



Re-Collect

Jane Tingley
Michal Seta

Project Description:

Re-Collect is an interactive sculptural sound and light installation that is immersive in nature and is designed to evolve through interaction. The piece is built around a central spinal cord of fibre optic cabling and data wires, which feed sound and light to thirty suspended semi transparent sonic objects that were modeled after a synapse. The totality of the installation resembles a large luminescent tree like form that evokes both aquatic and terrestrial worlds, and the movement of light throughout the sculpture is suggestive of electricity moving through a neuron or synaptic pathways within the brain.

Re-Collect is comprised of thirty objects that are broken down into five groups of six - each group containing one channel of sound, several speakers, fibre optic cables, LEDs, a microphone, and a sensor. There are three main modes of responsiveness, which use human experience as inspiration. When the viewer enters the space they awaken the installation from the dream state, which involves ambient light fluctuations and occasional sound events randomly generated by the physics engine that drives the spatialization software. Once awakened the installation enters the agitation state. In this state Re-Collect is actively responding to the viewer, whose movements push the sounds throughout the room thereby generating unique sound experiences. These sounds are "memories" or sound files from the past that have been processed by the system to various degrees. The lighting fluctuations during this period are connected to both the sound spatialization engine and movement of the viewer. The final stage is the listening stage, which emerges from and folds into the agitation stage. This is when the installation listens to its surroundings, gathers memories with which to form future sonic experiences. These memory files contain ambient sounds, the sounds of itself, and also fragments of conversations from past visitors. As a result, the sound of the installation changes according to the sonic quality of each exhibition location.

The interactive experience in Re-Collect is subtle in nature and does not have a one-to-one relationship. It does not try to communicate in anyway with the viewer, but rather resembles a living system similar to a coral reef - it knows you there and tries to find equilibrium based on your presence. Its personality is revealed slowly over time, and is shaped by both its environment and visitors to the space. In its totality, Re-Collect forms a luminescent and sonic mass attentive to its environment, which uses sound as a metaphor for the electrical impulses moving through the brain and points to the moment that two entities meet – when memories form – entangle with the present – and shape experience.

<http://janetingley.com/re-collect/>

Artist Bios:

Jane Tingley is an Assistant Professor in Hybrid Media in the Department of Fine Arts and the Stratford Campus at the University of Waterloo in Ontario Canada. Her work combines traditional studio practice with new media tools - and spans responsive/interactive installation, performative robotics, and the creation of a gestural game. Her current artistic trajectory is interdisciplinary in nature and explores the creation of spaces and experiences that push the boundaries between science and magic, interactivity and playfulness, and offer an experience to the viewer that is accessible both intellectually and technologically.

She is a founding member of the Modern Nomads and has participated in exhibitions and festivals in Canada, Asia, and Europe - including translife - International Triennial of Media Art at the National Art Museum of China, Beijing, the Canadian Embassy and Gallerie Le Deco in Tokyo (JP), Festival Break 2.3 in Ljubljana (SL), Elektra Festival in Montréal(CA) and the Künstlerhaus in Vienna (AT). She received the Kenneth Finkelstein Prize in Sculpture, and has received support from a number of funding agencies, including the Manitoba Arts Council, le Conseil des arts et lettres du Québec, and the Canada Arts Council.

Michal Seta wears many hats. He's the director of software development at Society for Arts and Technology and research assistant at Matralab, Montreal, composer/improviser, performer and digital artist. He enjoys creating and using digital tools for artistic expression. He is involved with with a networked collective Melatab[SAT], a co-founding member of the electroacoustic trio No One Receiving (Grain of Sound label) and the other half of the poetry and electroacoustic improvisation duo UniSecs. His works have been exhibited or performed in Europe, USA and Canada. He has worked with Sandeep Bhagwati, Marie Chouinard, Roger Sinha, Damian Taylor and many others in bridging the gap between the tangible world and digital matter.

Re-Collect – Technical Data

Technical details:

Dimensions and weights: (W x L x H)

- Wooden Box # 1: 106 cm x 54 cm x 46 cm (42" x 21.5" x 18"), 59 kg (130 lbs)
- Wooden Box # 2: 102 cm x 54 cm x 43 cm (40" x 21.5" x 17"), 59 kg (130 lbs)
- Wooden Box # 3: 141 cm x 21 cm x 72 cm (55.75" x 8.25" x 28.25"), 30 kg (65 lbs)

Installation needs:

- The installation is adaptable to differently shaped space. The objects hang from the ceiling. If the ceilings are high – long ropes can be used to hang the objects.
- Power needs to be brought up to the ceiling. Each node requires one plug. There are 5 nodes
- Space required: between 37 - 74 m2 (400- 800 ft2). The piece can also be in a larger space, which will provide space around the sculpture – providing a better viewing angle. The sound can fill a larger space if the subwoofer is strong enough.
- Power required: 1 x 120V circuit or 220 V
- Setup time: 1-3 days

