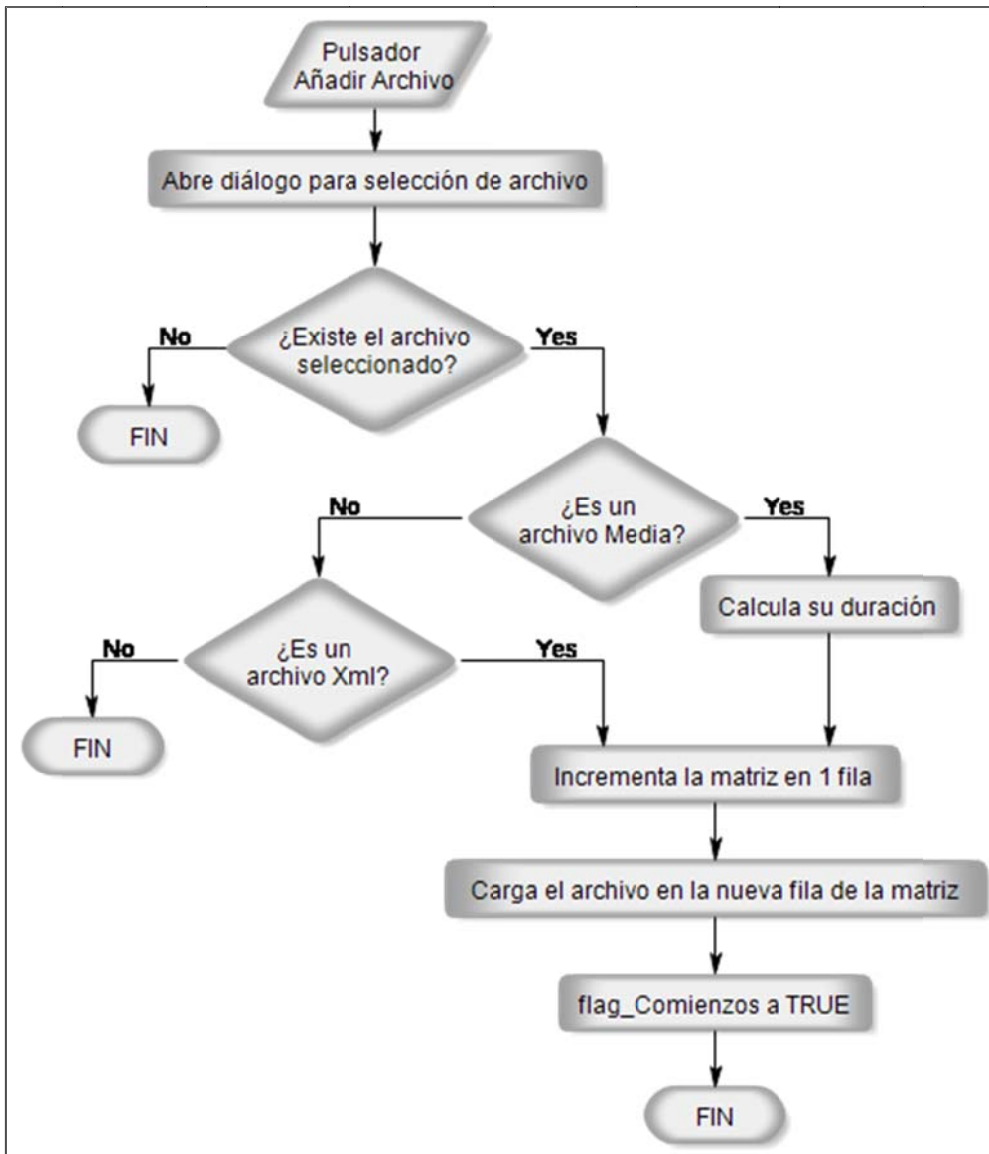
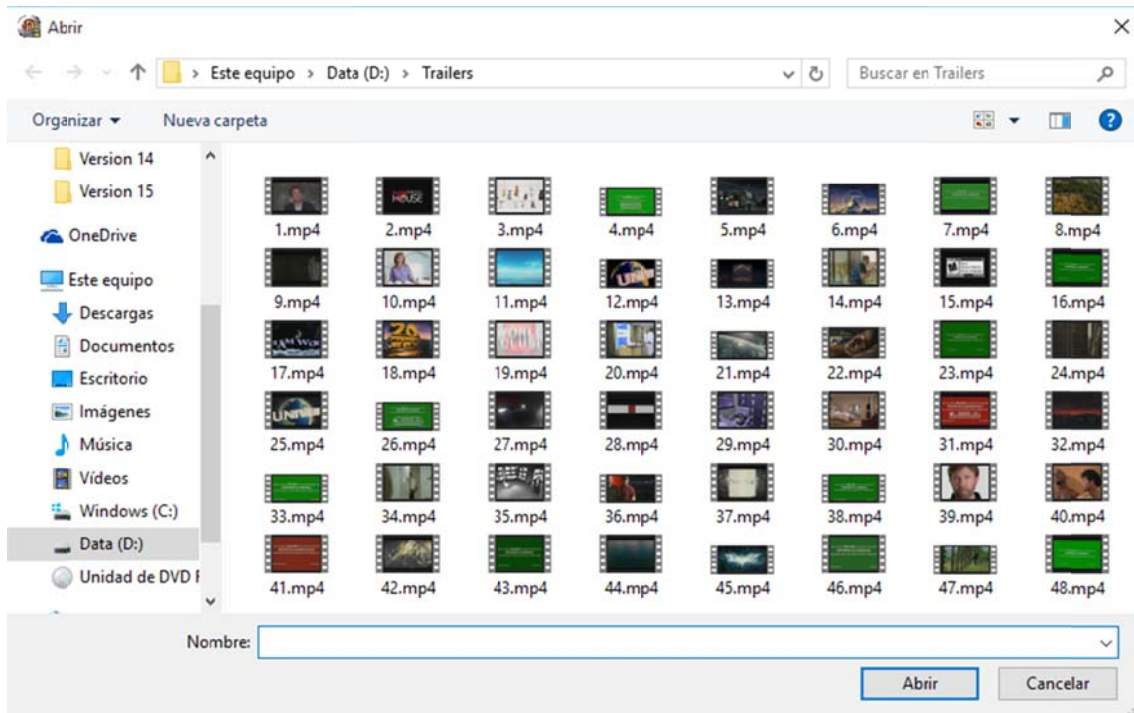


