1st Voxel

Based on the title of the Medialab – Prado workshop **“II taller de luz, espacio y percepcion”** I developed the concept of an analogue hologram matrix.

“1st Voxel - Concept”.

“A voxel (a portmanteau of the words volumetric and pixel) is a volume element, representing a value on a regular grid in three dimensional space. This is analogous to a pixel, which represents 2D image data. Voxels are frequently used in the visualization and analysis of medical and scientific data. Some volumetric displays use voxels to describe their resolution. For example, a display might be able to show 512×512×512 voxels.”

http://en.wikipedia.org/wiki/Voxel

In this project a bulb turns on to act as a Voxel, a volumetric pixel; the minimum square unit in processable in a 3D Matrix. By suffering an opacity change, a click, it appears – by another click it vanishes.

A 3D grid is built in the room Y axes are light electricity providers, supporting specially desingned bulb holders – creating the possibility to place a light plane in space, manupilating spacial perception.

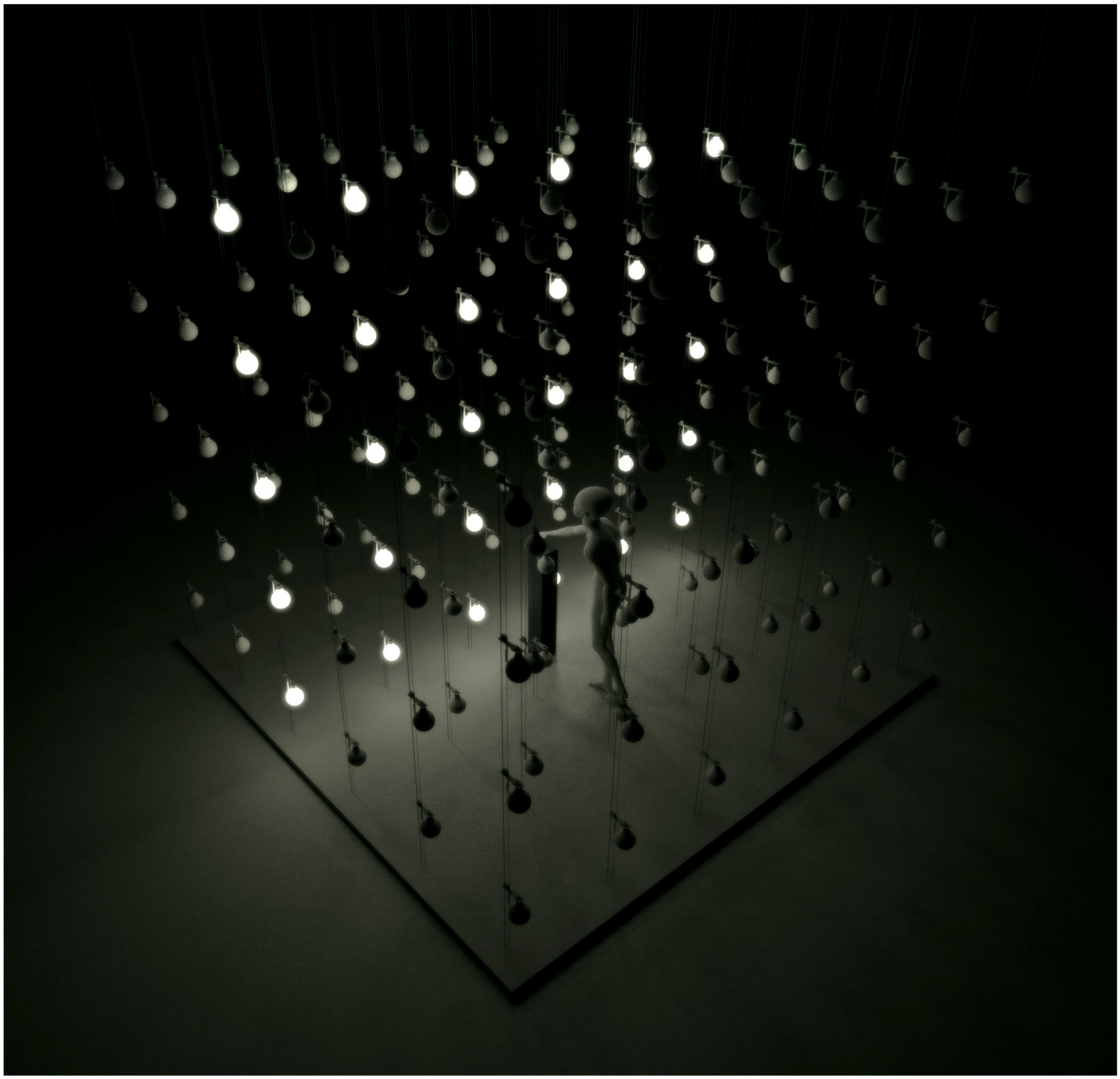
A Bulb is a volumetric unit of light - a matrix of them will alter a spatial manifestation.