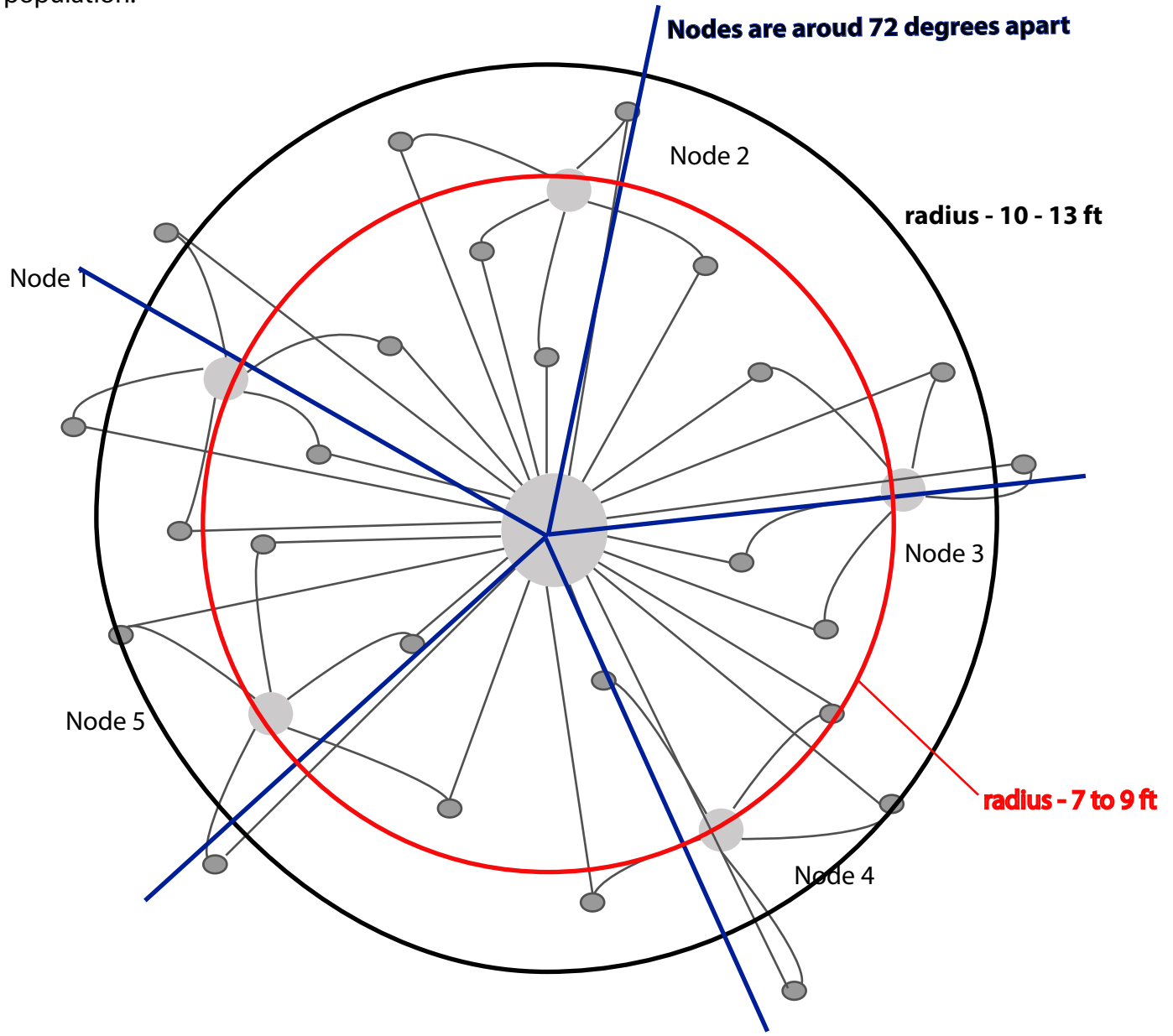
Quantity	Item
1 – Gallery	High quality subwoofer with speakers (or single active speaker 700 watt)
30	Custom fiberglass objects with fiber optic filaments, cords, LEDs and speakers or microphones.
5	Small custom black interfaces with custom electronics and PIR sensors
3	Custom white interfaces with custom electronics
25	Custom Aluminium rods (3 ft in length)
5	Custom Aluminium circle brackets with magnets (3" in diameter)
5	Custom plexi glass disks (different sizes) (2 parts) with 22 Black custom plugs in plastic bag
5	Custom black brackets (2 parts – attached to plexi discs)
1	Behringer Ultragain Pro-8 sound interface and power cord – S1202158187
1	RME Hammerfall DSP Multiface - #22363638 and power cord.
1	IBM Thinkpad and power supply – s/n LV-AD216 06/11
1	Power transformer Model: F-200w – 120 VAC – 220VAC 200 Watts
1	LINKSYS Cisco Router and power supply – Serial # CSV01H317485
1	PIR sensor on long black cable (door sensor)
10	Custom built – 3 ft ¼" male to ¼" male audio cables
1	10 ft ¼" male to ¼" female audio cable
1	3 ft ¼" male to 1/8" male audio cable
1	6 ft ADAT optical cable (very thin)
1	5 ft USB A to B (black)
1	3 ft USB A to B (black)
5	Custom built – 20 ft 5 pin (male) to 5 pin (male) cables (for black interfaces)
1	10 ft firewire cable
1	6 ft Ethernet cable
1	Black power bar – NOMA
6	AC adapter – Volgen – Model - KTPS24-09025MP
1	Circular table - black