Figure 16

Pressing the "Add File" button a dialog that allows the user to select a file is opened. After selecting it, it checks its existence, and if so, the file type is evaluated. Only if the file is Media or XML, it continues on. If the file is average duration is calculated, and in both cases, the array increases by 1 row and the file is loaded into the new row of the matrix.

In addition to loading the name and path of the file in the matrix, other useful information are also charged as is its index into the array, their type (Media or XML), its level in the list structure, its duration in the case if Media, its video and audio inputs on the switching matrix (video input 2 and audio input 2) ... And finally, the flag_Comienzos flag is set to TRUE, in order to calculate from the start of play Timer its row.

To open the dialog that lets you select the file the TOpenDialog component runs:



To calculate the average duration of the file, the application uses the function

`libvlc_media_get_duration`

of the `libvlc` library.

25.2 Add MRL to the list

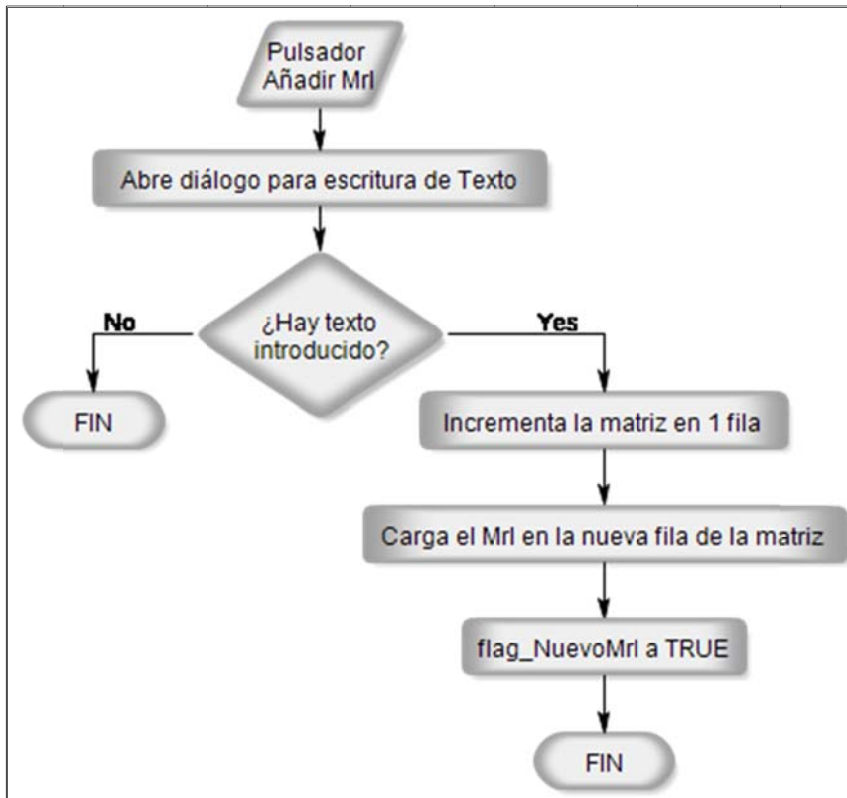


Figure 17

Pressing the "Add Mrl" button a dialog that allows the user to enter a text string in a box opens. After entering the Mrl and accept, it is judged if there is text in the box. If not an empty string, the array increases by 1 row and the Mrl is loaded into the new row of the matrix.

In addition to loading the text string in the matrix, other useful information are also charged as is its index into the array, their type (MRL), its level in the list structure, its video and audio inputs on the matrix switching (video input 2 and audio input 2) ... but not because its duration is not yet known. It is for this reason that the flag_NuevoMrl flag is set to TRUE, in order to calculate the duration Timer from this mrl.

To open the dialog that lets you enter the Mrl the InputBox function is executed:

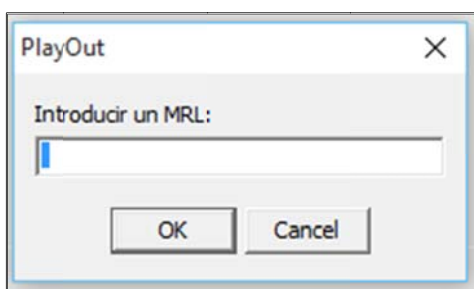


Figure 18

25.3 Direct Add to Wishlist



Figure 19

25.4 Pressing the button "Add other signal source" matrix increases by 1 row and charged other signal source into the new row of the matrix.

