

[David Letellier and Lab [au]] Tessel

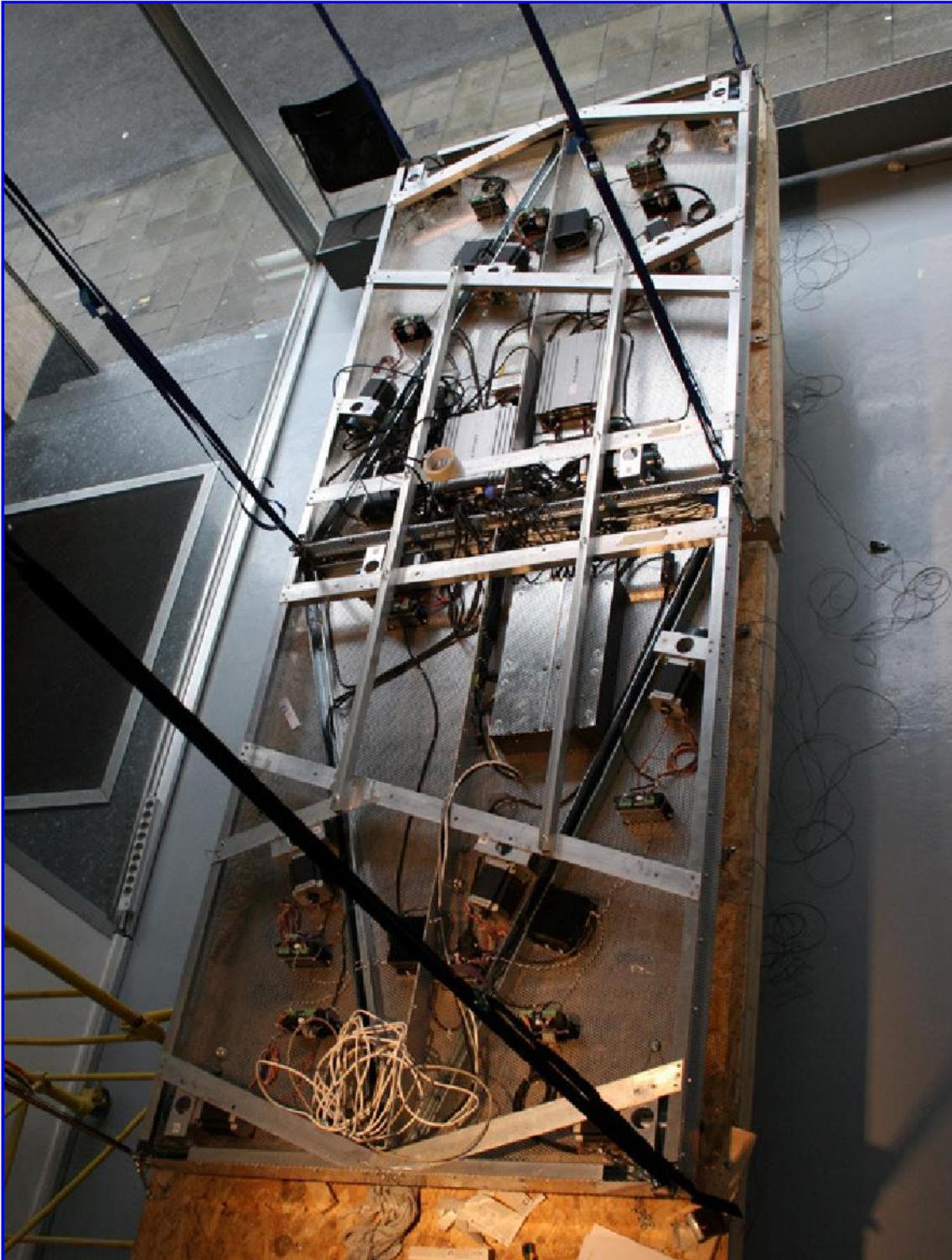


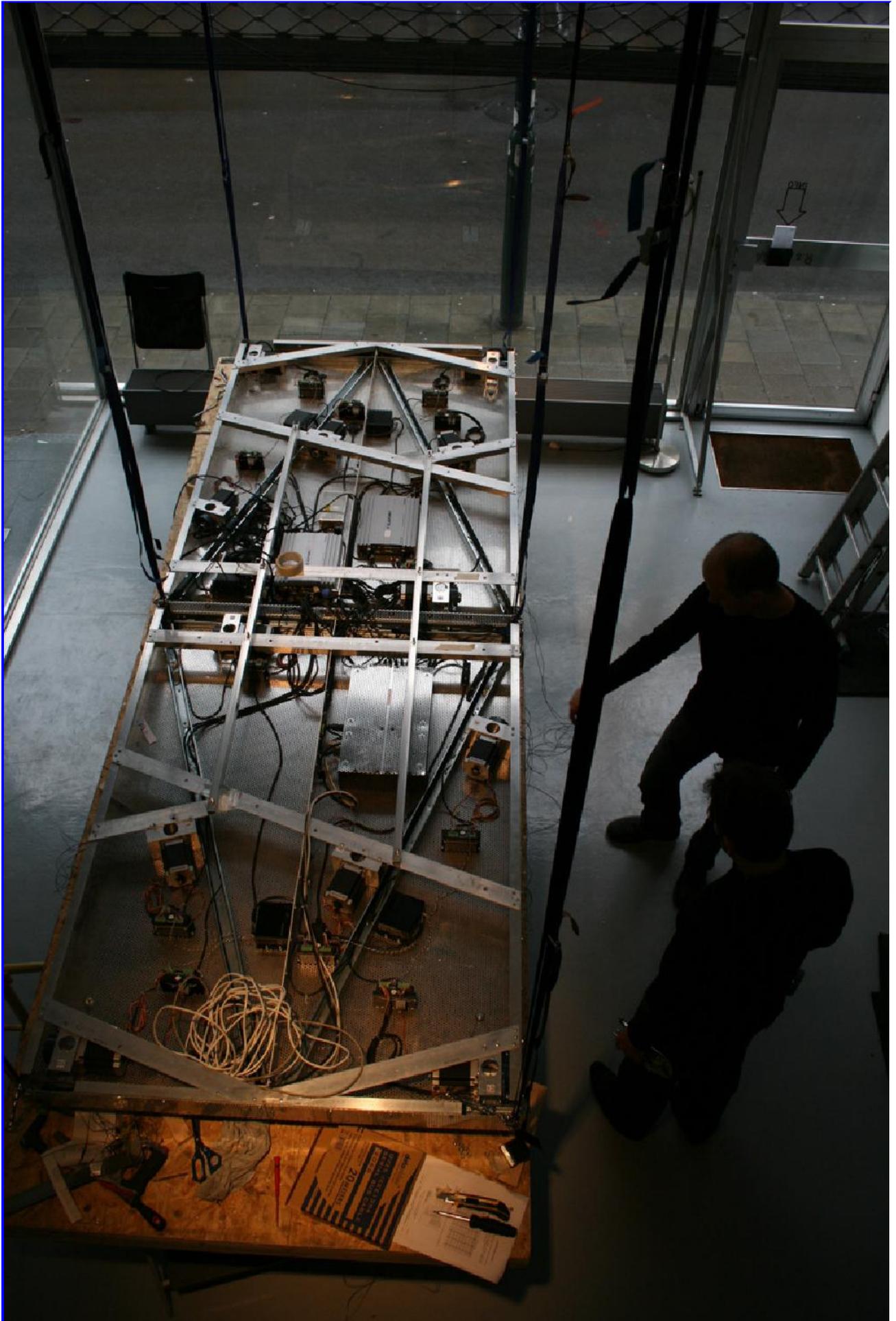
[Last week](#) we posted about the new installation by David Letellier and [Lab \[au\]](#) for their gallery in Brussels. Now we have some great new details, supplied by Jerome Decock of Lab[au].

The installation was inspired by the notion of "tessellation", a term applied to the geometric subdivision of a surface into plane units. It includes a suspended topography of 4 x 2 m, subdivided into forty triangular mirrors equipped with audio transducers, transforming the surface into a dynamic sonic space.