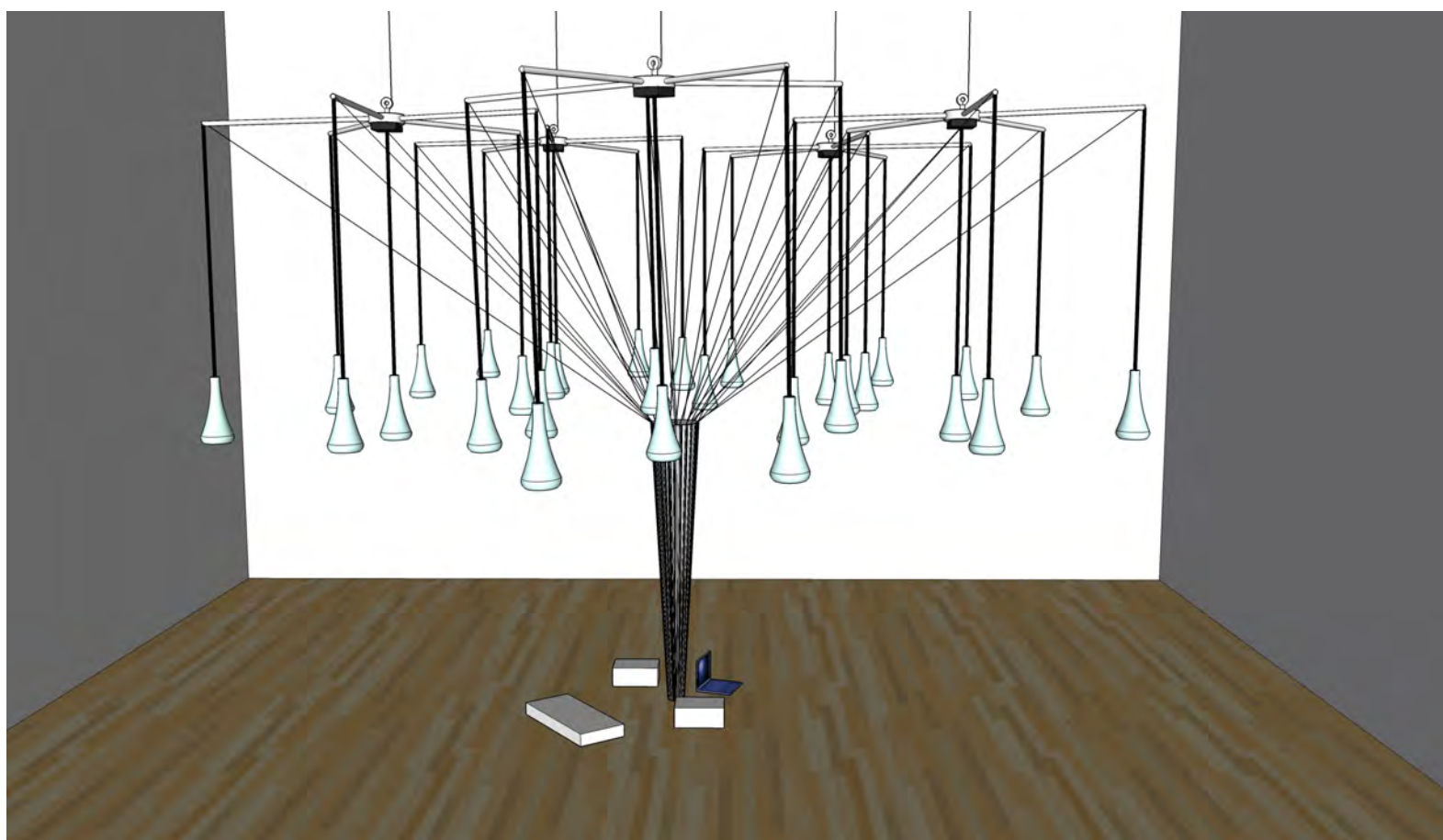
Floor Plan - Re-Collect

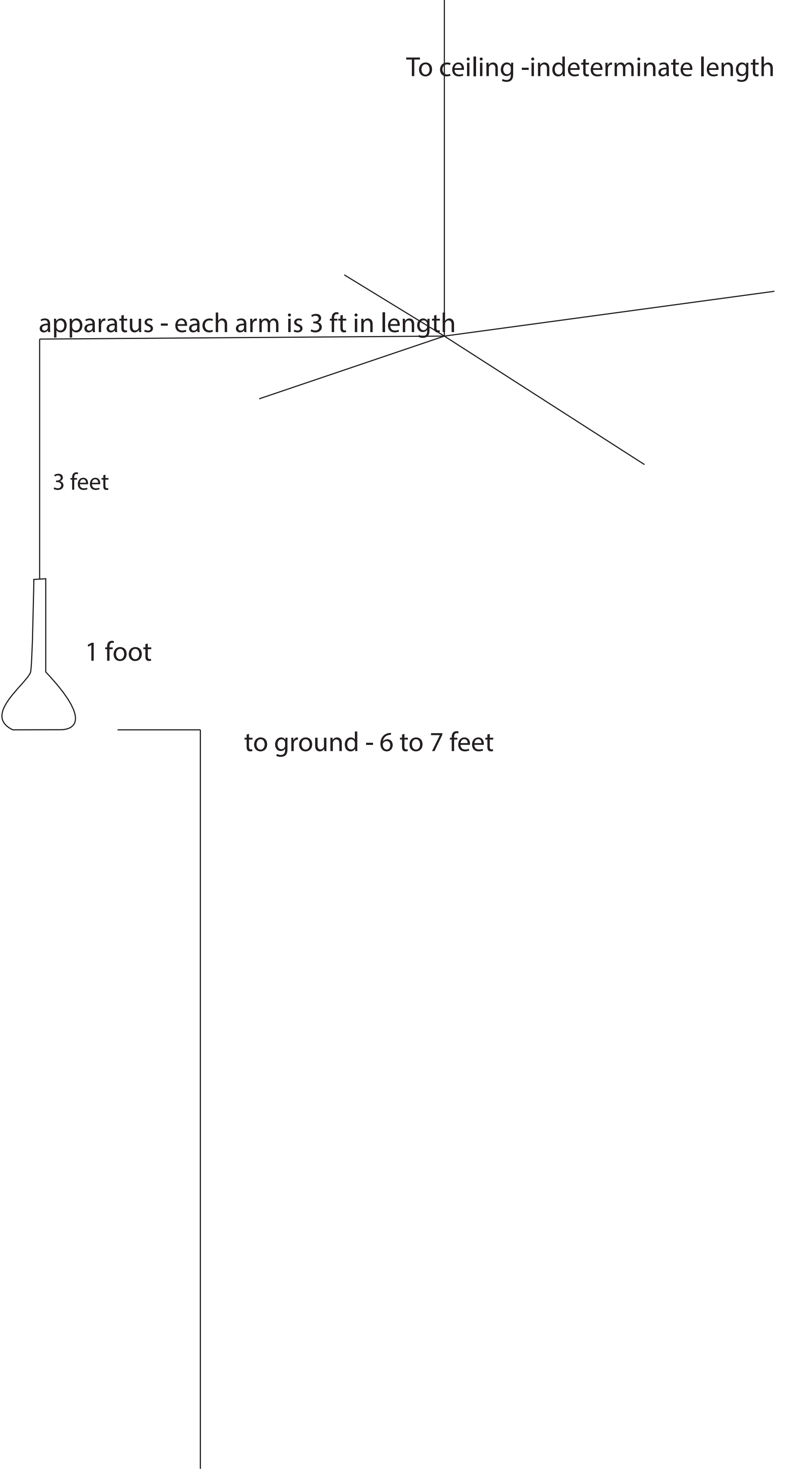
Re-Collect hangs from the ceiling from the centre of each of its nodes. Each node is anchored with fishing line to prevent it from spinning from the central point and is placed no more than 6 feet from the centre of the installation.

