



Summary

I BACKGROUND TO THE IDEA

II THE SOLFEO XXI® SYSTEM

III PENTAGROM®

IV APPLICATIONS

Digital

Internet

Instruments

Videogames

Whiteboard

Toys

V APPENDICES

BACKGROUND TO THE IDEA

Ideas Musicales Pentagrom S.L. is a company created in March 2009 and which has the aim of developing a **new musical device patented in Spain and invented by Jaime Iglesias**, the leading promoter of this company.

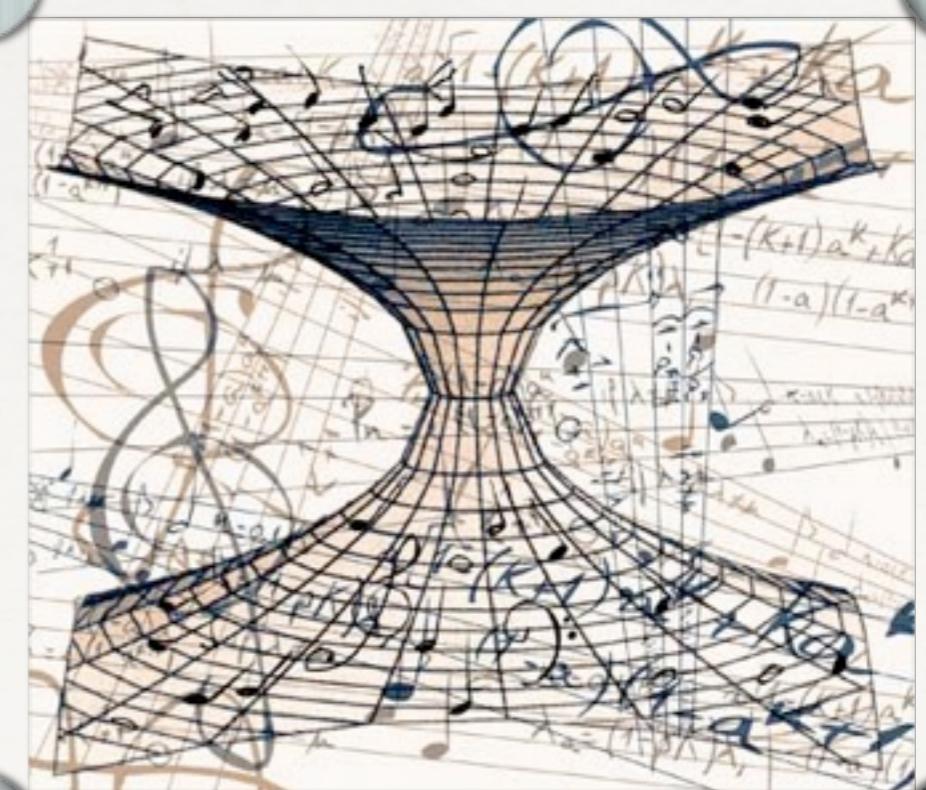
Jaime is now 39 years old and has a long track record in the field of teaching, in both state schools and in renowned musical academies, of which we may highlight: **Ritmo y Compás, Escuela Municipal Isaac Albéniz** and the **Escuela de Música Creativa**, all of which are in Madrid.

Jaime began his training in different musical schools in Buenos Aires (Argentina) and Madrid (Spain). He continued in the **Berklee College of Music, Boston (USA)**.

His love of music brought him to complete his studies at the **Conservatorio Profesional de Música Pablo Sarasate in Pamplona, (Spain)**. Professionally, his career is in teaching, and he also had his own band, the Jaime Iglesias Quarter Band.



In 1993, after many years spent studying music (musical school alone lasts 14 years), he began to think that music could be learnt simply by listening to it and that **teaching methods and musical instruments are not 100% effective**. To be able to study and understand music, **we need a device which enables us to see, listen, write and play music in a simple and orderly way**.



Thinking about this need, Jaime decided to investigate **what great musicians visualise when they think about music**.



