



Interactive Music Science Collaborative Activities
 Team Teaching for STEAM Education

Deliverable 5.7

Intermediate 3D musical instrument interactive design kit

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Executive Summary

This deliverable reports on the intermediate implementation of the 3D musical instrument interactive design kit. The tool have been evolved in terms of instruments and GUI. It also have a several fixes and UX improvements. The environment can be access at:

<http://devtest.leopoly.com/3d-interaction-repository-V2/leopolyDesign.html>

Changes and new features in this version:

- The tool now works over secure HTTPS connection.
- New GUI according to the feedbacks
- New UI style - trying to be conform with the workbench
- Architectural improvement: stay in the environment while loading new instrument
- New instrument: Guitar
- Updated instrument: Xylophone. 3D customization and separate test of bars possible

Note that the development of the activity environments continues, and the updated stable version of the 3D musical instrument interactive design kit can be accessed at <http://platform.imuscica.eu/workbench.html> under the Engineering icon.

Suggested browser is the Firefox Nightly that can be downloaded from <https://www.mozilla.org/en-US/firefox/channel/desktop/>

Version Log			
Date	Version No.	Author	Change
28-03-2018	0.1	Carlos Acosta (LEOPOLY)	Initial content
11-04-2018	0.1	Carlos Acosta (LEOPOLY)	Send to reviewers
11-04-2018	0.1	Foteini Simistira (UNIFRI)	Review
11-04-2018	0.1	Petros Stergiopoulos (EA)	Review
11-04-2018	0.2	Carlos Acosta (LEOPOLY)	Address reviewers comments
23-04-2018	1.0	Vassilis Katsouros (ATHENA)	Finalize and submit to EU

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LIST OF ABBREVIATIONS

Abbreviation	Description
3D	3 Dimension(al)
GUI	Graphical User Interface
ATHENA	ATHENA RESEARCH AND INNOVATION CENTER IN INFORMATION COMMUNICATION & KNOWLEDGE TECHNOLOGIES
UCLL	UC LIMBURG
EA	ELLINOGERMANIKI AGOGI SCHOLI PANAGEA SAVVA AE
IRCAM	INSTITUT DE RECHERCHE ET DE COORDINATION ACOUSTIQUE MUSIQUE
LEOPOLY	3D FOR ALL SZAMITASTECHNIKAI FEJLESZTO KFT
CABRI	Cabrilog SAS
WIRIS	MATHS FOR MORE SL
UNIFRI	UNIVERSITE DE FRIBOURG
GUI	GRAPHIC USER INTERFACE
HTTPS	HYPertext TRAnSFER PROTOCOL SECURE

1. Introduction

In this deliverable we will describe the updates performed in the tool since [D5.1-Initial 3D musical instrument interactive design kit](#).

2. Installation and technical requirements

This tool is intended to be included in the iMuSciCA workbench as an iframe using the following URL: <https://leopoly.imuscica.eu/create?application=imuscica-V2&parentHost=https://cabri.imuscica.eu&instrument=monochord>

In addition, the updated stable version of the activity environment can be accessed at <http://platform.imuscica.eu/workbench.html> under the Engineering icon.

For full functionality of the tool, Firefox Nightly or Edge Nightly versions are recommended. No additional applications or plugins are needed to run this tool.

3. Description of new features

- New GUI according to the feedbacks

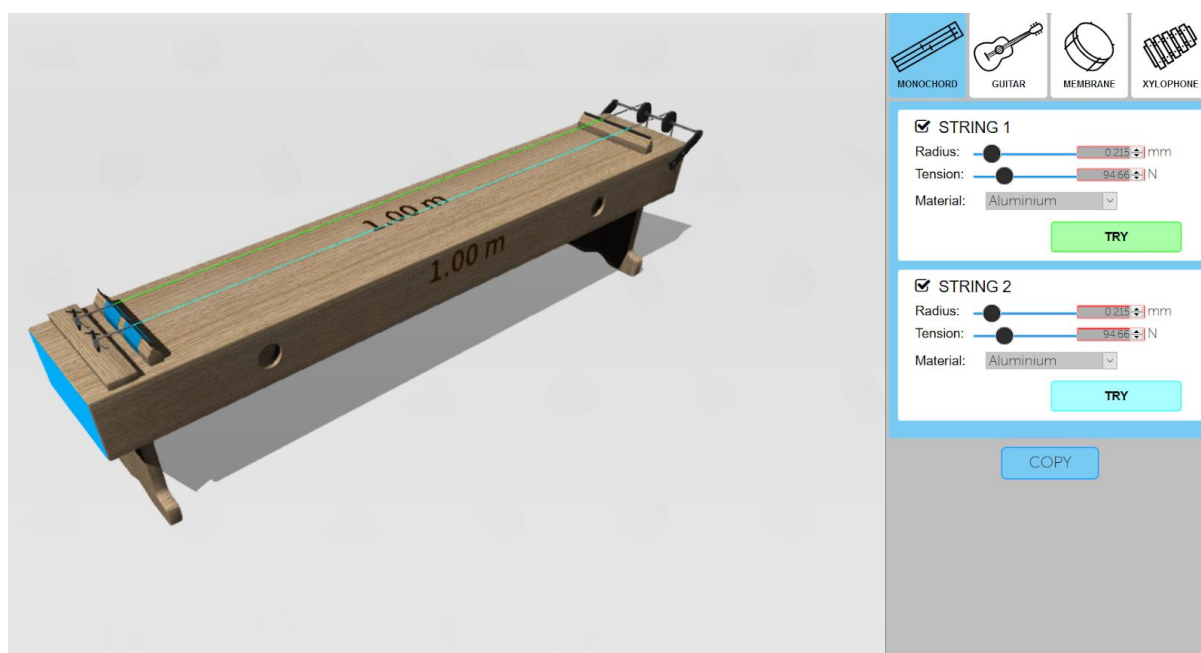


Figure 1-1: New GUI

The new GUI is separated from the modeling environment for the purpose of not to hide the musical instrument as it did earlier. After several trials, we decided to place the GUI on the right side, instead of the left, so that it won't interfere with a possible control of the workbench at the left. All musical instruments are now accessible through the GUI, so selecting a musical instrument is not a workbench-related task but it is done right in the editor.