Although not charge any names to other signal source, if you load type (another source) as well as other useful information such as its index into the array, their level in the list structure, its duration (2 minutes by default), its video and audio inputs on the switching matrix (video input 3 and audio input 3) ... Finally, the flag is set to TRUE flag beginning in order to calculate from Timer playback start their row .

25.5 Include Logo and / or text in a list row

A logo or text can only be included in a list row containing a medium that could be reproduced with VideoLan, ie a row that contains a Media file or Mrl.

25.5.1 Logo

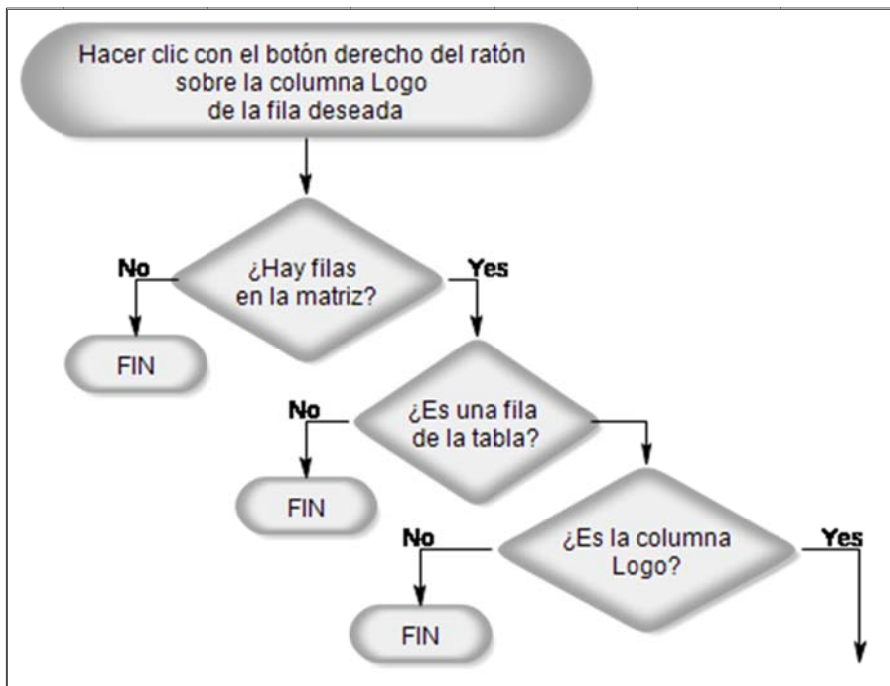


Figure 20

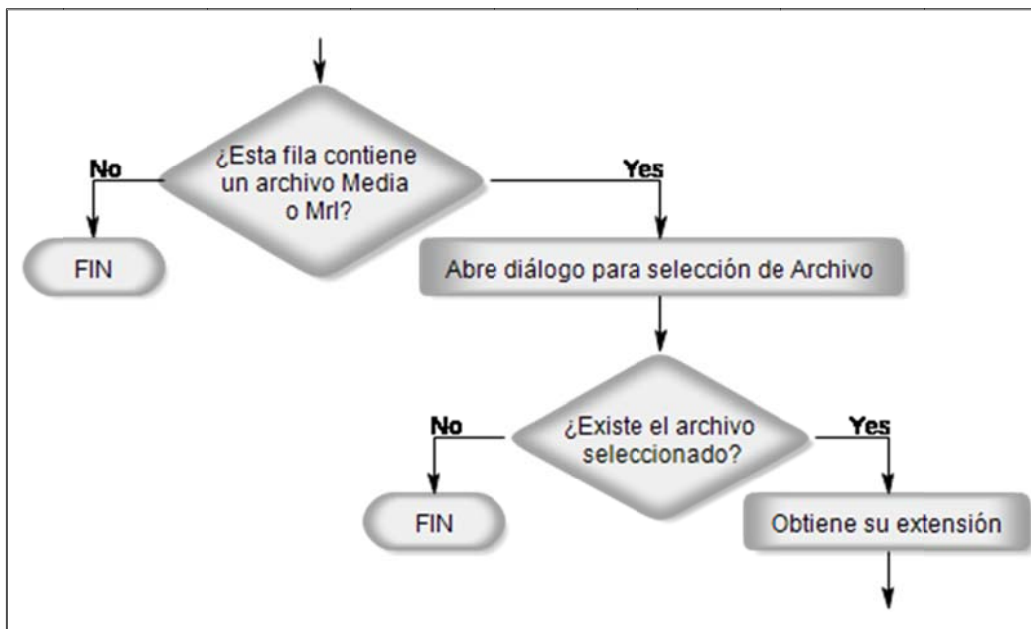


Figure 21

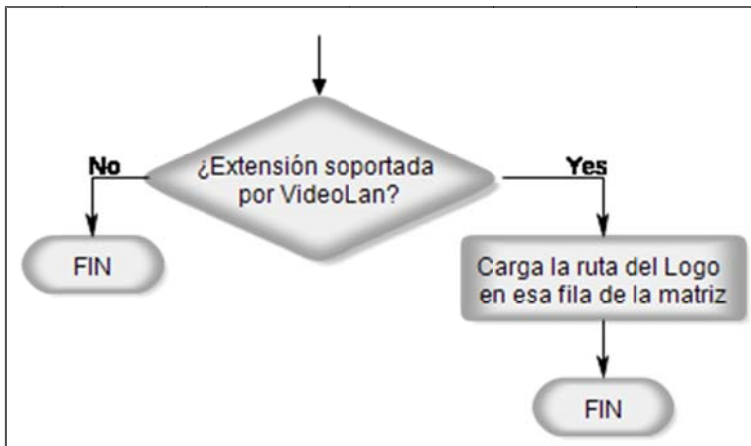


Figure 22

You click with the right mouse button on the logo column of the row where you want to include the logo. If there are rows in the matrix and has clicked on the logo column in a row contained in the table, it is judged whether the average