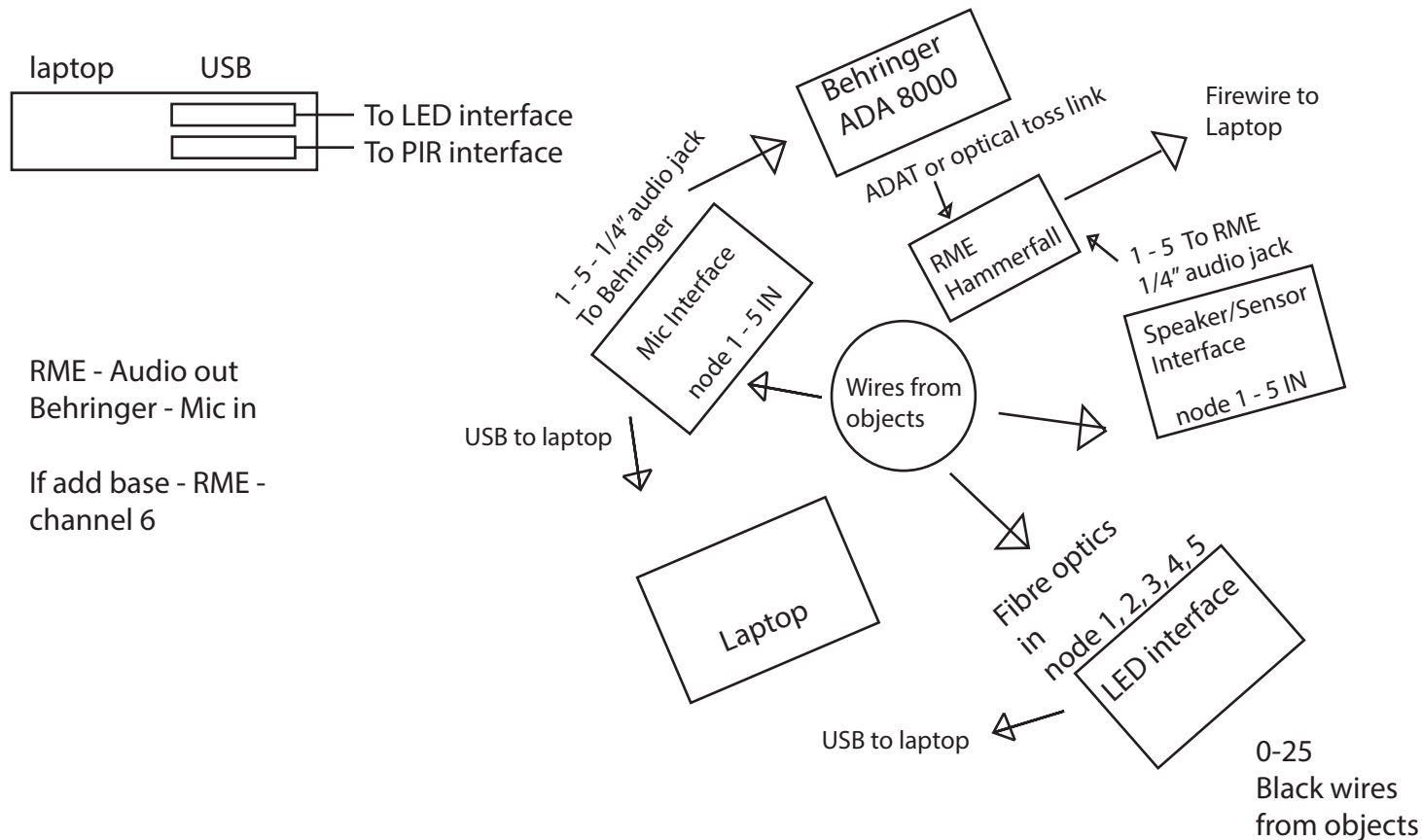
The installation can occupy between 400 - 800 sq ft (37 - 74 sq m)

The bottom of the objects hang around 6 ft (1.8m) off the ground depending on average height of population.









Plug: 2" long
1/2" diameter
inserted halfway

4" long
1" wide
1/4" deep
3/8" hole in the centre
for eyebolt



Viewport: translate = [-11.66 1.82 8.24], rotate = [30.30 0.00 20.80], distance = 1393.03

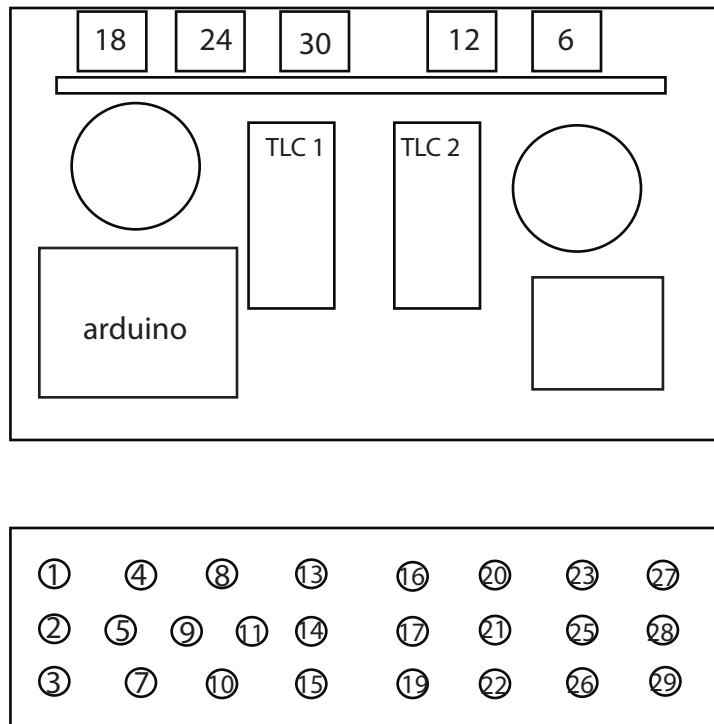
1" from end



LED Interface

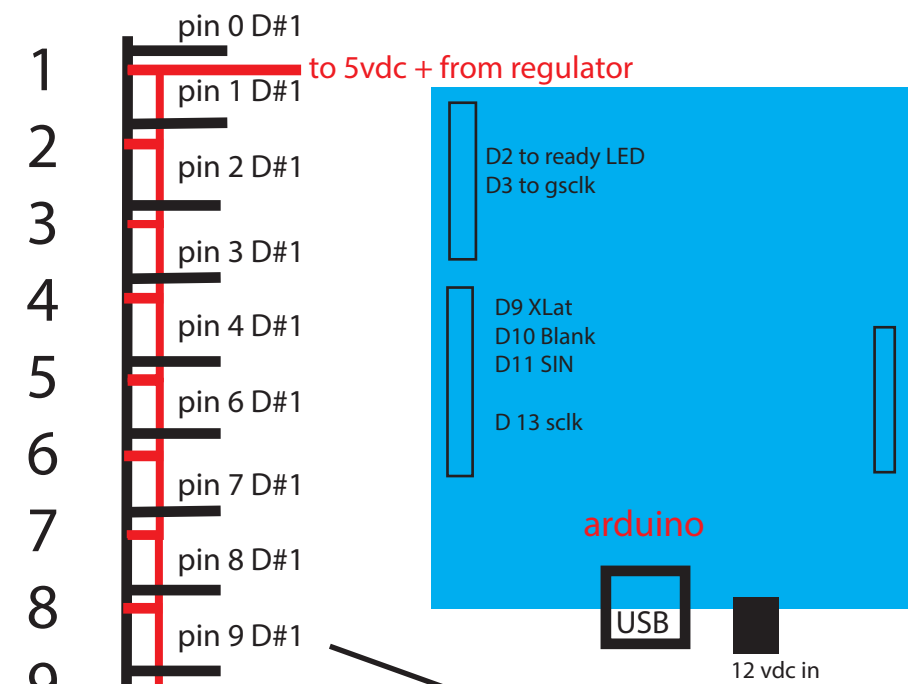
Box	TLC1
1	0
2	1
3	2
4	3
5	4
6	6
7	7
8	8
9	9
10	10
11	12
12	13
13	14
14	15