The project refers to the fact, that “new” interfaces to display viual information are promised to us since 20 years – yet, we still sit in front of screens and keyboards.

Here we are building a very basic 3d display in an anachronistic way: Bulbs act as voxels, they are switched by relays. There are two reasons why relays are used instead of transistors - their electronic counterparts:

1st the fact, that they are electromechanical parts underline the anachronistic approach.

2nd when they are switched they produce a “click” providing an acoustic layer to the installation: the relays are placed next to the bulbs they switch, so every time a bulb is turned on or off there is an spatial acoustic equivalent.

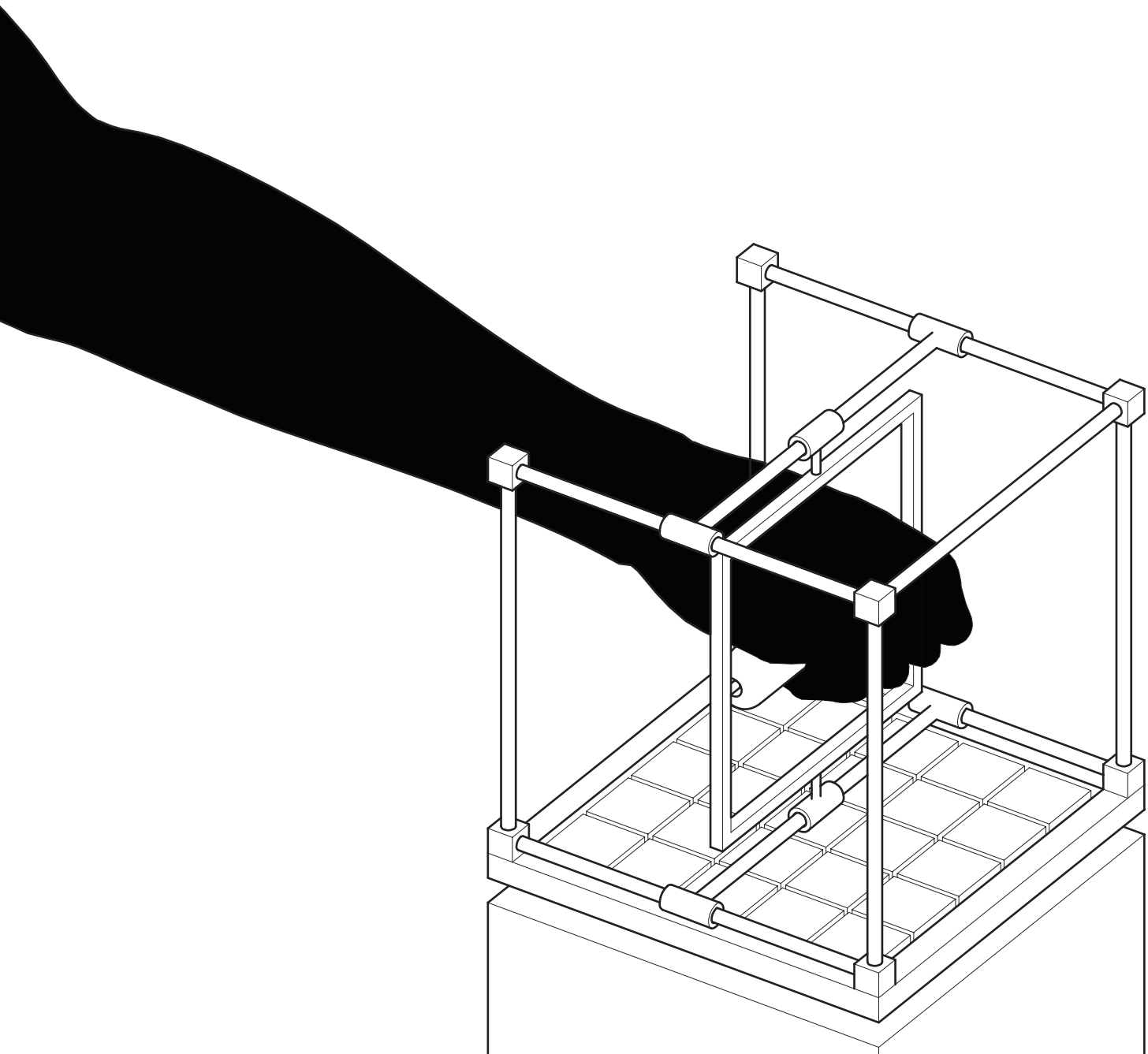


manipulate |mə'nipyə,lāt|

verb [trans.]

1 handle or control (a tool, mechanism, etc.), typically in a skillful manner : he manipulated the dials of the set. • alter, edit, or move (text or data) on a computer. • examine or treat (a part of the body) by feeling or moving it with the hand : a system of healing based on manipulating the ligaments of the spine.

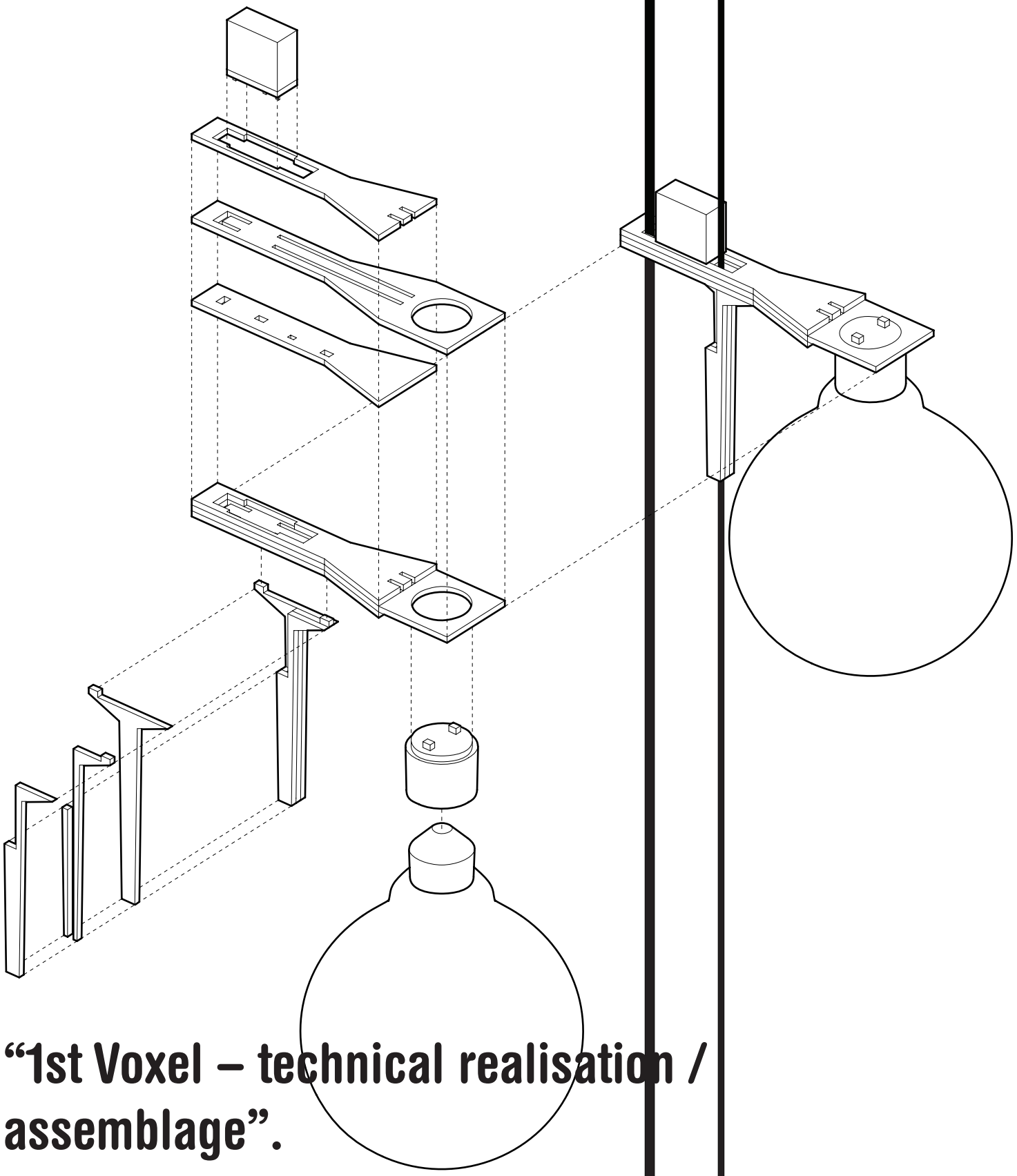
2 control or influence (a person or situation) cleverly, unfairly, or unscrupulously : the masses were deceived and manipulated by a tiny group. • alter (data) or present (statistics) so as to mislead.