content in that row is supported by Video Lan, that is, if a Media file or Mrl. If so, a dialog that allows the user to select a file is opened. After selecting, its existence is checked, and if so its extent is obtained. If it is supported by Video Lan then loaded route logo on the Logo record of that row of the matrix.

25.5.2 Text

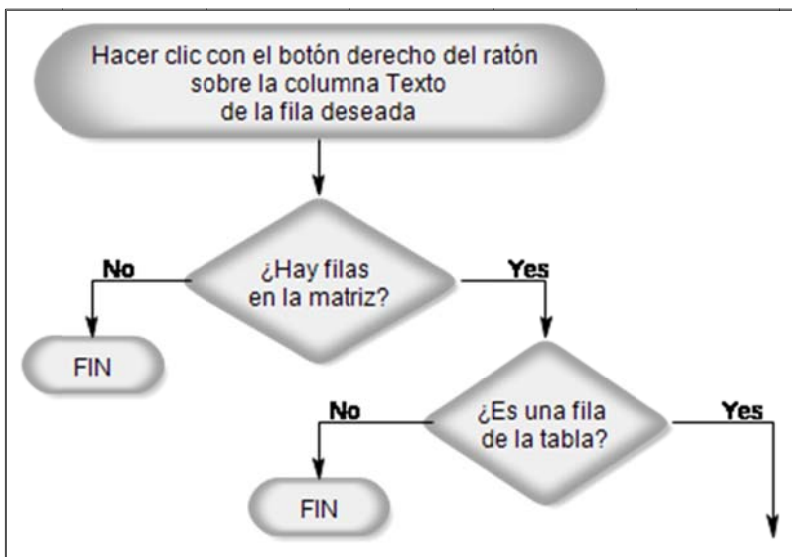


Figure 23

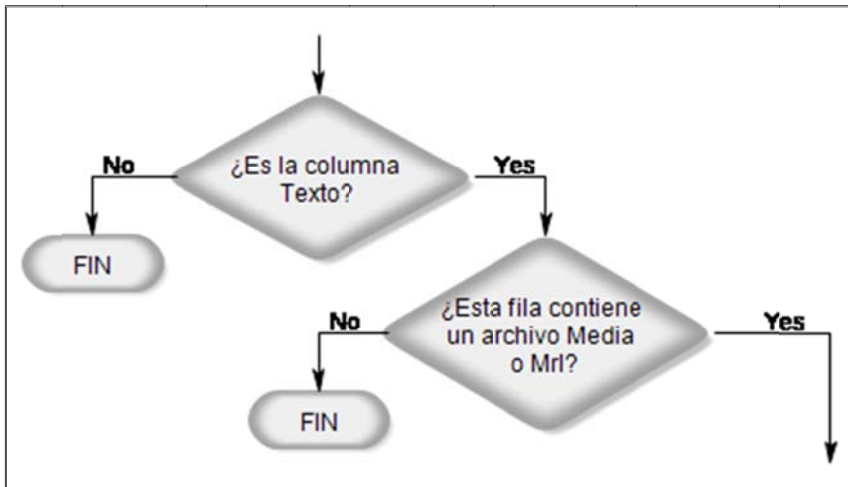


Figure 24

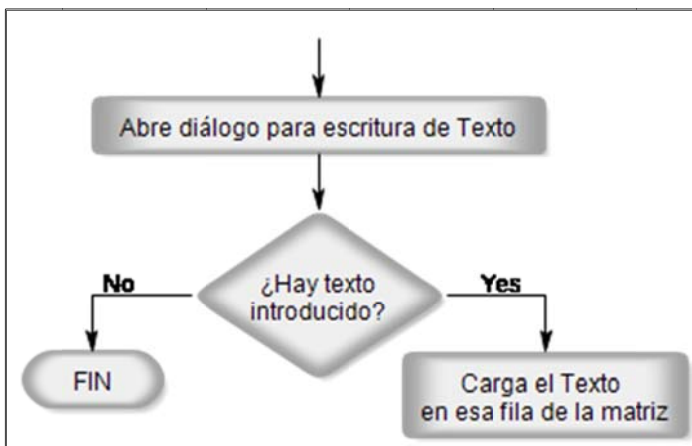


Figure 25

You click with the right mouse button on the text column of the row where you want the text. If there are rows in the matrix and has clicked on the text column in a row contained in the table, it is judged whether the average content in that row is supported by VideoLan, that is, if a Media file or Mrl. If so, a dialog that allows the user to enter a text string in a box opens. After entering the text and accept, it is judged if there is text in the box. If not an empty string, the text is loaded into the text record of that row of the matrix.