TLC2
0
2
3
4
5
6
8
9
10
11
12

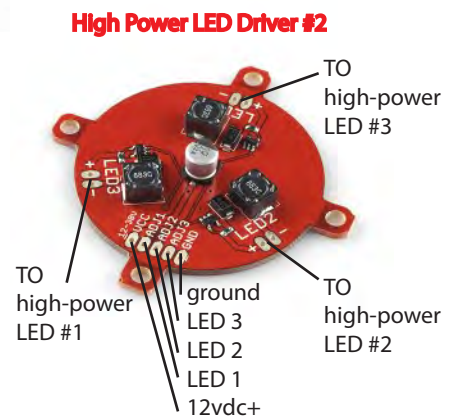
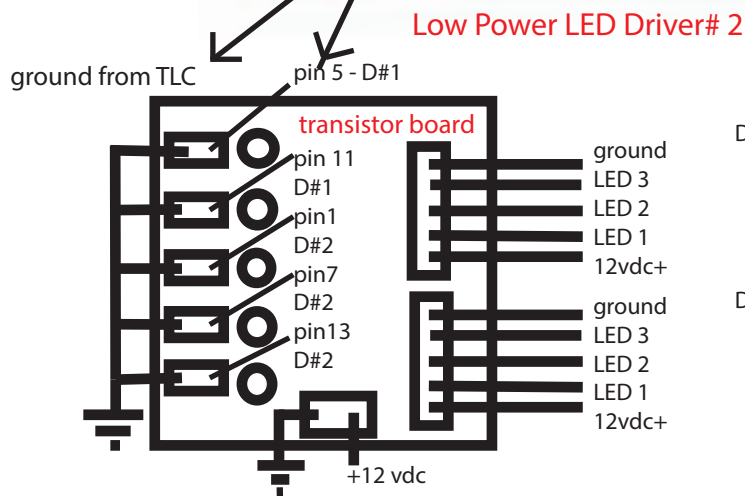
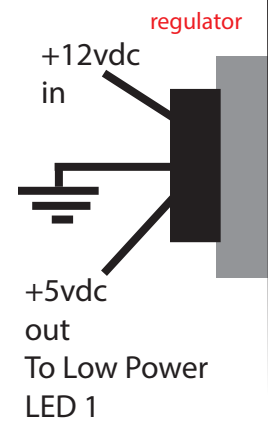
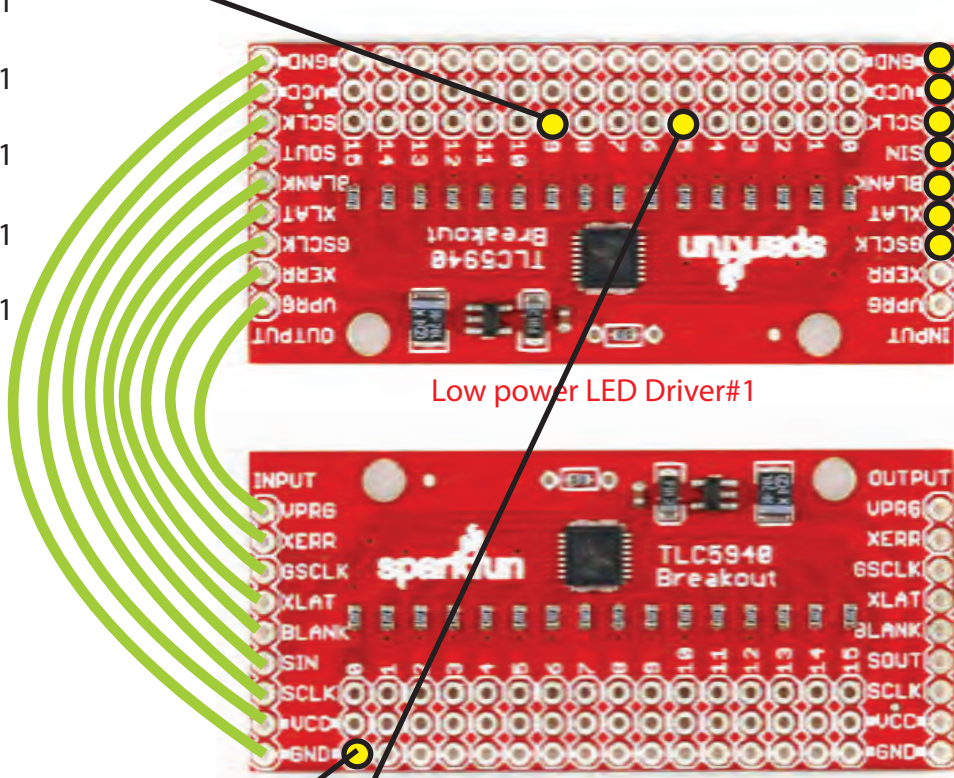
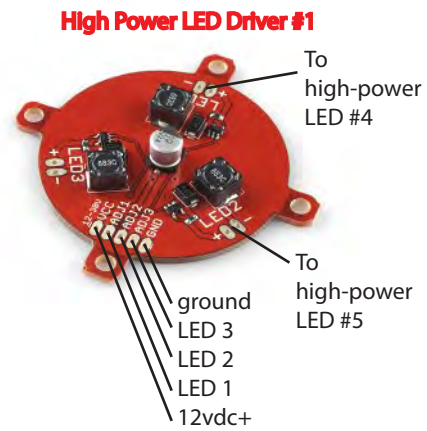


ground
vcc
Sclk - Pin 13
SIN - Pin ~11
Blank - Pin ~10
XLat - Pin~ 9
6Sclk - Pin ~ 3

