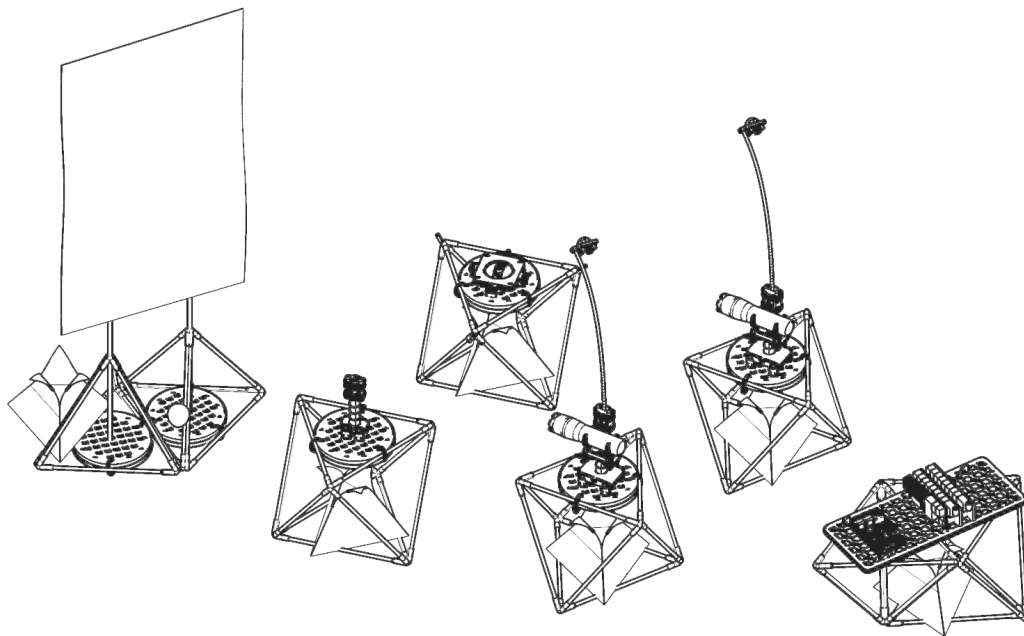


DOMAINE DE BOISBUCHET SHADOWS AND WHISPERS

Philip Beesley & Rob Gorbet / Living Architecture Systems Group
2022 Workshop



1

Introductory Stations Manual

Contents

3	Workshop Kit Contents	12	Electronics Stations
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10	Exploded Component Assemblies	18	Blade of Grass Assembly

This integrated manual comprises a set of four individually bound booklets. They are organized in four sections:

1. *Shadows & Whispers Workshop and Introductory Stations*
2. *Scaffold Assembly Manual*
3. *Geometry Exploration Kit*
4. *Electronics Hardware and Software*

The booklet you are now holding contains the first of these four parts. This introductory part includes a brief introduction to the Shadows and Whispers workshop, the Living Architecture Systems Group, and outlines the collective building program intended for the first day of the workshop.

Documentation for this workshop will continue to evolve. In order to obtain material produced after the date of printing these physical booklets, go to the following download site:

<https://3.basecamp.com/3601494/buckets/28644617/vaults/5188805890>

Shadows and Whispers: Emerging Forms at the Edges of Nature

August 7th – August 13th, 2022

Nature and technology can seem like different worlds. However, could these worlds cross over and combine into new forms? What can we learn from the patterns of nature and, in reverse, what can we offer nature? Could the subtle boundaries between artificial and natural worlds hold keys to new kinds of harmony in our expanded, turbulent world?

The workshop is about sound and light, human-made and natural. We'll experiment in order to create a hybrid sound and lightscape in an installation that achieves to find new conversations with the world of nature. In a series of talks and explorations, we will reflect on some of the endless connections and endless transitions that can be found in the world. We will create fields of new space by using artificially created sounds and tones, interwoven with our own lights and shadows. Within whispering sounds, new voices might be heard. Within glimmering shadows, dream-like worlds might be seen. This will be about listening and watching carefully, understanding and answering. We hope to create a deeply interwoven new world, operated with the support of technical and digital devices and installed within Boisbucet's unique architecture and nature.

Philip Beesley and Rob Gorbet's Toronto-based sculpture and interactive systems studio is working with the international researchers of the Living Architecture Systems Group. This group is contributing kits of simple electronic devices and geometric constructions to the workshop in order. The materials and systems that are being shared can make electroacoustic and lighting devices that explore the boundaries between sound, light, and motion. Electronic controllers are included, with coding that can be manipulated by beginners without prior training. Devices for creating movements and sound are included. Geometric kits can be extended by using materials found within the grounds of the Domaine.