25.6 Deleting a row from the list

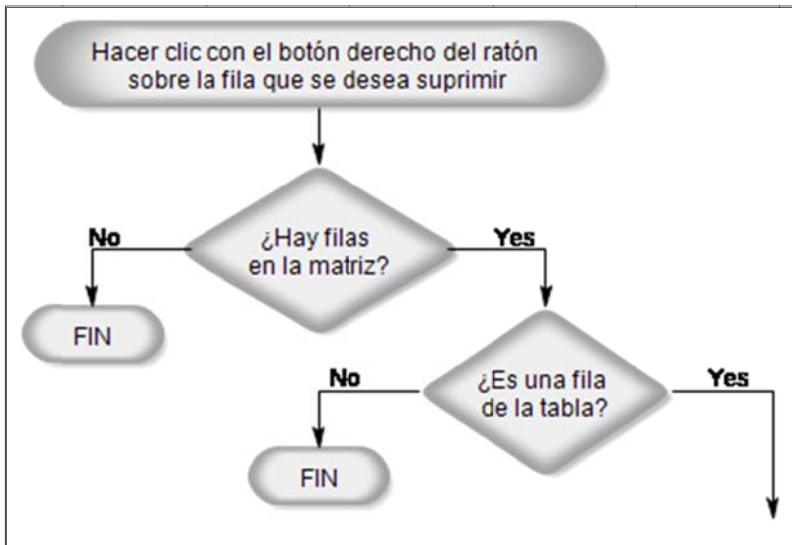


Figure 26

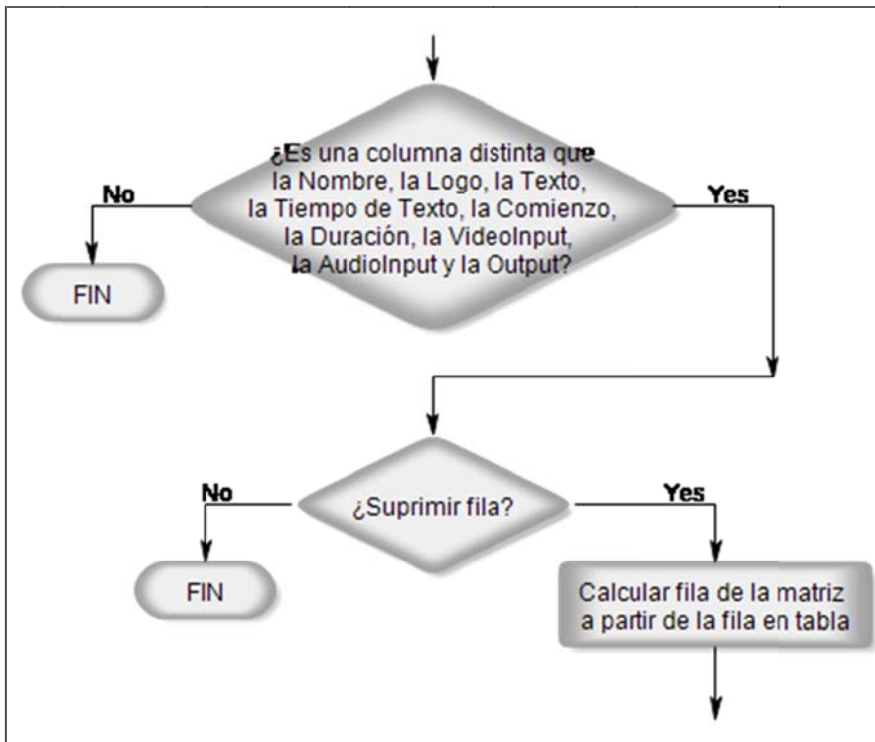


Figure 27

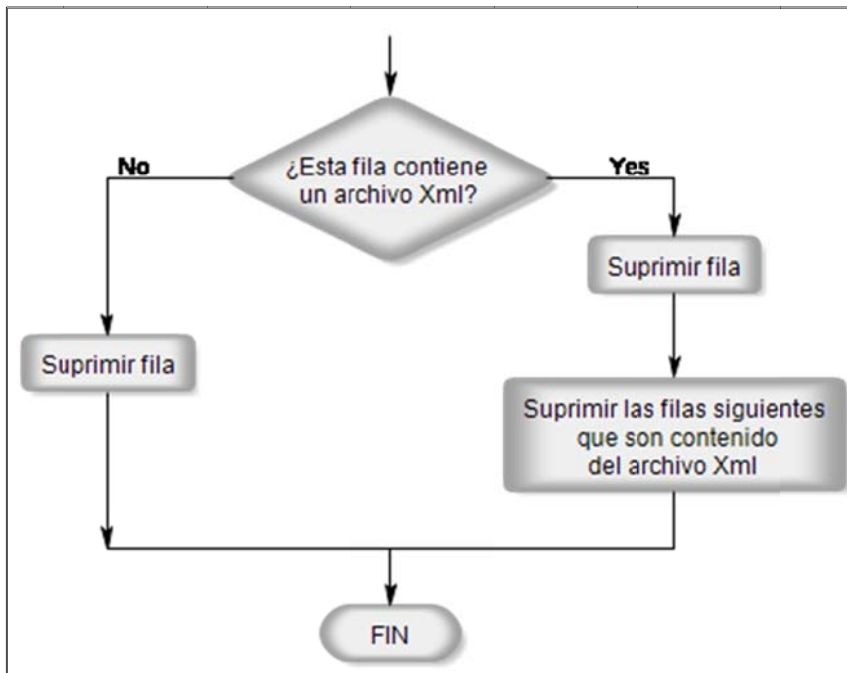


Figure 28

You click with the right mouse button on the row of the list to delete. If there are rows in the matrix and has clicked on a different column as the name, the logo, the text, the time text, the onset, duration, the VideoInput, the AudioInput and Output of a row contained in the table, the application asks whether you want to delete the row. If accepted, it is estimated what is the row corresponding to the row of the table you want to remove matrix. When this row of the matrix is obtained, it is judged whether the average content in that row is an XML file. If so, the row of the XML file and the following rows that are contained in the XML file is deleted. If not, only that row is deleted.