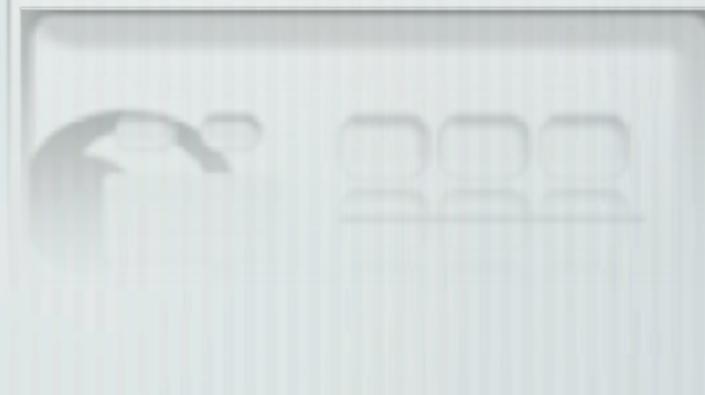
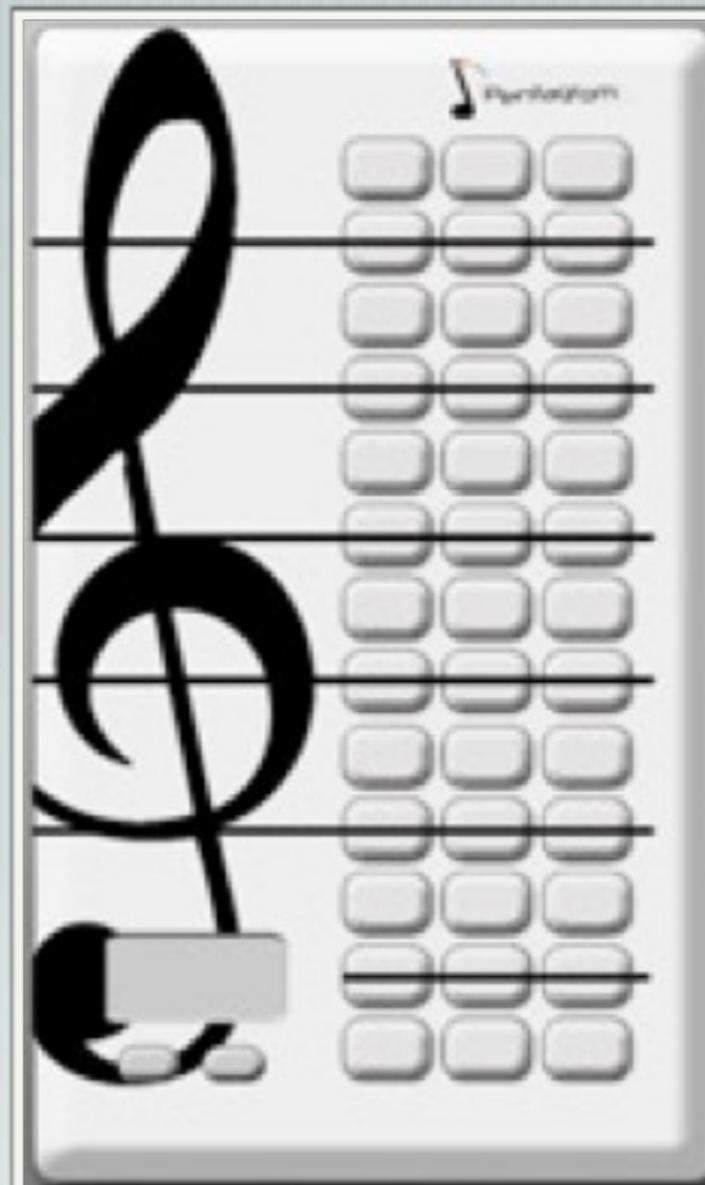
The main conclusion he drew from his study is that a musician visualises **how the sounds on his instrument are represented** when he thinks about music. A pianist visualises the piano keys, a trumpeter the three key positions, etc... but the big problem is that this visualisation is not directly connected to the musical script system: the stave.

The result of this study was that Jaime developed a system (Solfeo XXI®) which solves this problem by unifying the visualisation in to a 3×7 array, combining **the instrument with the stave - so that, for the first time, sight, hearing and touch go together**

The device created through this study is the

PENTAGROM® MUSICAL CONTROLLER

The first tool to work with music in the broadest sense of the word.



The Definitive Controller



In the 1980s, digital music - and more specifically, MIDI controllers - appeared on the scene, sparking a revolution in the musical world, and since then music has been more accessible to everyone.

Professionally, it is essential to use a "piano" keyboard connected to a computer.

So everyone working in music uses this "instrument" for studying, composing or working.



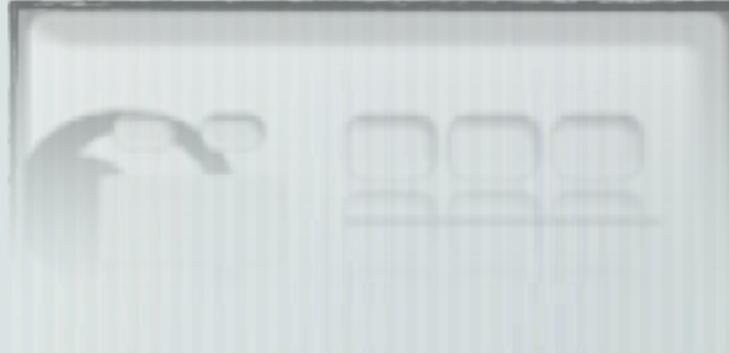
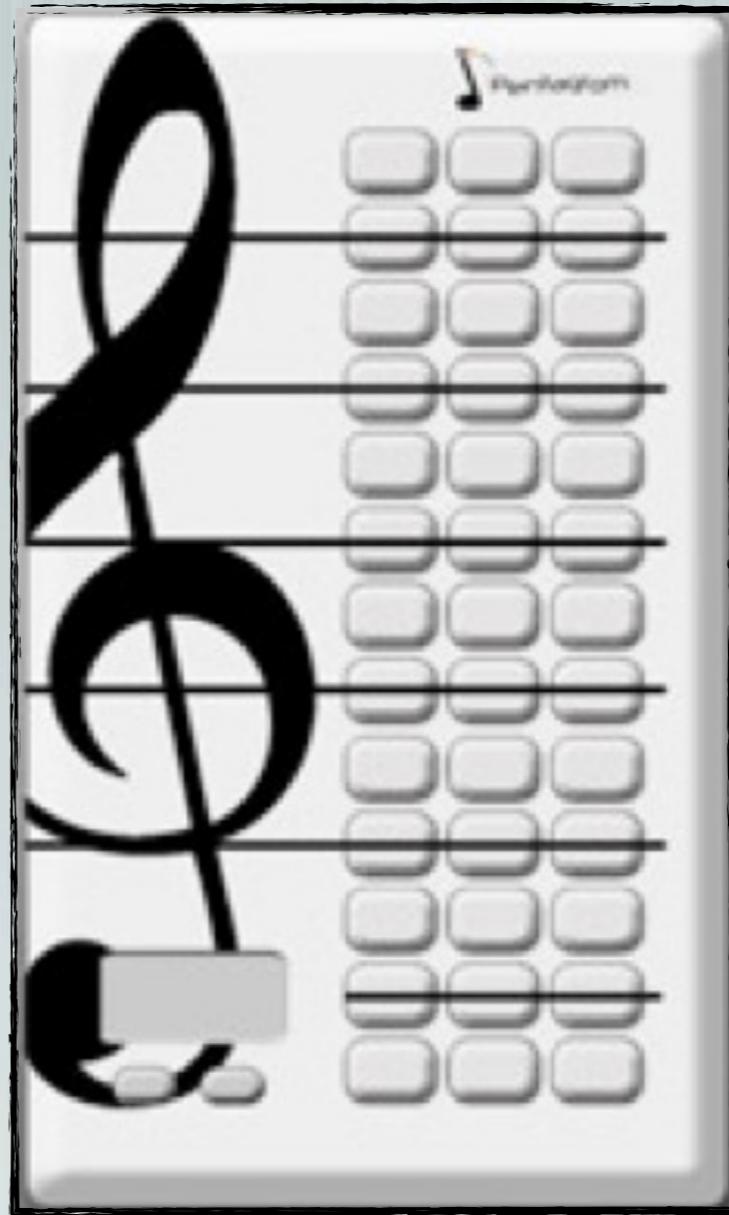
In the non-professional world, many people also have fun with musical videogames at home or with a "semi-professional" studio in their PC.