After an introductory day where we follow kit patterns that introduce some specialized ways of working, individual exploration would follow. In the last days of the workshop, we will draw these explorations together into a collective installation and performance. Students in the workshop will also be asked to contribute to an open-access publication documenting the work.

About the Living Architecture Systems Group

The LASG is generously supported by the Social Sciences and Humanities Research Council of Canada (SSHRC), University of Waterloo, Canada Council of Arts, and many others.

Visit [https:// livingarchitecturesystems.com/](https://livingarchitecturesystems.com/) for more information.

For contact, reach us at info@lasg.ca. Membership and expanded collaborations are warmly invited.

Workshop Kit Contents

For Take Home Use

Geometry Exploration Kit	<ul style="list-style-type: none">- Flexible Connectors (Uniform & Alternating)- Bamboo Skewers- Instructional Brochure
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For Workshop Use

- Bamboo Skewers
- Tubing
- Cable Ties

Electronics Station

Electronics Module Type A (x2)	<ul style="list-style-type: none">- Acrylic Mounting Tray- Microcomputer (Raspberry Pi)- Data Interface (Node Controller)- Power Injection Unit (High Current Device Module - HCDM) (x2)
Electronics B Module Type B	<ul style="list-style-type: none">- Acrylic Mounting Tray- Microcomputer (Raspberry Pi)- Data Interface (Node Controller)- Power Injection Unit (High Current Device Module - HCDM) (x2)- 8-way Splitter

Light Station

Projector Screen Module	<ul style="list-style-type: none">- Projector Screen- Cardboard Peg Disks (x2)- Saplings (x2)- String / Wire
Turntable Module	<ul style="list-style-type: none">- Turntable Body- Servo Motor- Object of choice- Outrigging Wire
Flashlight Module (x2)	<ul style="list-style-type: none">- Modified Flashlight- Light Sensor (Photoresistor - PR)- Cardboard Peg Disk- Flexible Arm
Crystal Module	<ul style="list-style-type: none">- Crystal- Flexible Arm

Motion Station

Blade of Grass Module	<ul style="list-style-type: none">- Blade of Grass Vibrator- Motion Sensor (Passive Infrared Sensor - PIR)- Cardboard Peg Disk- Flexible Arm
Clothesline Module	<ul style="list-style-type: none">- Clothesline- Servo Motor- Cardboard Peg Disk (x2)- Chain Link
Shape on Servo Module	<ul style="list-style-type: none">- Servo Motor- Flexible Connector Shape- Motion Sensor (Passive Infrared Sensor - PIR)- Cardboard Peg Disk- Flexible Arm

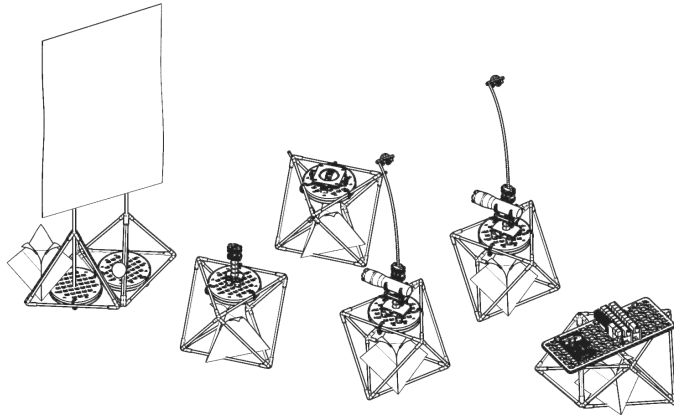
Sound Station

Sound Sampler WAV Module	<ul style="list-style-type: none">- Sound Sampler (WAV Player)- Speaker & Tube Housing- Amplifier- Cardboard Peg Disk (x2)
Voice Recorder Module	<ul style="list-style-type: none">- Voice Recorder- Motion Sensor (Passive Infrared Sensor - PIR)- Speaker & Tube Housing- Amplifier- Cardboard Peg Disk (x2)
Rotating Clicker Module	<ul style="list-style-type: none">- Rotating Clicker- Servo Motor- Flexible Connector with Sticks- Paper Sheet- Motion Sensor (Passive Infrared Sensor - PIR)- Cardboard Peg Disk (x2)- Flexible Arm (x2)