25.7 Press Play

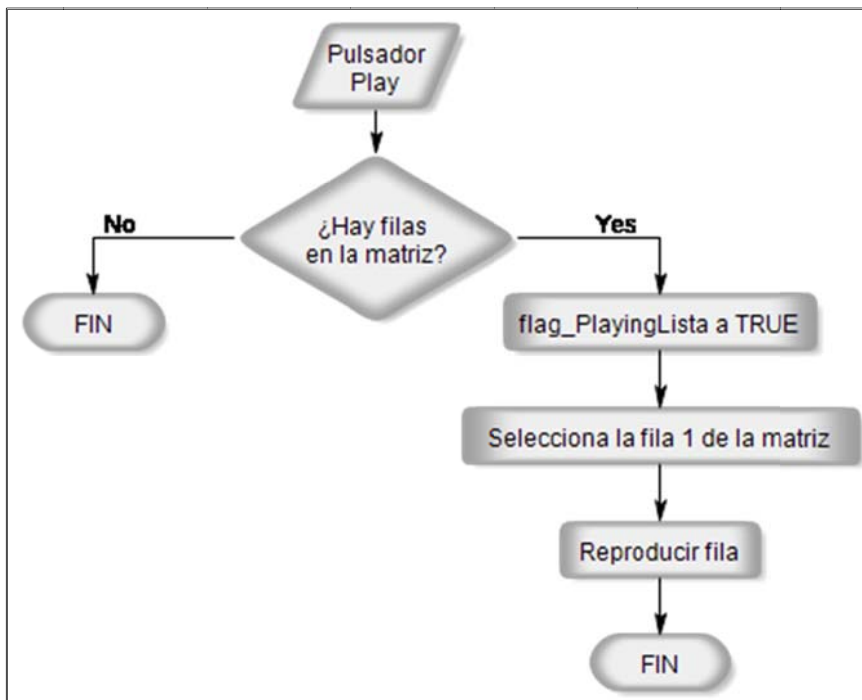


Figure 29

Pressing the "Play" button sets the flag to TRUE Playing List flag, the first row of the matrix is selected and the procedure is called Play row of the matrix.

As will be seen below, the procedure "Play row" is responsible for taking the time to onset of Direct and other signal source, and starting VideoLan in cases in which the average content in line to be a Media file or Mrl.

You'll also see that when the flag Playing List is TRUE Timer can be evaluated from the reproduction of the current row.

25.8 Press Play Scheduled

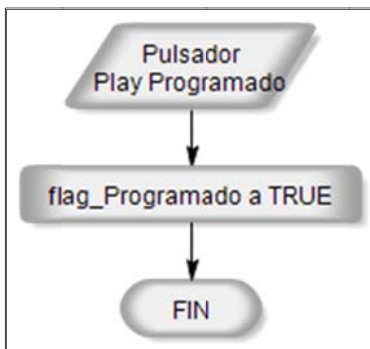


Figure 30

Pressing the "Programmed Play" button is set to TRUE the programmed flag, so from Timer start the play list when the date and time scheduled start is reached.

26 Results

Several examples are developed, using all cases elements of short duration, such as movie trailers, commercials, direct and receipts from other signal sources that defined them last no more than two minutes .

26.1 Create a playlist of level 1 and save

When a playlist or playlist is created and saved, then an XML file is generated, so you can retrieve it when needed.

Thus, an XML file is a playlist.

A playlist of level 1 is a flat list or list that contains XML files, ie files containing turn another playlist.

For example, we will create a playlist of Level 1 that contains the following elements:

Row 1 → Archive Media

Tier 2 → Archive Media

Row 3 → Mrl

Row 4 → Mrl

Row 5 → Mrl

Row 6 → Archive Media

Row 7 → Direct

Rank 8 → Archive Media

Row 9 → DVD

Row 10 → Mrl

Row 11 → Mrl

Row 12 → Archive Media

Media files and Mrl are provided to the switching matrix of V / A on the same PC that manages the play list, and by default, the video on the video input 2 of the matrix and the audio in audio input 2 of the matrix.

Shortcuts are provided to the switching matrix of V / A on camera video / audio, and by default, the video on the video input 1 of the matrix and the audio on the audio input 1 of the matrix.

For another source of signal provided to the switching matrix of V / A, the default entries of the matrix are the video input 3 of the array for video and audio input 3 of the matrix for audio. For our example, the signal source is a DVD, and we want the audio and video inputs on the matrix switcher V / A are the 4 instead of 3.

To add a media file to the list, the user clicks the Add File button in the user interface, and then displays a dialog that lets you navigate through system folders and select the desired file on the screen. When the user locates the file you want to add to the list, double-click with the mouse on it and immediately file is added to the list.

To add a mrl to the list, the user clicks the Add button Mrl user interface, and then displays a dialog that lets you enter text. When the user has entered the mrl click OK mrl and immediately adds to the list.