In most cases, these people also use a "piano" keyboard connected to their computer. We could say that the "piano keyboard" is the most commonly used musical controller for both professional purposes and also for fun.



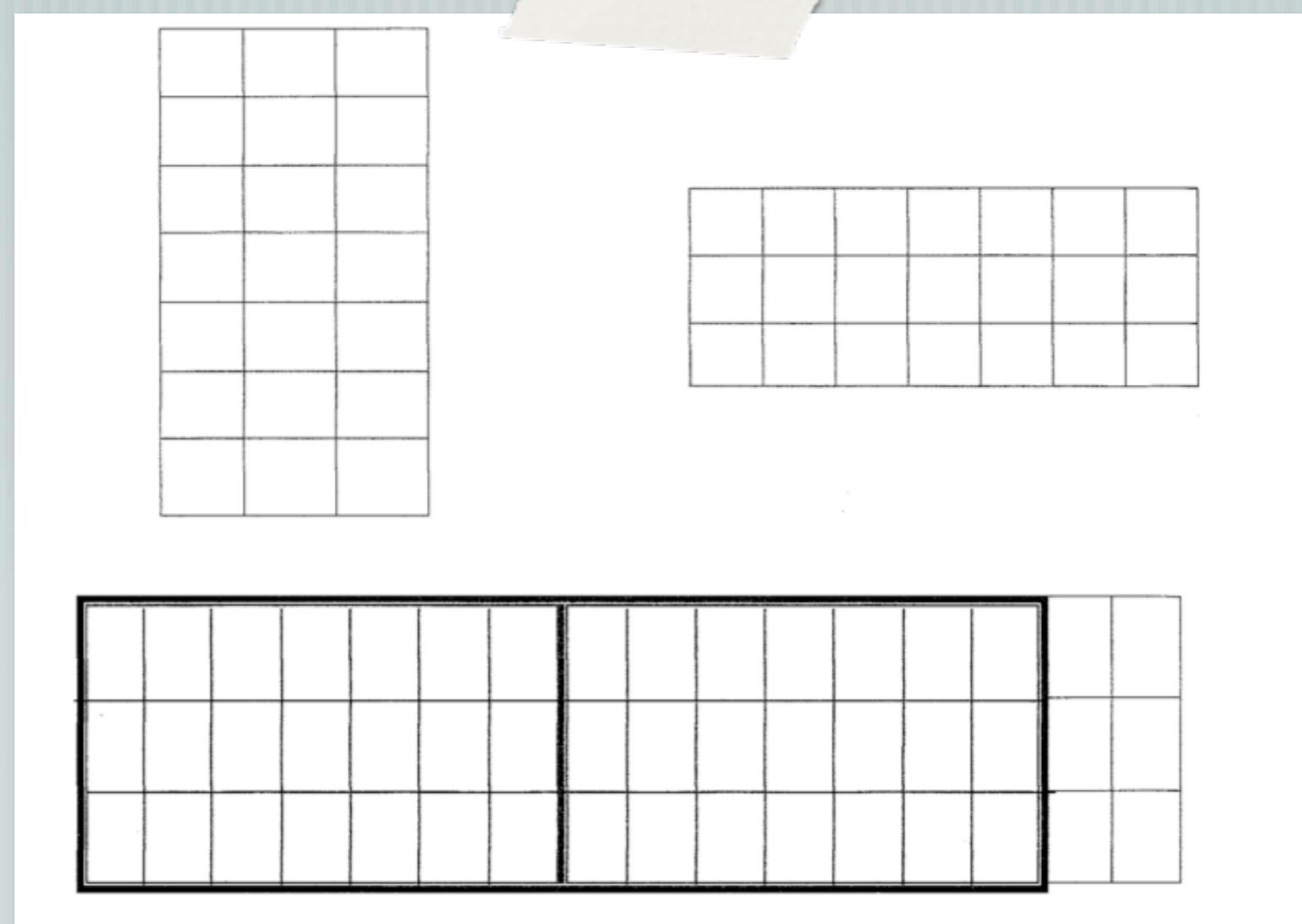
The main reason the piano keyboard is used as a reference is because it is the most "orderly" and "simple" instrument of them all, and is also the compulsory instrument in most music schools.