The installation is divided into two parts: an aluminium frame/case which holds all the technical gear and a folding tessellated surface. The aluminum case counts 12 (nema 23) stepper motors fitted with spools and encoders (avago optical incremental encoders), fed by 48V DC transformers. These are controlled and watched by 3 [parallax propeller](#) microcontrollers ([parallax USB proto boards](#)), each one opening a serial port to a mini-itx atom computer fitted with an 8 channels soundcard. Firmware is written in [Spin](#) (parallax high level language) and assembly. The computer runs custom Basic/C++ software which takes care mainly of computing positions, adapting acceleration/deceleration ramps to morph from one position to the next and synchronizing motion with multi channel sound. There are also two Audio 700Watts 4 channels car amplifiers in there.

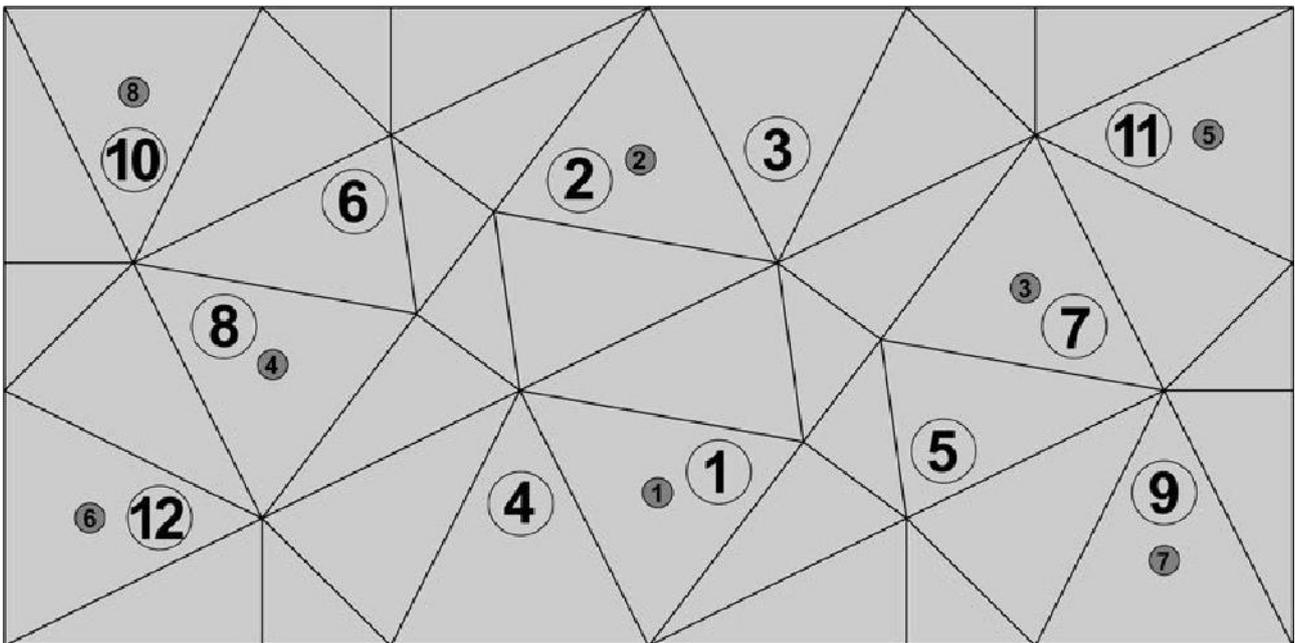






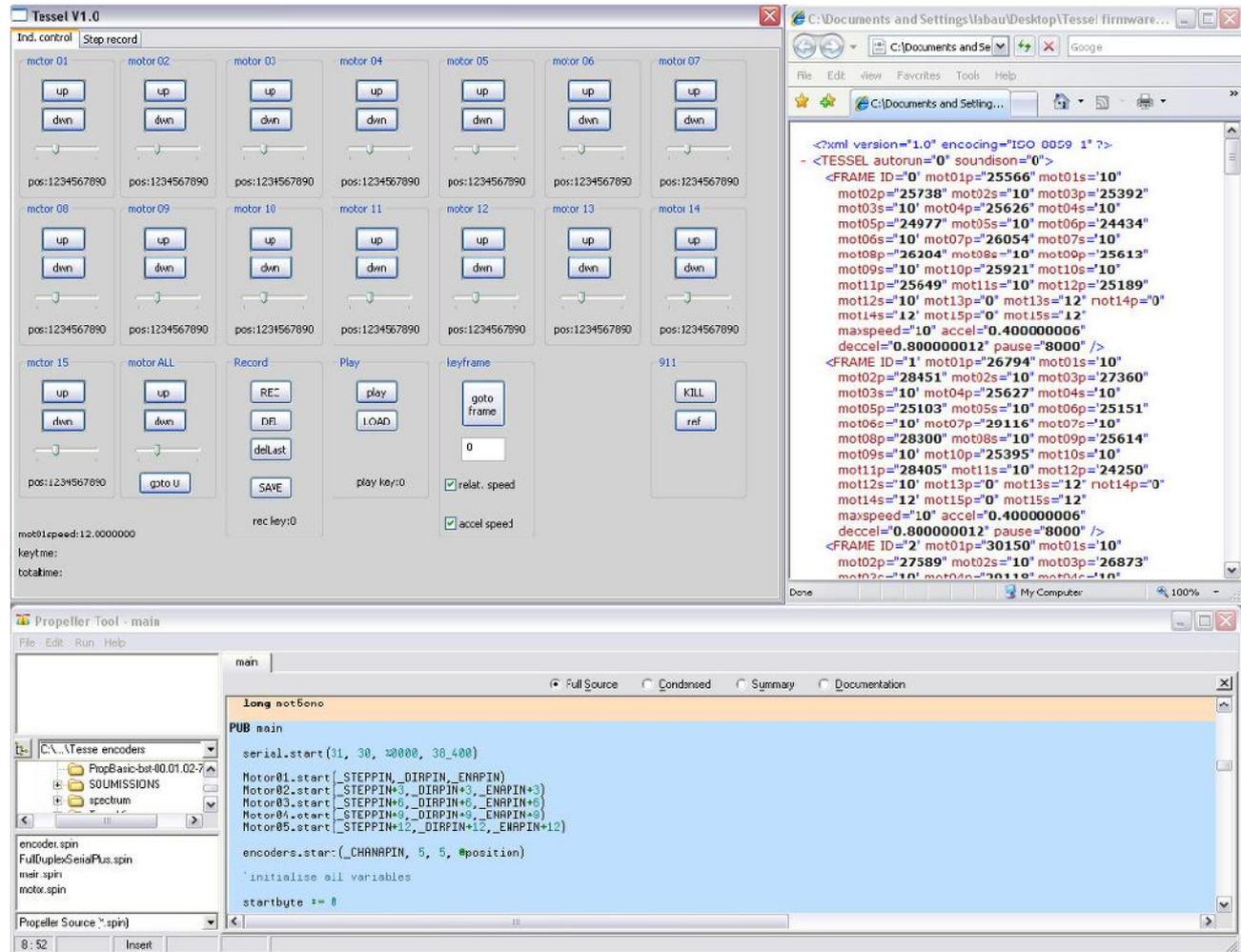


The surface hangs on 12 pulleys with a pre-constrained nylon 1mm cable passing thru. On 8 triangles, the 4 corner ones and 4 in the middle, there are sound transducers; these are basically speakers without the cone, transmitting vibration to the surface itself. Sound is thus produced by the vibrating metallic triangles. These triangles are made of a sandwich of 2 Dibond sheets (a sandwich in itself with a foam core and aluminium sheets) and rubber sheet. The Dibond triangles have been laser cutted prior to assembly. The sandwich is glued with washers making contact in between the 2 Dibond sheets, through a hole cutted in the rubber. The transducers are fitted in holes to make contact with the last aluminium layer. The surface is constituted of 3 parts, embedded rivets and overlaps allowing reassembly.



The attached scheme shows the 12 suspension points (motors) and the 8 transducers positions. The screenshot shows the main GUI control interface, the xml file holding “key positions” and settings, and

some lines of the firmware/spin program.



The exhibition runs until December 6, 2010. From Sunday to Thursday between 16h and 21h in the [media room](#), Laekensestraat 104, 1000 Brussels.

Read more at [mediaruimte.be](#).

Video by [Niels Wouters](#)

Previously on CAN: [Framework f5x5x5 \[Environment\]](#)