To add a shortcut to the list, the user clicks the Add Direct button user interface directly and immediately adds to the list. By default, the name of the shortcut is blank, but you can edit it by clicking the right mouse button and entering the desired dialogue text displayed. Also by default, the length of the straight is 2 minutes, but the user can modify the value it considers most appropriate.

To add another signal source to the list, the procedure is very similar to direct. The user clicks the button Add another sign of the user interface and immediately the source signal is added to the list. By default, the name of the signal source appears blank and duration to 2 minutes, but the user can edit the same way as for direct.

The content of the columns of video and audio inputs of the switching matrix, which is in all cases the default set can be seen in the table.

To change the contents of the columns of video and audio inputs of the switching matrix for the DVD, the procedure is the same for each. For example, for audio input, you click with the right mouse button on this column for the row player, and the desired dialogue displayed number is entered.

Finally, to save the playlist, click on the File drop-down menu in the upper left corner of the user interface, select Save as and then displays a dialog that lets you navigate through system folders and select the desired location in which to store the XML file that we will generate. Give it a name and click Save.

26.2 Include Logo and / or text in a list row

Overlapping logo and / or text on the screen is made by VideoLan.

For this reason, it is obligatory that the row where you want to include the logo and / or text implies that will reproduce VideoLan, that is, that contains as an element row playing a VideoLan supported by half.

Note that an external signal as to be a DVD, which is supported by VideoLan may not include logo and / or text because this signal is not processed by VideoLan, but it is injected directly into the corresponding input matrix.

Therefore, VideoLan will run for only those rows that contain media that are supported on the PC that plays VideoLan or its peripherals, as can be an external hard drive or external USB drive.

If logo and / or text in a row unsupported by VideoLan is included, it will not produce any errors, but will not play.

To include logo in a row in the list, you click on the logo column, and then displays a dialog that lets you navigate through system folders and select the desired logo. When the user locates the logo to be included in the row, double-click with the mouse on it and immediately the logo is included in the row. If the selected file does not correspond to a logo or a logo is not supported by VideoLan, the error message "Logo with unsupported extension" appears on the screen.

To include text in a row in the list, you click on the text column, and then displays a dialog that lets you enter text on the screen. When the user enters the text displayed on the screen, click OK and is immediately included in the row.

26.3 Playing a playlist programmed level 1

It starts from the situation in which the Pc player lists, you are playing a playlist, and then want to add a new playlist of the same that has been generated previously in other Pc for generating playlists.

The new Playlist we want to add is a playlist of level 1, which includes media, mrls, direct files and other signal sources, plus logo and / or text on some of their ranks supported by VideoLan. This generated playlist is saved under the name lunes_25.Xml.

The current playlist is scheduled to end at 00: 42h, and you want the new playlist into operation at 6: 00h.

The procedure is as follows.

To add the playlist lunes_25 to the playlist, the user clicks the Add File button in the user interface, and then displays the dialog that lets you navigate through system folders and select the desired file on the screen. When the user locates the lunes_25 file, double-click with the mouse on it and immediately file is added to the list.

This file is shown in the table as a single file, if we want to display all its content simply double-click on this row, and immediately deploys and all content in the following row of the table is displayed. But not only its content is displayed, if not also the length of each of the component elements are displayed, as well as the expected start of playback, which defaults to the first element of the new list is just after end of the currently playing playlist, that is, at 00: 42h.

Since we want to play the new playlist begins at 6: 00h on Monday 25, you click on the Start column in the table row in which the lunes_25.xml file is located, and then displays a dialog that lets you select the new desired date and time for the start. The new date and time, and programming for the new playlist is set is already done. When the date and time now reaches the date and time of beginning of the new playlist, that is, 6: 00h the 25th of the current month, it will begin playing the new list.

Whenever there is a change in row, the switching matrix V / A is configured with the values contained in the new row. In an interface box thrown by the application to the matrix switcher V / A command can be observed. If there is no response from the switching matrix of V / A which affects the development of the play list, it immediately informs the user of the application to take the appropriate decision. In such a situation, and as the user does not act, the application leads to the test card.

To change the output video and audio in a row in the list, click with the right mouse button on the Output column of that row. In doing so, a dialog opens to enter text, and enter the number of the desired output (eg 8 for the output video and audio 8). Once introduced, it is included in the Output column of that row.

As the user is compiling the playlist on the secondary computer, you can test its performance without it affecting the play list of the main equipment. To do this you have 2 options:

1) press Play. The play list starts immediately

2) press Play Timed. The play list starts when the current date and time reaches the date and time of start of playback

At any time, you may need to interrupt the normal reproduction of the list to make way for a direct unanticipated. For such a case there is a direct button not anticipated, but this is explained below.

27. User Manual

The application is installed on 2 computers to process and release the team from the play list.

The most powerful of them goes to the play list or playlist, while the other team is intended to generate new playlists.

At all times the main team will be playing a list, and if not, will be playing the test card.

Meanwhile, the user will be putting together, in the secondary equipment, new playlists, the next few hours or days.

When the user finishes making a new playlist, saves as an XML file and saves them in the database of the station, which is also accessible from the main team.

Creating a playlist

As mentioned above, the new playlist to be performed on the secondary computer, which also installed the application.

It then explains how to make a playlist from the user interface.