Jaime has developed a **tool which is more simple and orderly**, and which is designed for **working, studying and having fun** with music, thus enabling professional musicians to work better and beginners to enjoy themselves.



THE SOLFEO XXI® SYSTEM

The PENTAGROM® project has been created using the new SISTEMA SOLFEO XXI® musical theory and notation system based on an array of [(7 rows x constant) x 3 columns] + key signature. You can add as many arrays (or parts thereof) as one wishes in order to increase the range.





Mi mayor
C# menor.

	Si	
	La	
Si	Si*	Si**
Fa	Fa*	Fa**
	Mi	
Re	Re*	Re**
Do	Do*	Do**

b #



Fa mayor / Re menor

Si bb	Si #	Si
La b	La	La*
Si b	Si	Si bb
Fa b	Fa	Fa*
Hi b	Hi	Hi*
Re b	Re	Re*
Do b	Do	Do**

b #

- ▶ 7 rows: corresponding to notes of the major scale.
- ▶ constant: representing the number of octaves.
- ▶ 3 columns: the central column contains the notes of the key signature scale, while the side columns refer to the notes which are half a tone up and down (normally sharps and flats).
- ▶ Key signature: Enables one to tune the instrument in any key. The musician can also add more key signatures in addition to the 14 existing ones. Thus giving rise to new music.

This structure enables us to represent **all musical notes in an isomorphic, unequivocal, orderly and simple way**, exactly matching the way the notes are represented in a stave and **conflating the two major theory systems**: the **traditional system** taught in European music schools and the "**Movable Do**" system taught in certain schools of the United States, such as the Berklee College of Music.

Traditional System

Sib	Si	Si*
La ^b	La	La*
Sol ^b	Sol	Sol*
Fa ^b	Fa	Fa*
Hi ^b	Hi	Hi*
Re ^b	RE	RE*
Do ^b	DO	DO*
B		#

Movable Do

Te	Ti	Ta
le	la	li
se	sol	si
fe	fa	fi
me	mi	ma
ra	re	ri
de	do	di
B		#

bVII	VII	*VII
bVI	VI	*VI
bV	V	*V
bIV	IV	*IV
bIII	III	*III
bII	II	*II
bI	I	*I
B		#

The SOLFEO XXI® System has the advantage of both systems.

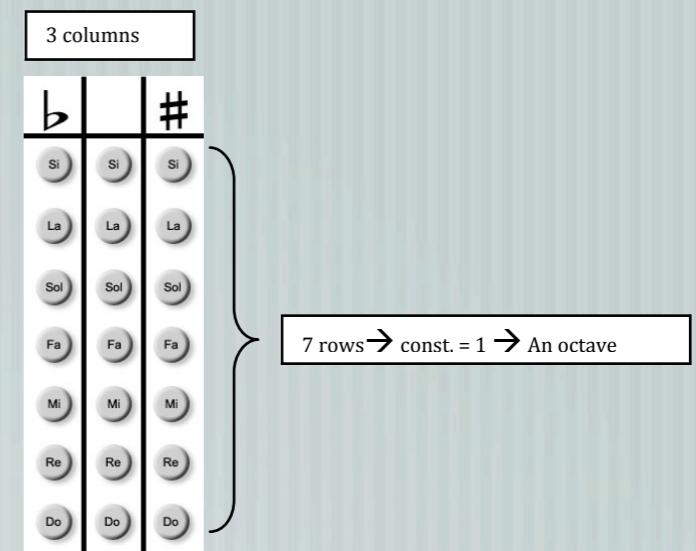
On the one hand, the Traditional System which works directly with perfect pitch, in other words, each note is called its "real name", thereby training one's listening ability in order to give notes a name by their pitch.

On the other hand, the "Movable Do" System gives notes a name in accordance with their relative pitch, in other words taking into account the key (e.g. C major, D minor).

This gives us additional and very valuable information - intonation, given that each note which refers to a key has a same sound, or, regardless of the real key it is in, in other words, all the major thirds in all keys sound the same way relatively. This helps us in intonation and in transposition, given that all the keys the same theme would have the same relative solfège.

These two systems are complementary, and all we need to do is to conflate the two systems in an array. When we read a score with the Sistema SOLFEO XXI® we would automatically include the two systems.

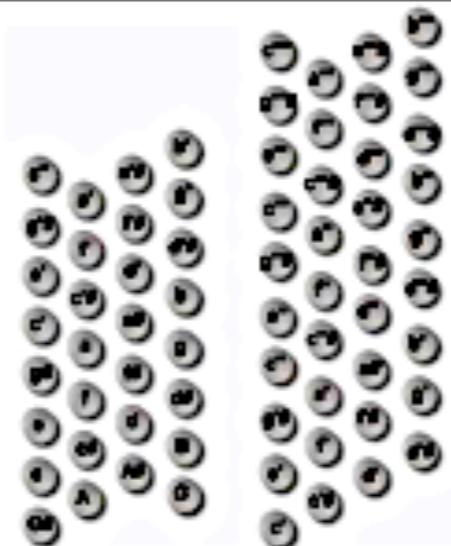
With this device you can think about music in the same way in which you write, and in the same way you play an instrument, thereby creating an immediate connection between sight-hearing-mind-instrument.



Many people have attempted to create musical systems representing notes in an orderly and easily comprehensible way, but it is very difficult to achieve the simplest solution - the one being presented here.

Since 1883 we have had several benchmarks for musical notation systems and keyboards.