Station Assembly Types

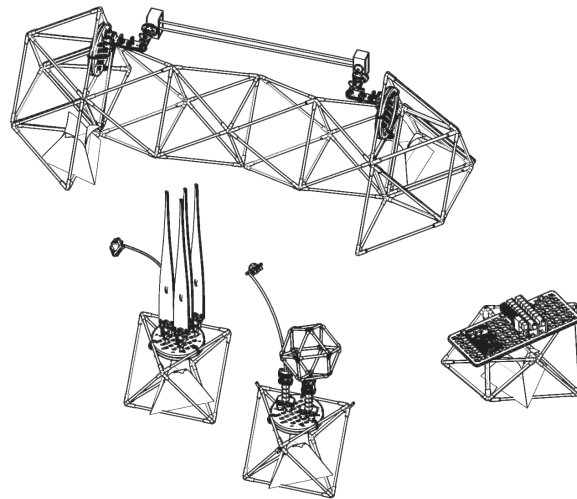
Light Station

Electronics Module Type A
Flashlight Module (x2)
Turntable Module
Crystal Module
Projector Screen Module



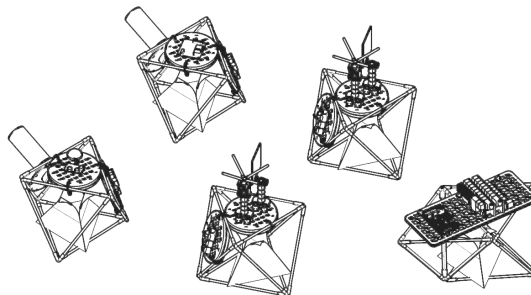
Motion Station

Electronics Module Type A
Blade of Grass Module
Shape on Servo Module
Clothesline Module

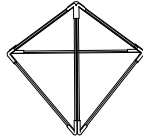


Sound Station

Electronics Module Type B
Rotating Clicker Module (x2)
Sound Sampler WAV Module
Voice Recorder Module

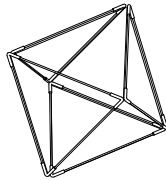


Station Scaffold Types



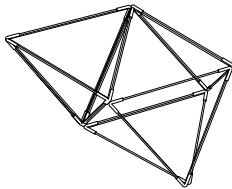
Scaffold Type A

Pyramid Unit



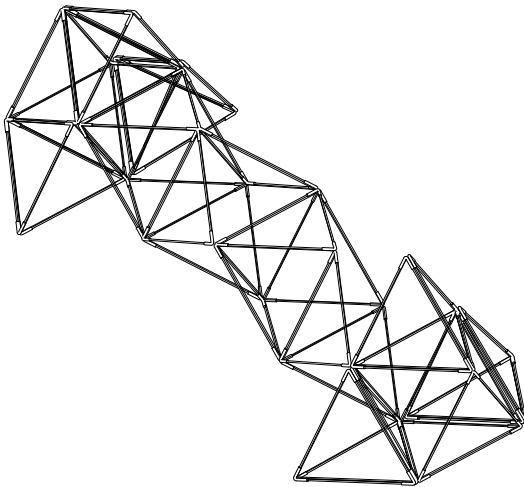
Scaffold Type B

Truncated Tetrahedron Unit



Scaffold Type C

Truncated Tetrahedron with Pyramid Extension



Scaffold Type D

Space Truss Tower with Stabilizing Sleds

Component Lexicon - Part A

A. Actuators & Sensors

- A1 Blade of Grass
- A2 Photoresistor
- A3 PIR Sensor
- A4 Servo Motor
- A5 DC Motor
- A6 Modified Flashlight
- A7 Crystal
- A8 Binder Clip

B. Mounting Trays

- B1 Cardboard Peg Disk

C. Flashlight Mount Assembly

- C1 3D Printed Flashlight Ring
- C2 Flashlight Dual Peg Legs
- C3 Flashlight Flexible Arm End Plate