“1st Voxel - Interface”.

The interface used to control the spatial display is designed to represent both, anachronism and spatial analogy. Built out of metal, the status of the displayed plane will meet the state of the interface.

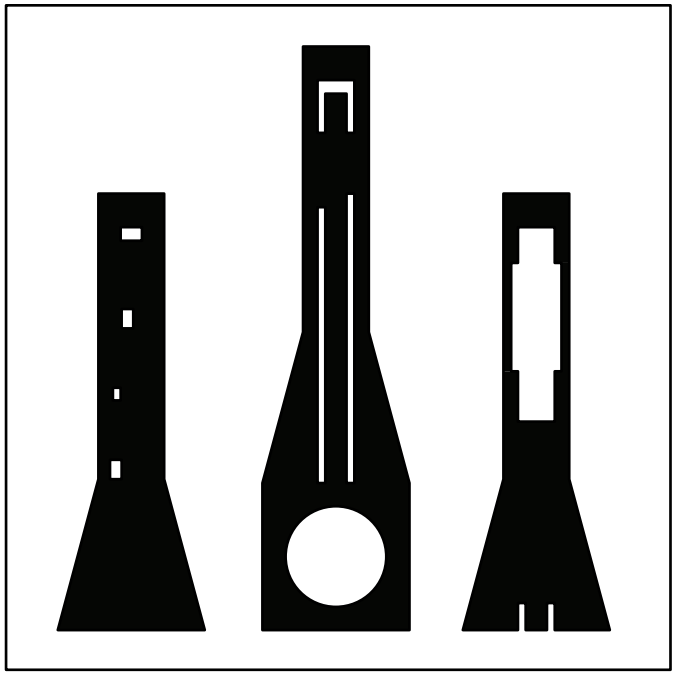
Since the interface is very simple, there is no need to explain the usage – as soon as you grab it, there is an immediate response – haptic as well as visual.



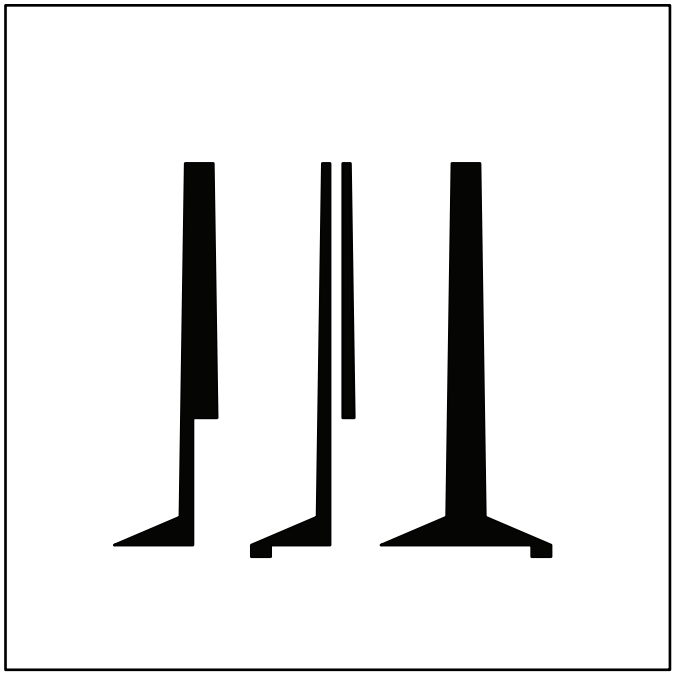
“1st Voxel – technical realisation / assemblage”.