Some of these systems are summarised below:

Wheatstone Duet System	
Wheatstone Double System	
Maccann Duet System	
Crane (Triumph) Duet System	
Jeffries Duet System	

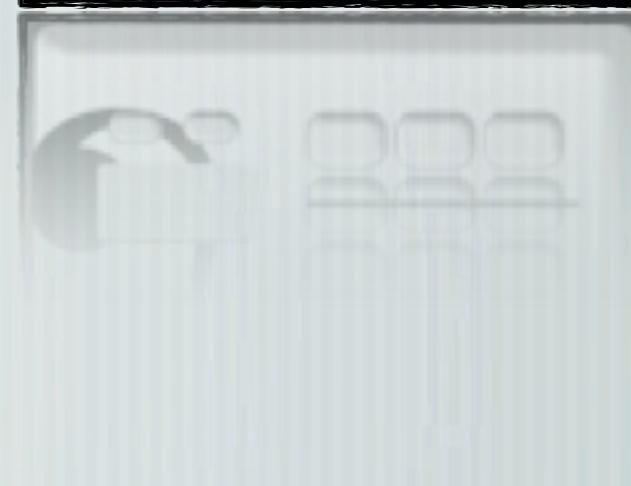
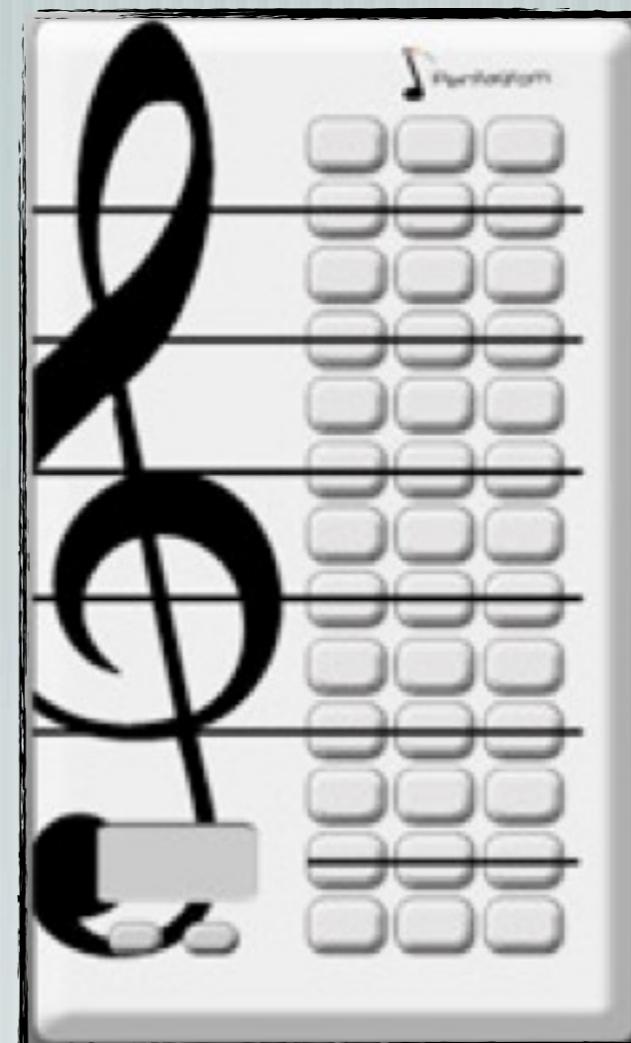
Jeffries Duet System	
Wheatstone Chidley Duet System	
Hayden Duet System.	
Linton Duet System	
Rust ("Piano") Duet System	

As we can see, none of these are as simple or as orderly as the one we are presenting here.

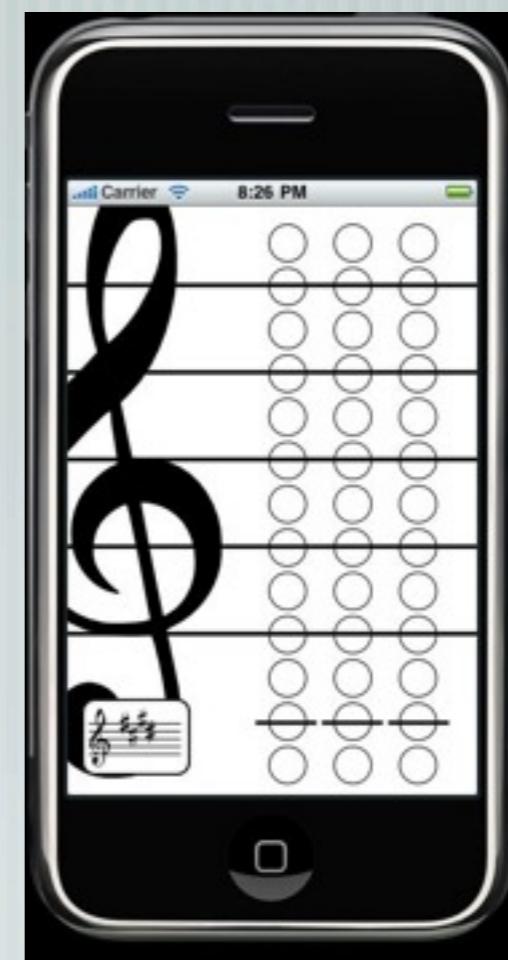
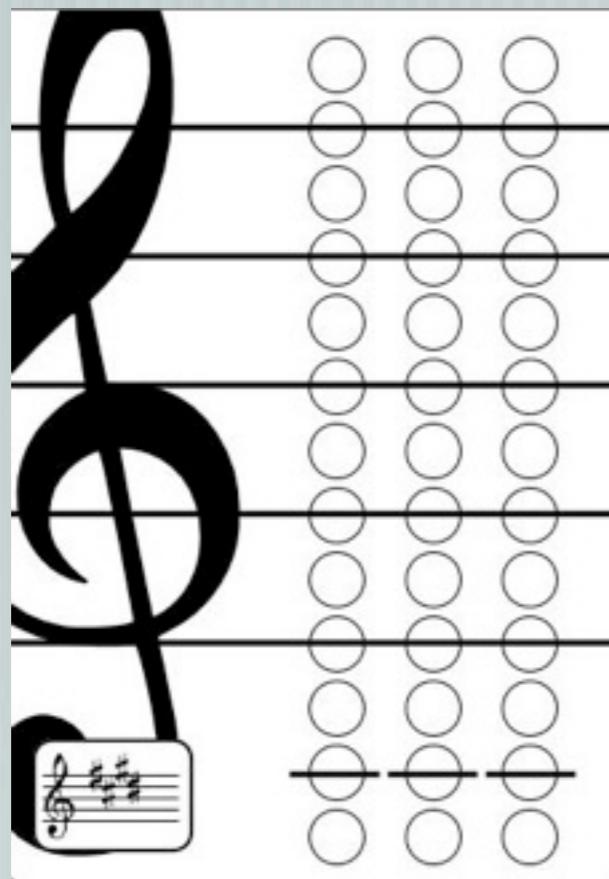
PENTAGROM®