Furthermore, the GUI is designed to have as many controls and tabs as needed (e.g. a ruler appears if the height of the controls exceeds the window height).

- New UI style - trying to be conform with the workbench

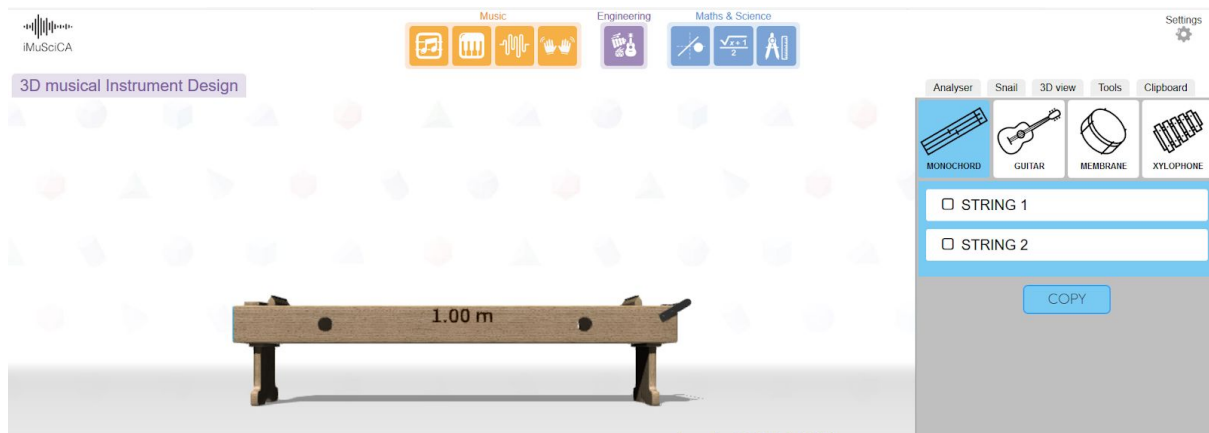


Figure 1-2: UI Design

The workbench design is far from final, we still tried to make some adjustments to try to fit in the existing design:

- Architectural improvement: stay in the environment while loading new instrument

All the architecture has been redesigned to conform with the concept that it is not the workbench that opens the tool with a template but the user who chooses a template (musical instrument) right from the tool. The reason is that the templates are specifically designed to fit to music instruments and so they won't work if any 3D object could be opened as template in the tool.

- New musical instrument: Guitar



Figure 1-3: New virtual guitar

The new musical instrument is monochord-based. The future plan is to create additional string instruments and merge them below one single instrument family as the membrane. As an experiment a “preset” section is available for the tool to enable the student to choose from predefined string parameter sets.

- Updated instrument: Xylophone - 3D customization and separate test of bars possible

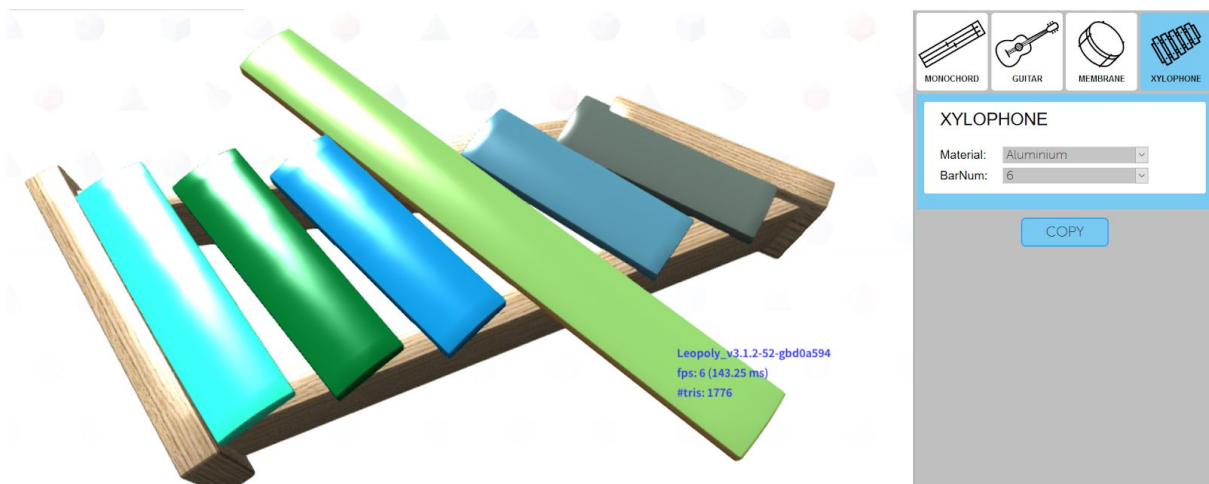


Figure 1-4: Updated Xylophone

The user is now able to customize the frame of the xylophone: it is possible to move and enlarge each side, as well as it is also possible to change the length of the bars individually. Testing the sound can be done by clicking with the mouse on each bar.