The installation will be built out of a 6 x 6 x 5 grid of bulbs, mounted with specially designed and produced lasser cut carboard bulbholders. Cables to controll and supply the bulbs are straned in a 6 x 6 grid from the top to the bottom plate.

180 LAMINATED LASSERCUT CARDBOARD PIECES

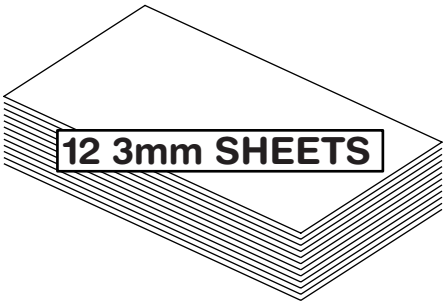


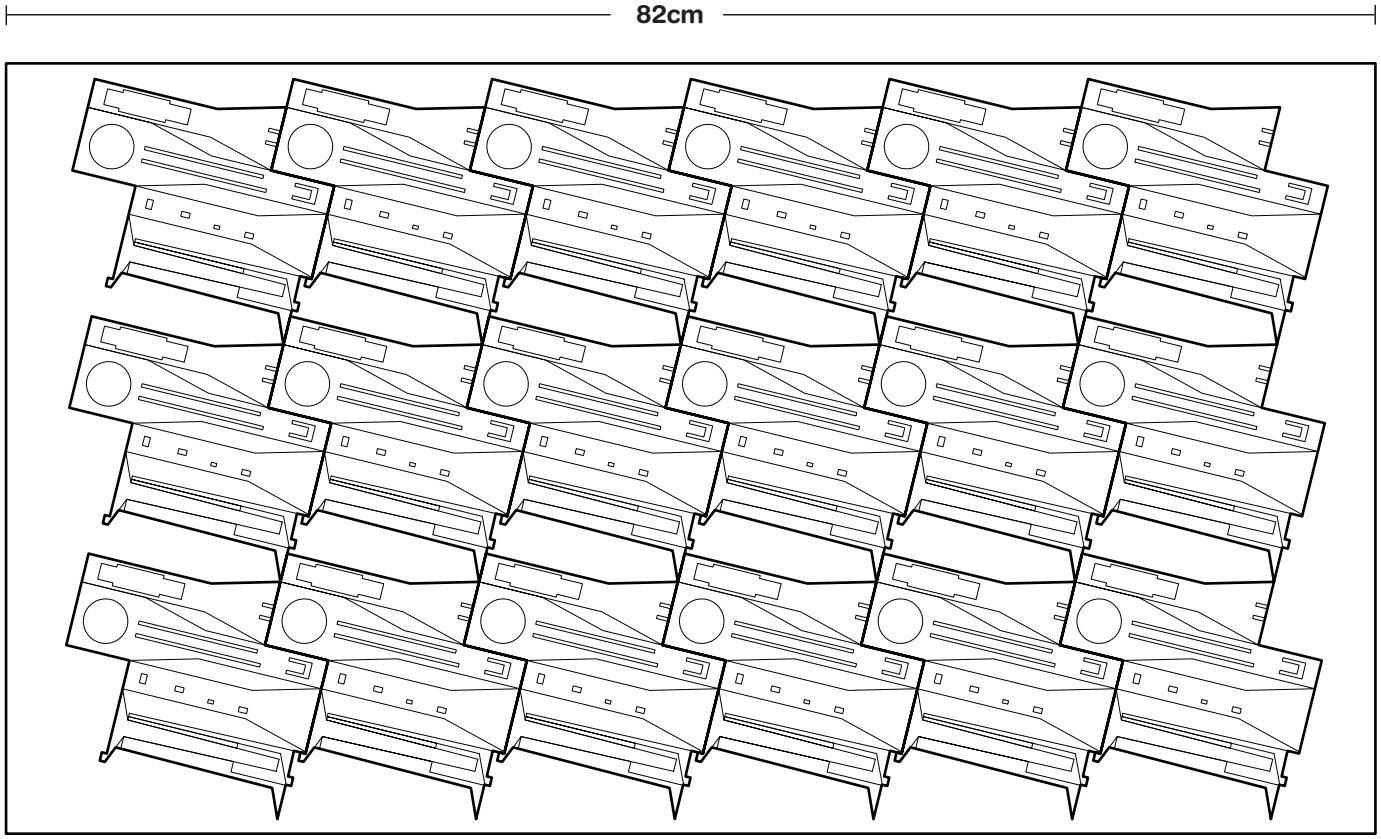
HORIZONTAL SEGMENT