The PENTAGROM® is a **Musical Controller** with a design similar to a piano keyboard, but which because of its simplicity and potential, allows us **to interpret all written music intuitively, with no need for prior musical knowledge.**

The PENTAGROM® is designed using The SOLFEO XXI® System.



It can be sold in any format, including, for example, a cellphone, a videogame, or a touchscreen.



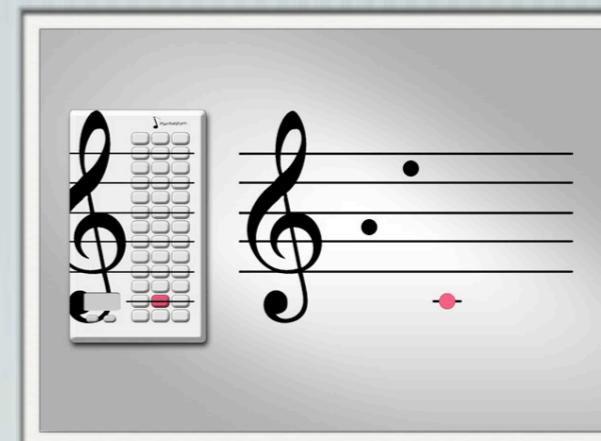
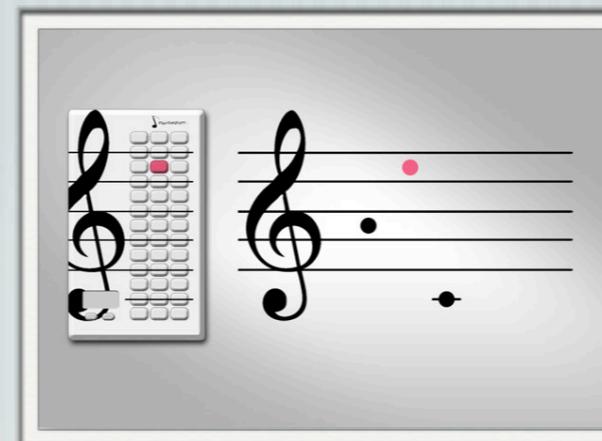
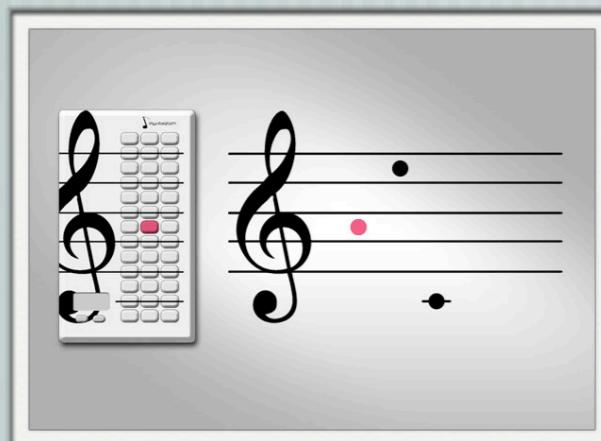
PENTAGROM® is the musical controller which best reflects the notation system.

It can work in two ways:

→ **As a client:** In this case, the controller will be managed by keys, throwing MIDI-type messages. These messages are analysed and interpreted by the receiver. The receivers can differ, ranging from a sound module to a computer with musical software.

→ **As a server:** If the keyboard works as a server, it will receive MIDI messages and the keys will light up when they sound in real time.

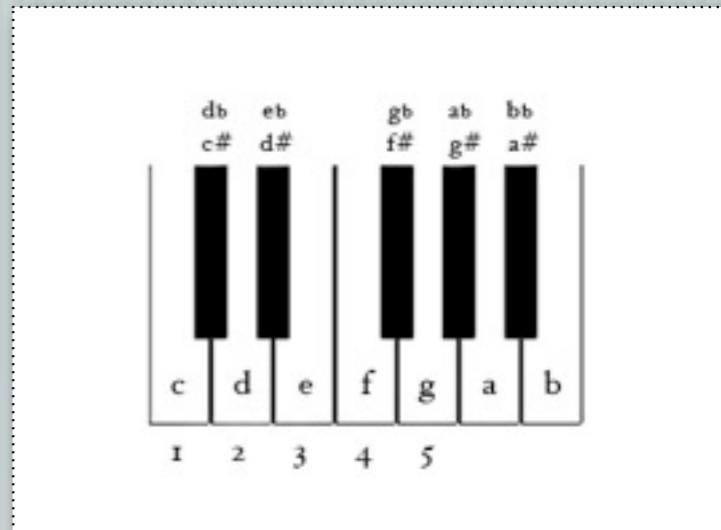
This design **allows us to associate each written note with a single key**, in such a way that the keyboard represents all the notes in a way which is orderly and easy to remember.