Since a playlist consists of average mrls, direct, XML files and other sources of signal files, all fixed-term, its realization is basically to add content to the table, row by row, always starting with the element at play that is, the average file, the mrl, direct, XML file or other signal source.

When a playlist is done, it is important to know the date and start time of reproduction, so as to match the core programming, such as news, with their usual hours of emisión. Desde when we add the first item to the list that we are generating, we can already set the date and time of onset of reproduction, in the Start column. And the application automatically calculates the start of the reproduction of each of the rows that follows.

To add a media file to the list, the user must click on the "Add File" button. Clicking on the button, a dialog for selecting a file is opened. When the user selects the media file, the file is added to the table.

To add a mrl to the list, the user must press the "Add Mrl" button. Pressing the button displays a dialog that lets you enter a text string opens. When the user enters the MRL, the corresponding text is added at the table.

To add an XML file to list the procedure is the same as described for a media file.

To add a shortcut to the list, the user must click on the "Direct Add" button. Clicking on the button is added directly in the table. Later he explains how to edit your name and change its duration.

To add another signal source to the list, the user must click on the button "Add other signal source." Clicking on the button, the new signal source is added in the table. Later he explains how to edit your name and change its duration.

If you want to include a logo in a row in the list, click with the right mouse button on the logo column of the row. In doing so, a dialog box for selecting a file is opened. The logo is selected and then this is included in the logo column of that row.

If you want to include a text in a row in the list, click with the right mouse button on the text column of the row. In doing so, a dialog opens to enter text. The text is entered and then it is included in the Text column of that row.

By default, the text to be displayed on the screen for 10 seconds. To adjust this time, the user must click with the right mouse button on the Time column of the row text. In doing so, a dialog opens to enter text, and enter the time in seconds (for example, 30 seconds is entered as 30, for one minute you enter 60). Once introduced, it is included in the Time column of text in that row.

To edit the name of a direct or other signal source, click with the right mouse button on the Name column of the row. In doing so, a dialog opens to enter text. the desired name is entered and then it is included in the Name column of that row.

To change the duration of a direct or other signal source, click with the right mouse button on the Duration column of the row. In doing so, a dialog that lets you select the new duration in minutes and seconds are displayed. It is selected and then it is included in the Duration column of that row.

To change the date and time of the start of the reproduction of a row in the list, click with the right mouse button on the Start column of the row. In doing so, a dialog that lets you select the new date and start time opens. It is selected and then it is included in the Start column of that row.

To change the video input of a row in the list, click with the right mouse button on the Video Input column of that row. In doing so, a dialog opens to enter text, and enter the number of the desired video input (eg 5 for video input 5). Once introduced, it is included in the Video Input column of that row.

To change the audio input of a row in the list, click with the right mouse button on the Audio Input column of that row. In doing so, a dialog opens to enter text, and enter the number of the desired audio input (eg 4 for audio input 5). Once introduced, it is included in the Audio Input column of that row.

28 – Global Conclusions: Concerning to the research , Our research delivers to a multi Living Lab Multimedia / Hypermedia that manages and monitors the development, and multimedia software and content research field.

The Lab is not closed but merely an application consisting of an Open Source platform based on a core that can make threads containing modules (components / objects) with fractal structure and reconfigurable execution. Module reconfiguration to user needs and automatically replace runtime modules damaged or missing.

All information as well as required for the particular configurations, plus related feedbacks, control and management of all users is performed with a suitable database system. Unfortunately our server died due to faulty motherboard preventing their use and we have to solve this problem.

Finally, future work, apart from finishing this research internet multimedia Lab, has as main expectations incorporating teams that want to research and develop practical solutions for end users in the field of Multimedia Engineering, generating new projects, for different social sectors , such as education. It will also be important to study and predict system growth so as not to exhaust its limits.

continuing the research work, To demonstrate the validity of the proposed system is an example of a project designed a TV online with a clear proposal live TV or from playlist, as can be any broadcast TV, but using internet.

In chapter point 16.1 42-43-44-45 pages, our research reveals that 70% of regional local TVs cannot broadcast.

The platform is currently under design and is expected that the system is on a trial with online television project in 2014, if it is possible with Town Halls politic volition.

As described in manuscript page 48 chapter index point 4 IEEE new standard will help to add IPTV local channels as regular channels on smart TVs. Necessary for real local TVs revival. This is possible because, we have successfully tested a new method that is really novel. If it isn't possible we have a solution in page 48 index point 5 that allows the use of home smart TV. When the federation of local TV comes to see this work will be encouraged to start again.

This method has been successful because actually using our research and development is shown to be possible to restart the local TV with low cost and the possibility that students of picture and sound journalism can enjoy their work and learn to its future as experienced specialists.

The complexity of the system, with numerous technologies and social aspects involved, leads to understand that is not problems free, which is expected to be solved at a time, so is an Open Source system, and we present the work is an approach. It is also important to make an effort to translate the entire system into as many languages as possible.

Finally, future work, apart from finishing this research has as main expectations allowing the new beginning of a new local television and prestigious publication of Q1 to allow very useful for local television stations around the world..

To prevent malware or other not desirable software, two twin systems should be used, one for test validation, the other for final user use.

Finally, our expectations are that this research work related to multimedia and TV broadcast, can help other world regions with same problem.

We are really happy because after so many years of work we could provide a solution to all these problems with very good results. And it is very important to us that the end is concrete and can enjoy all the work we have done in our research and development

The references point 29 are relative to the material used for impact of low economic cost.

29 References

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