VERTICAL SEGMENT

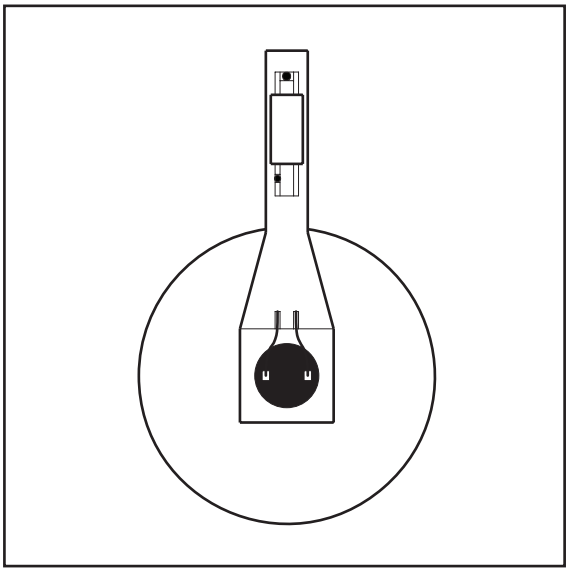
16 PIECES P/SHEET **=**



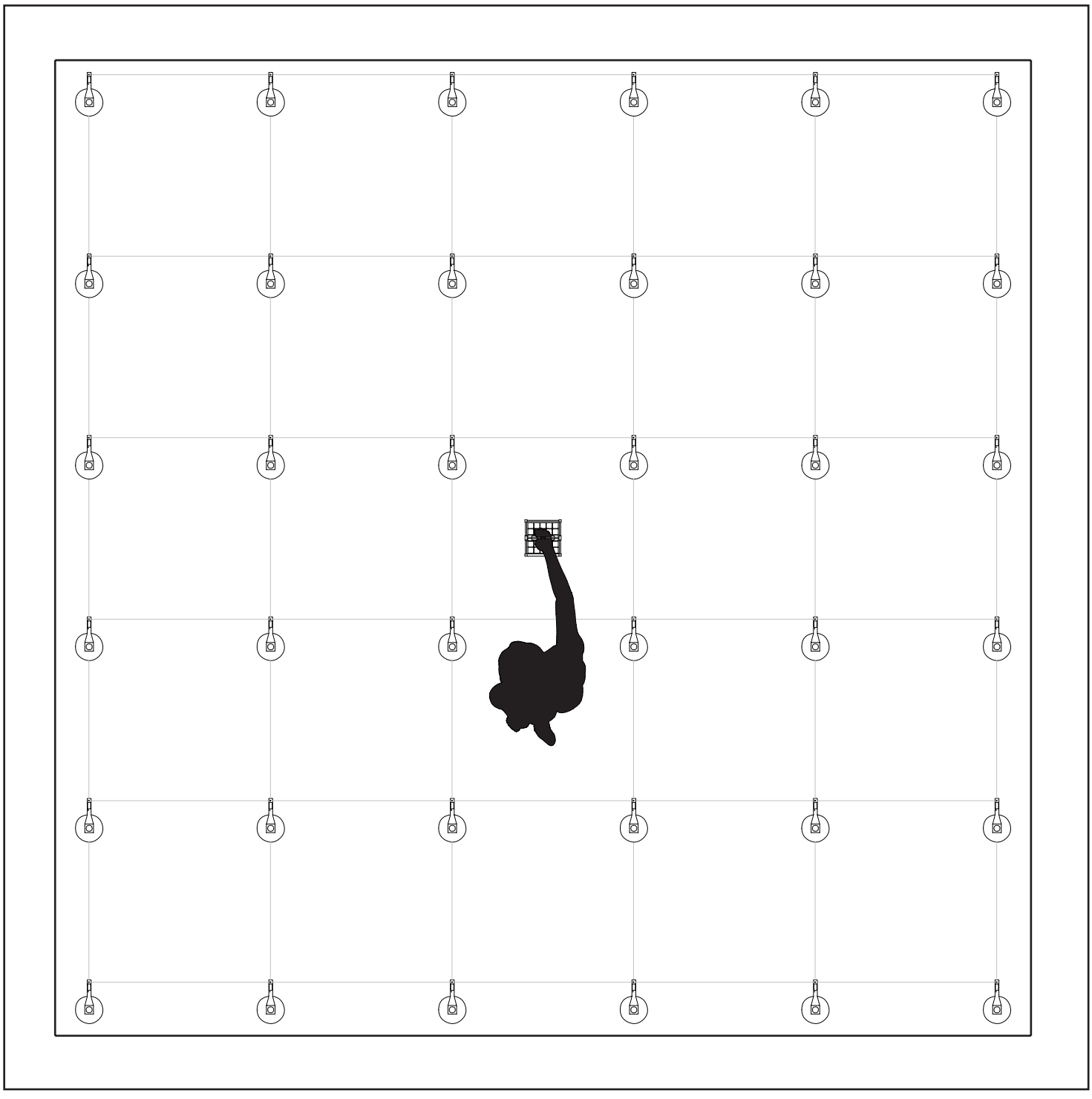


LASSERCUT BED

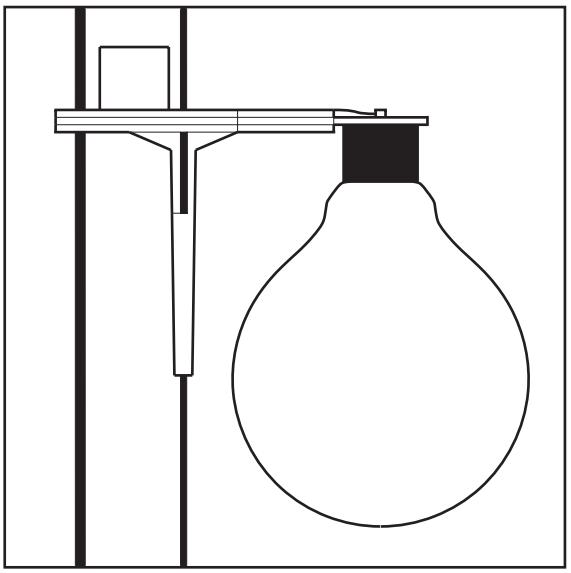
TOP VIEW

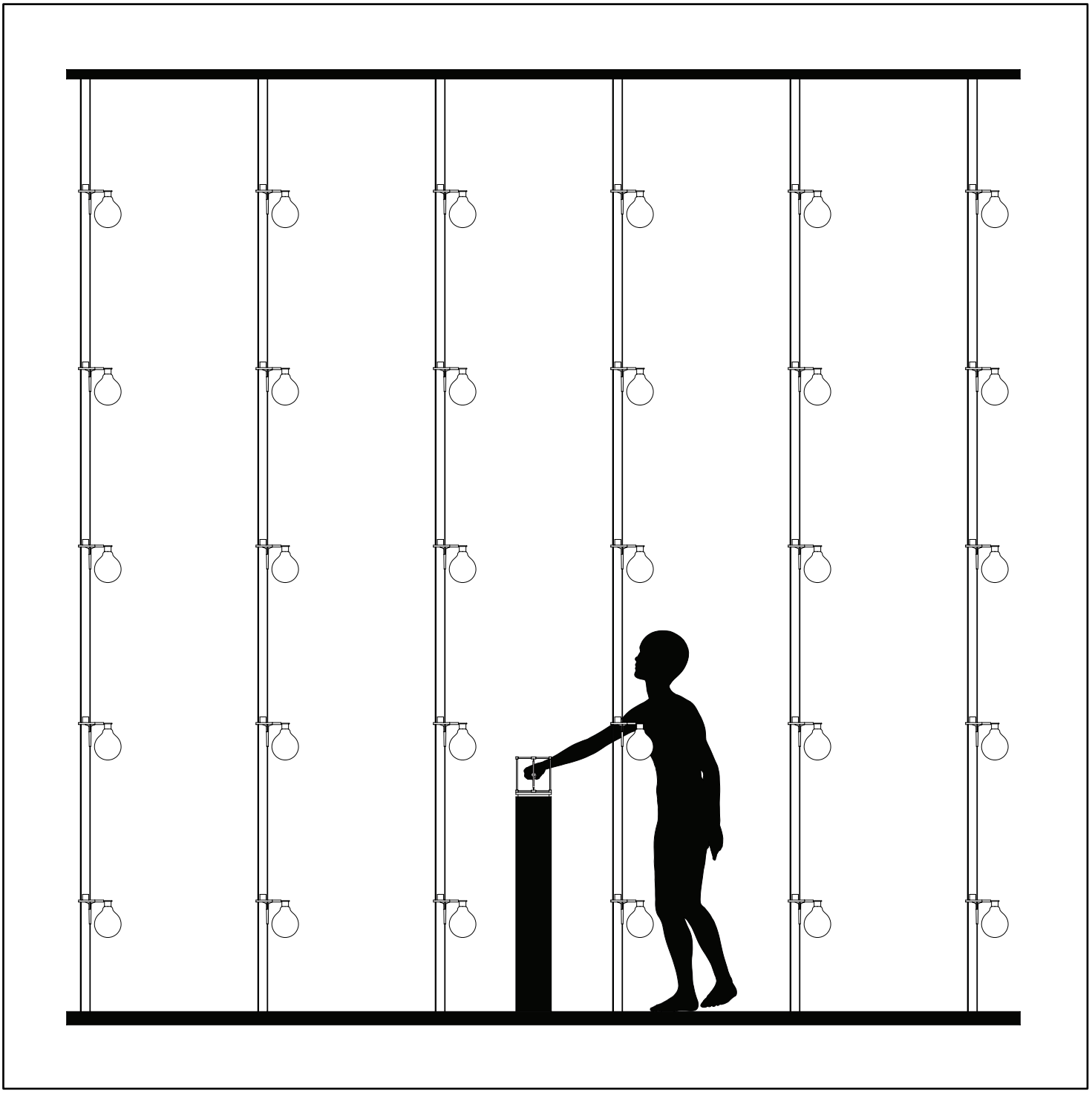


In the middle of the installation the interface will be positioned. Built out of metal, equipped with shaft guides, switches and sensor in order to provide just enough interaction possibilities to place a plane in any position in the room. It is connected to an arduino which then switches the bulbs via the relais.



SIDE VIEW





“1st Voxel – Budget”.

Material

Niro Metall	120 €		
cables	330 €		
circuit board	350 €		
bulbs	350 €		
microcontroller	50 €		
relais	540 €		
transistors	70 €		
sockets	135 €		
top panel	200 €		
bottom panel	200 €		
hanging	50 €		
foam boards	100 €		
electronics	170 €		
tools	100 €		
Total		2,765 €	

Transport

flights	400 €		
interface transport	300 €		
accomodation	500 €		
perdiem	350 €		
Total		1,550 €	
Total			4,315 €

Time

		x 12 € / h	
resarch	50	600 €	
prototyping	120	1,440 €	
programming	40	480 €	
interface	80	960 €	
sockets	40	480 €	
setup	100	1,200 €	
Total	430 h		5,160 €

Total 9,475 €