Low Power LEDs

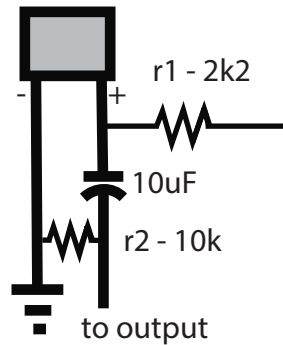


High power LEDs

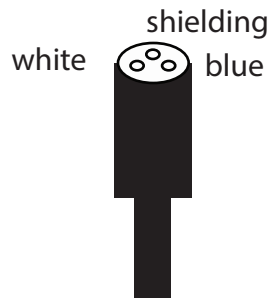


Re-Collect mic Interface

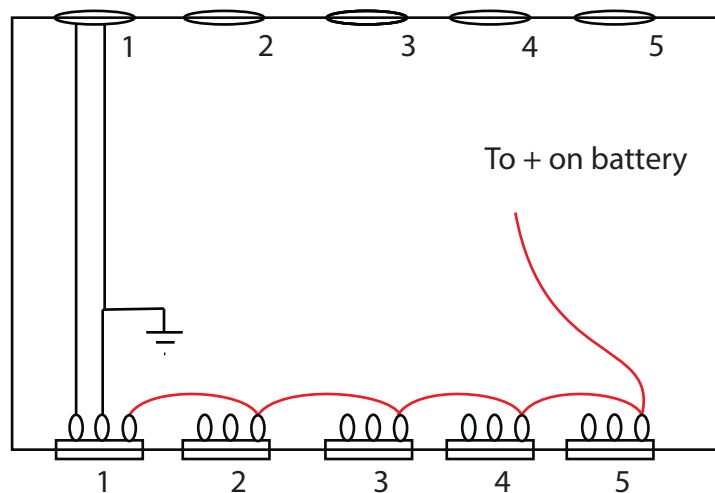
capsule



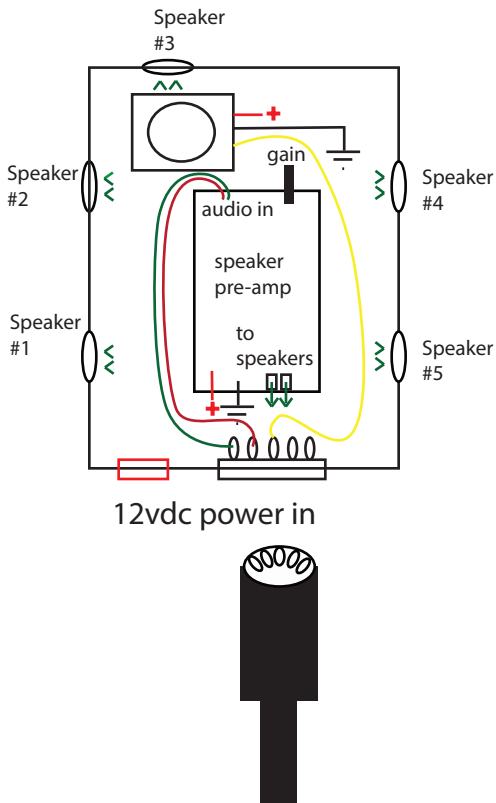
Blue = + 9volt battery
Shielding = negative
White = signal



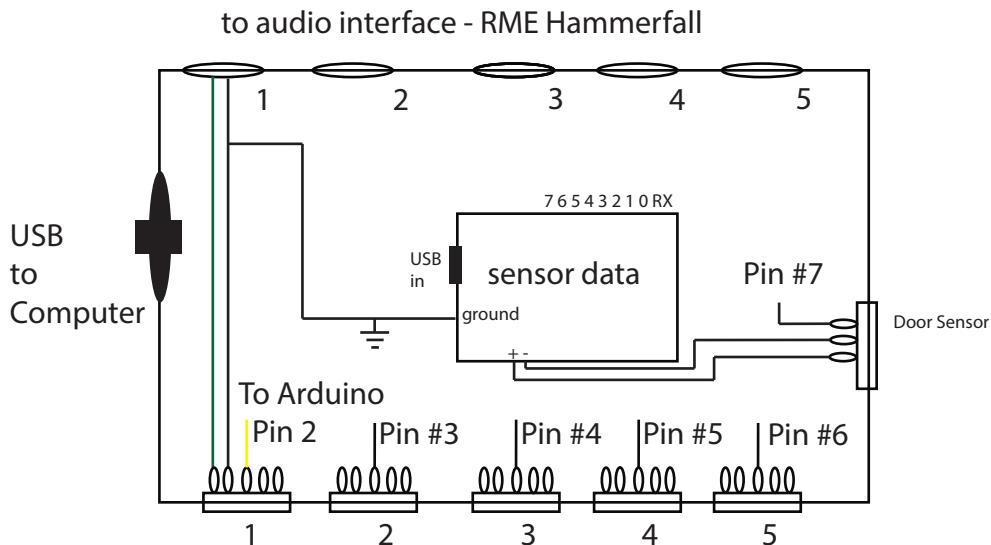
to mic Soundcard - Beringer ADA8000



to speaker/sensor node interface

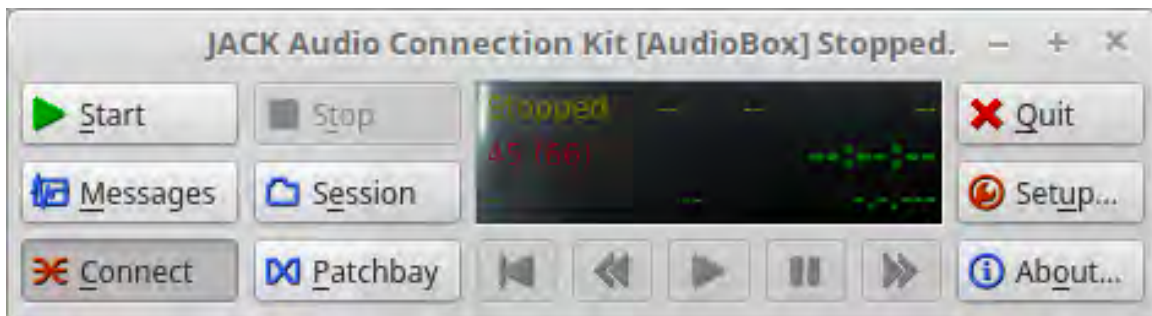


ReCollect Speaker Interface



To Test LED and Sensor

1. *lunch* starts automatically at boot time, so find its window and quit it either by clicking the "x" on the window or Ctrl+q or via File->Quit menu item. Confirm that you really want to quit it (Yes)
2. Hold Alt+F2 keys together to open a command window.
3. type `qjackctl`
4. Jack Audio Connection Kit window will open.