This tool can be used in different ways, ranging from simple learning or fun, to composing or playing written music at the highest level.

Needs which are satisfied

► The piano does not unequivocally represent all written notes, in other words, piano key can be several different notes. This is one of the basic requirements which is satisfied, because this tool does indeed establish a **unique relationship between keys and notes** and is able to **interpret all written music**.



- When learning written music, first of all we need to learn how to play an instrument, and then we have to spend years learning how to "read". Our tool allows you to **"save" many years of learning** an instrument and **makes it simple to read a score** no matter how complicated it might be. This is the **first instrument which when you touch it helps you to learn theory, because it is just as if we were playing a stave**. By this means we are able to satisfy a basic requirement: **to make musical education easier and to simplify the learning and playing process**.
- With the PENTAGROM®, we don't need to know music or theory to play written music. Music can be **enjoyable** not only when you are listening to it but also when you are playing it. This means **everyone can enjoy written music** in a way which is easy and fun.
- New digital scores need a "**typewriter**" which does not yet exist, and this job is carried out by the piano, which is not the right tool.
We have the **first real time musical typewriter**, which we can use to **play any score** no matter how complicated it is. The **PENTAGROM® is the best score editor to be found**.

Pentagrom® is...

TOUCHSCREEN
INTERACTIVE
TECHNOLOGY

Instrument

As an instrument, PENTAGROM® is similar to a piano, a melodica, a xylophone, etc...

Controller

As a controller it is better than the piano. It has more - and better - features:

- Easier to understand, no musical knowledge needed.
- Direct relation to written music, where each note corresponds to a note of the stave.
- It is an isomorphic keyboard in which all keys have the same pattern.

Score editor

PENTAGROM® enables us to write a score in real time with chords and even with alterations of up to double sharp and double flat. Something which is just not possible with any other existing score editor.

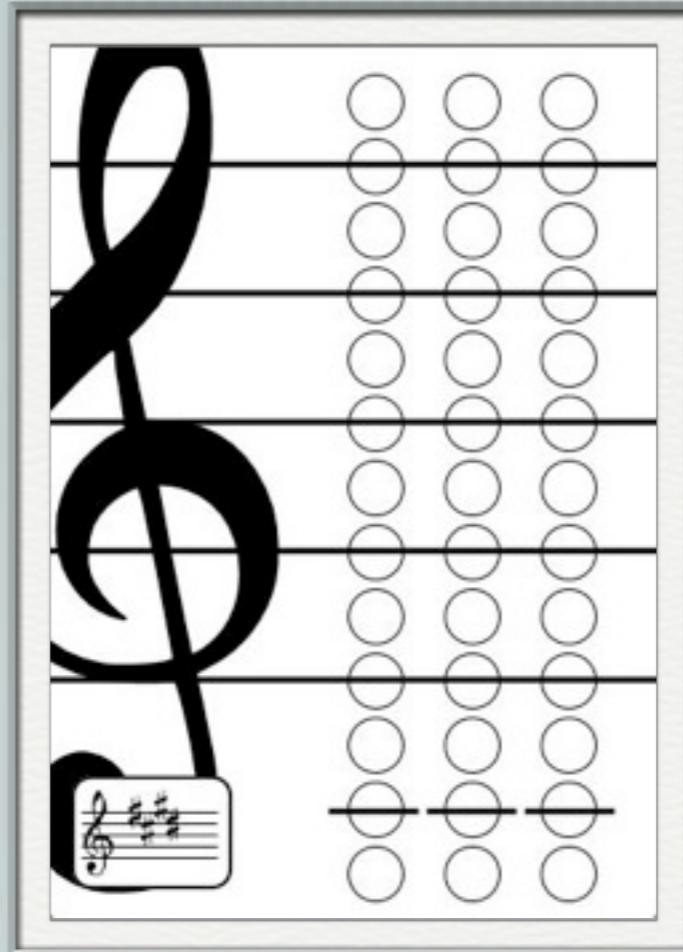
Game

In a similar way to "Guitar Hero", in which people can have fun following a melody with keys and colours, they can have fun with PENTAGROM® reading any score and learning music effortlessly.

OTHER SOFTWARE APPLICATIONS

Digital (Iphone , Ipad, Touchscreen...)

One of the most immediate applications of the project is digitally, within one of the most popular portable devices: **Iphone, Ipad, Android telephone, Laptop Computer, Touchscreen, etc....**



Because the software is so versatile it can be adapted to any of these devices, and so reach a mass market.

Internet

Developing an **official Pentagrom® website** which can be a meeting place for all users, providing: work material, library, games, downloading of software, meeting point, on-line school, educational videos, magazine with information, etc...



Instruments

As hardware PENTAGROM® can be the musician's instrument par excellence. A line of instruments developed using the 7x3 array.

✓ Autonomous controller

The controller shown in the first section is the first instrument, as it can be autonomous; using a loudspeaker it will issue the note corresponding to the key pressed.