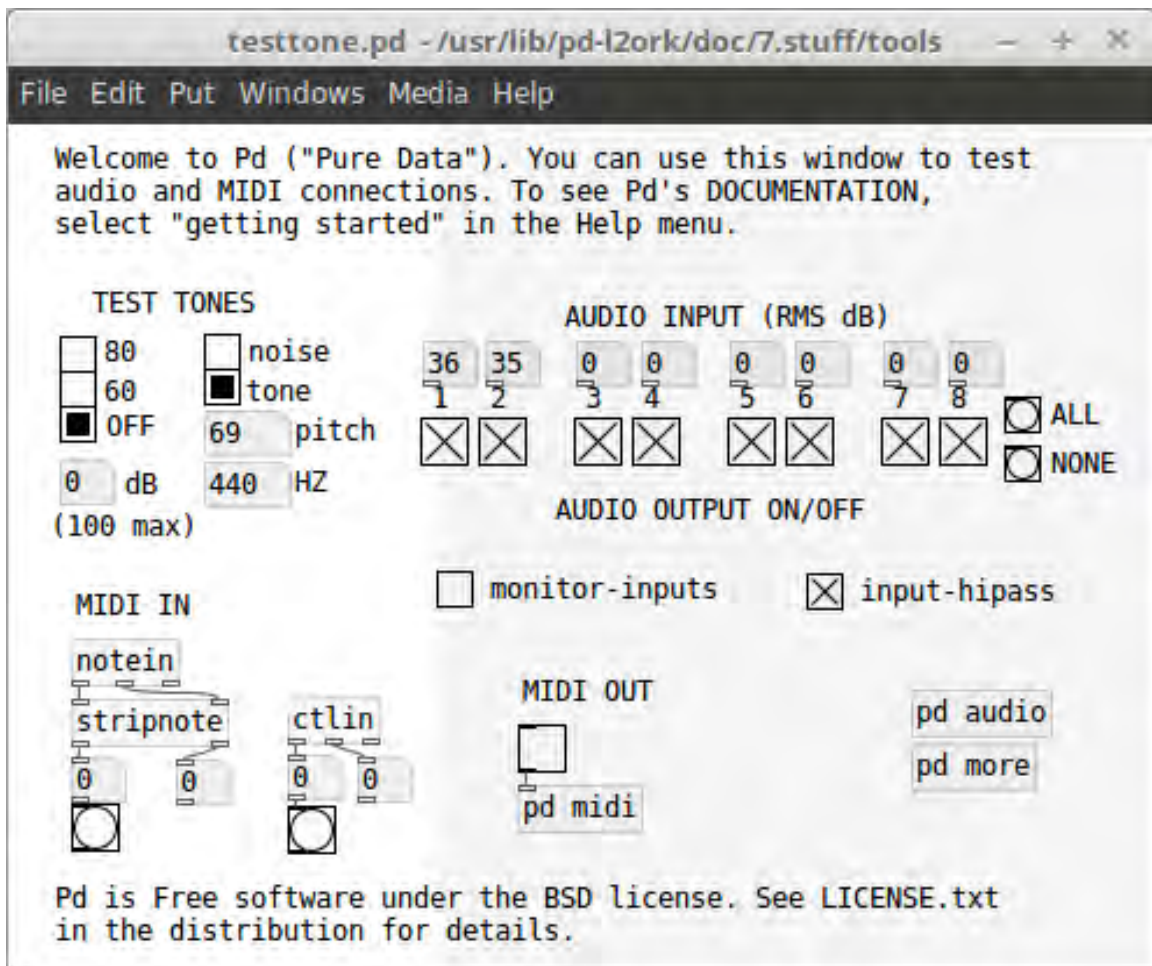


click start and wait until the yellow text changes from "Starting" to "Started"



3. open a terminal either through the icon
- or by hitting Alt+F2 keys together and typing *gnome-terminal*
4. type:
`cd src/Re-Collect`
5. type:

`pd-extended -jack -channels 8`
6. LED and sensor testing:



The number boxes under "AUDIO INPUT" represent audio input signals. There should be activity in the input channels 1-5 when making noises. Gently scratching the microphones will generate enough signal variation. Make sure that all input channels are in order.

"TEST TONES" section allows to select 2 preset volume levels (and OFF=no audio). You can select between tone (sinewave) and noise (white noise). Set the volume button to either 60 or 80 DB and you should hear sound coming out of all the speakers. The buttons with crosses under the "AUDIO INPUT" section are mute buttons for audio output.

You can mute/unmute individual channels or use the buttons "ALL" and "NONE" to all channels at once.

Confirm that all channels are mapped correctly.

1. Quit Pd

2. Stop jack by clicking the "Stop" button in QJackCtl (Jack Audio Connection Kit) window.

3. Quit QJackCtrl

4. Restart lunch

Note: audio is not actually handled by Pd but the channel mapping corresponds so if all audio channels are in order in Pd, they will be the same in pyospat audio engine used in the installation.

Note2: The audio in the installation is mapped in a particular way. Channels 1-5 are output directly to physical outputs. Output channel 6 of the audio interface is a sum of channels 1-5, this is the channel used for the bass (subwoofer). Physical output channels 7 & 8 are an arbitrary stereo mix of the 5 channels of the installation.

Controlling the overall volume

The overall volume of the installation is controlled by an option set to the audio renderer. The audio renderer, *pyospat*, is configured in the lunch script located in `~/src/Re-Collect/launch.lunch`.

Quit lunch.

Open that file in a text editor, such as gedit

(either type gedit in the terminal or start it through command prompt Alt+F2). In gedit launch.lunch and locate the line that looks like this:

```
add_command("/usr/local/bin/pyospat -p 18033 -L FIVE -a 0.05", host="localhost",  
identifier="pyospat", depends="jackd", sleep_after=3)
```

The volume option is the option "-a", try different values between 0.04 to 0.1, the higher the value to louder the overall audio. The installation must be restarted to reflect the new value.

De-Installation Instructions – Re-Collect

To Pack:

20 – 30 fiberglass objects

5 plexi discs

6 black clamps

3 custom made beige interfaces (LED, Mic, and Speaker) + 1 power adaptor and 2 USB cords

5 custom made black audio interfaces + 5 power adaptors

1 Berhinger sound interface + power cord

1 small audio interface + power cord + Firewire

1 laptop + power adaptors

16 x 1/8" audio cables

Short Ethernet cable

1 Sensor on a long cord – we call it the door sensor

Misc extension cords

- 1) Unplug all interfaces, their power cords, cables etc and wrap individually in bubble wrap.
- 2) Each node has a several fiber optic cables, which are connected together at the base of the central column. Remove them carefully from the plexi and leave them clustered together below the appropriate node – do not release them just yet – it will become a tangled mess.
- 3) Undo all but the top clamp, slide all of the discs to the base of the column and carefully pull out the cables (starting with the small ones).
- 4) Pack the discs and the clamps.
- 5) Straighten the cords to prevent tangling.
- 6) Remove the top clamp.
- 7) Place all of the cables below the appropriate object – at this point separate the individual fiber optics and carefully place them below the appropriate object along with the cable.
- 8) Lower the nodes one at a time.
- 9) Remove the central black audio interface and wrap in bubble wrap.
- 10) Detach the object from the aluminum apparatus and gently coil the cables in the same manner you would coil audio cables – in a circular bundle. Do this as neatly as possible to avoid messiness and knots. It is easiest to bundle the string first and stick it into the top of the object – next coil the fiber optic cable followed by the black cables. Connect the cables close to the top of the object and wrap object in bubble wrap.
- 11) In the boxes add a layer of bubble wrap or Styrofoam.
- 12) Place wrapped objects either straight up or lying on their side as seen in the below images.
- 13) Place everything else on top of the objects and make sure everything is tightly packed.

Packing instructions:

Box 1: 102 cm x 54 cm x 46 cm (40" x 21.5" x 18"), 59 kg (130 lbs)

Box 1 contents:

10	Custom fiberglass objects with fibre optic filaments, cords, LEDs and speakers or microphones. [5 with yellow plugs (shortest), 5 with microphones]
5	Sm black interfaces with power supply (wall warts)
3	Grey interfaces and 1 power supply
25	Aluminium rods
5	Aluminium circle brackets with magnets
1	Behringer sound interface and power cord
1	RME sound interface and power cord
1	Laptop computer and power supply
1	Router and power supply
1	PIR sensor on long black cable (door sensor)
10	3 ft ¼" male to ¼" male audio cables
1	10 ft ¼" male to ¼" female audio cable
1	3 ft ¼" male to 1/8" male audio cable
1	6 ft ADAT optical cable (very thin)
2	5 ft USB A to B (black)
1	3 ft USB A to B (black)
5	20 ft 5 pin (male) to 5 pin (male) cables (black) (for black interfaces)
1	10 ft firewire cable
1	6 ft Ethernet cable
1	Black power bar
4	Metal Counter Weights



For each object:

- **The black power and data cables should be bound together and tie wrapped.**
- **The fibre optic filaments should be wound together carefully and bound**
- **An elastic band should be placed around the bottom of the object.**

Make sure there is adequate padding between the wooden crate and the objects.
Usually there is a single layer of the sound proofing foam between the objects and the wooden crate:

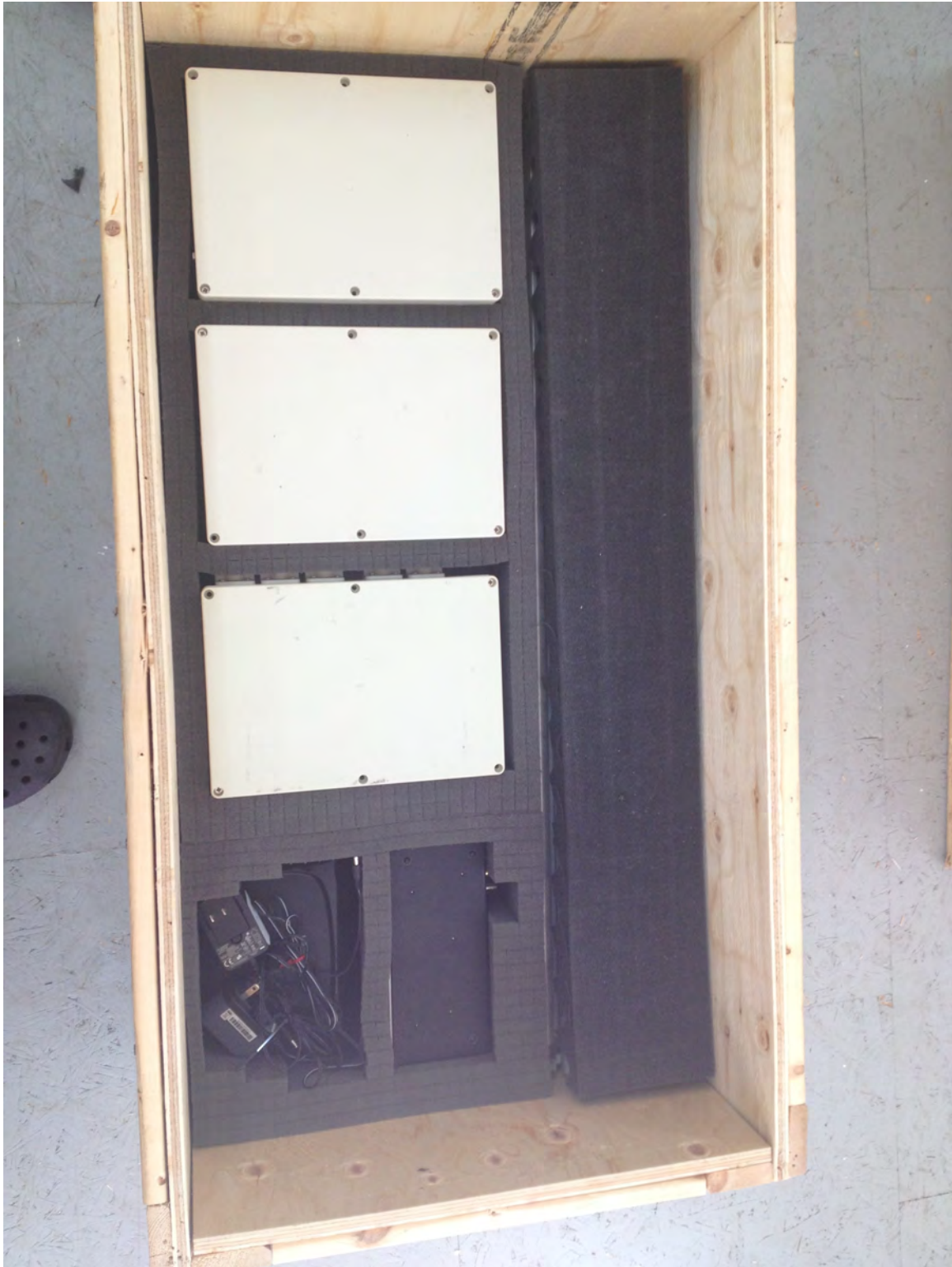
Box 1:



For the top section of box with all of the electronics:







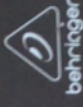




ULTRAGRAIN PRO-8 DIGITAL

AUDIOPHILE 8-CHANNEL A/D & D/A CONVERTER MODEL ADA8000

BEHRINGER
ULTRAGRAIN PRO-8 DIGITAL
A/D & D/A CONVERTER
MODEL ADA8000
SERIAL NUMBER: 123456789
DATE OF MANUFACTURE: 12/15/15





Box 2: 102 cm x 54 cm x 43 cm (40" x 21.5" x 17"), 59 kg (130 lbs)

Box 2 contents:

Quantity	Item
20	Custom fiberglass objects with fibre optic filaments, cords, LEDs and speakers or microphones. [10 with blue plugs (longest), 10 with green plugs (medium)]
5	Plexi discs (different sizes) with 5 black brackets



The final 20 objects are packed in this box in two layers. Layer one holds 10 objects, then a layer of foam, a wooden shelf, a layer of foam, layer 2 holds the final 10 objects, the five plexi glass discs, and layer of foam,