✓ Xylophone

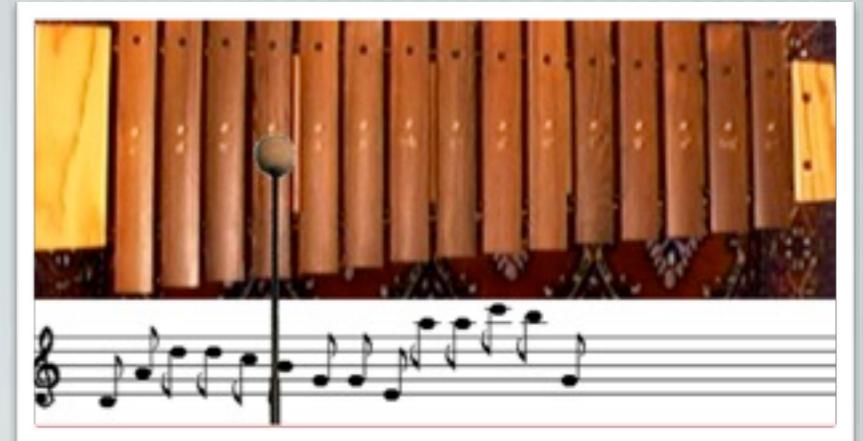
It is incomplete as an instrument because it does not have a key signature, but is a practical way of starting in the world of music.

In the future, it might be possible to manufacture a musical controller in the form of xylophone with the 7x3 array and with the key signature function; and this instrument would be able to represent all written music.

✓ Melodica

The melodica is a cheap instrument which can be useful and appealing.

✓ Etc ...



Videogames

Within the field of music-related videogames such as: Guitar Hero, Rock Band, Sing Star, etc... **PENTAGROM® goes one step further. It gives you enjoyment but also knowledge.**

While existing games do not give you real knowledge after the hours spent, PENTAGROM® provides with hours of fun but also real knowledge, given that you are interacting with written music.

No doubt a lot of mothers and fathers would be pleased to see their children getting something more productive out of the hours spent with the console.



Whiteboards

One of the most important applications we see in this system, is **the possibility of music being within everyone's reach.**

The education system we have thought of is the fastest and most intuitive teaching method existing on the market.

Electronic whiteboards will be a very good tool in a music class; and they can use the software we have created to teach pupils theory and harmony, in both music schools and normal schools.



Toys

The controller per se is **a toy for both adults and children**, it all depends on the song (level) that we choose.



APPENDICES

PENTAGROM® IS A PRODUCT PATENTED BY JAIME IGLESIAS ÁLVARO-GRACIA

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SISTEMA XXI is a Scientific Work registered in the Intellectual Property Registry of Madrid, Spain, Number M- 2812/200

PENTAGROM IS A PROJECT WHICH RECEIVED A GRANT FROM THE MINISTRY OF CULTURE OF SPAIN IN ORDER TO PROMOTE MODERNISATION, INNOVATION AND TECHNOLOGICAL ADAPTATION OF CULTURAL SECTORS CORRESPONDING TO 2010 REF. NUM 2943.

CV

Name Jaime Iglesias Álvaro-Gracia
Place of birth Madrid
Date of birth 3th Nov. 1971

ACADEMIC TRAINING

- * A Levels/School Leaving Certificate (In Spain known as C.O.U. Selectividad in 1983).
- * Various schools and private teachers in Madrid (La Factoría, I.M.T., Pentagrama, ...).
- * Berklee College of Music. Boston (USA). 1996-1998 studying the Jazz Composition degree.
- * Private Classes with Jerry Bergonzi in Boston, during 1997 and early 1998.
- * Musical IT course (midi and logic) in the Madrid Creative Music School in 2002.
- * In September 2004, I began to study for the Jazz-Guitar degree at the "Pablo Sarasate" Music School (Pamplona)
- * In June 2008, I was awarded the Degree in Jazz-Guitar from the "Pablo Sarasate" Music School (Pamplona).

PROFESSIONAL EXPERIENCE

- * Various rock groups such as "La Huida" and "Matisse".
- * El Trío", with my own compositions.
- * Duo with the pianist Hartmut Zeller, playing jazz standards.
- * I composed the music for an adaptation of Lorca's play Bodas de Sangre with the ISHTAR theatre company in the III Theatre Festival of the Complutense University of Madrid.
- * I wrote the music for a film entitled Madrid, la capital del mundo ("Madrid, the capital of the world") which was premiered in Madrid in September 2000, and took part in the Cannes festival.
- * I took part in the **Begoña Bang-Matu** group and **Orquesta Kingston** of Madrid, and did tours around Spain.
- * I taught classes in the **Instituto de Música y Tecnología** (IMT) of Madrid from 1993 up to 2000, as a guitar, harmony and composition teacher.
- * I taught guitar, harmony and composition classes in the **Ritmo y Compás** school for 9 years.
- * In 2002, I worked as an extra-curricular music teacher in the Aguirre Schools in Madrid.
- * Two years as a volunteer, helping children with their schoolwork as part of the "AGEMA" NGO.
- * I have taught classes of guitar, harmony and composition in the **Escuela de Música Creativa** for 9 years.
- * Since 2008, I have taught music classes in the Isaac Albéniz Municipal Music School in Carabanchel, Madrid.
- * Performances in concert venues in Madrid and surrounding areas as a session musician, with different bands and also my own group, the "Jaime Iglesias Jazz Quartet".



THE SOLFEO XXI® SYSTEM

Contact:

Ideas Musicales Pentagrom SL

Av. De Bruselas, 38, 1 Dcha.

28028 Madrid

Fax +34 91 726 77 91

Cellular +34 669 39 70 73

ideasmusicalespentagrom@gmail.com

jaimieglesiasag@gmail.com