D. Turntable Servo Mount Assembly

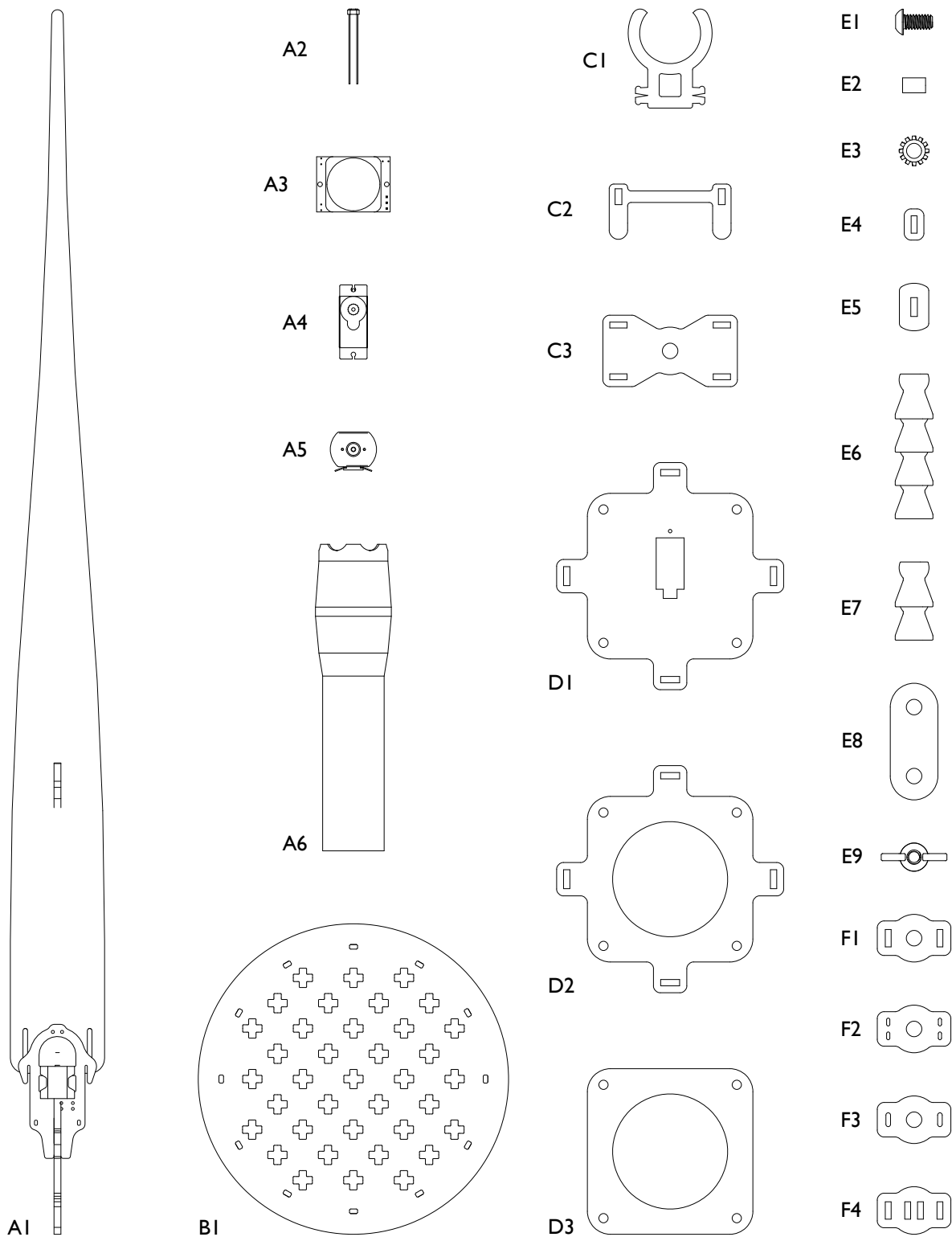
- D1 Turntable Bottom Plate
- D2 Turntable MiddlePlate
- D3 Turntable Top Plate

E. Hardware

- E1 Bolt (1/4"-20 - 1/2)
- E2 PVC Tubing for Flexible Arm Mounting
- E3 Locking Washer
- E4 Acrylic Locking Clip
- E5 Acrylic Blade of Grass Foot
- E6 4-cone Flexible Arm
- E7 2-cone Flexible Arm
- E8 Chain Link
- E9 Wing Nut

F. Flexible Arm and Chain End Plates

- F1 2-Peg End Plate
- F2 Binder Clip End Plate
- F3 ZipTie End Plate
- F4 Chain End Plate



Component Lexicon - Part B

G. Actuator & Sensors Mounting Plates

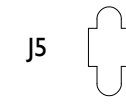
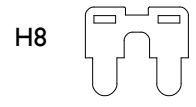
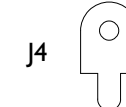
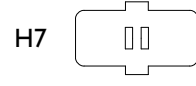
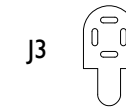
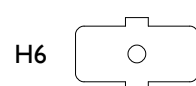
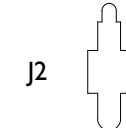
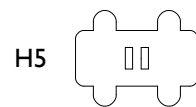
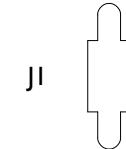
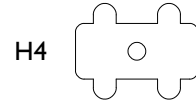
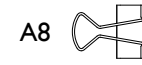
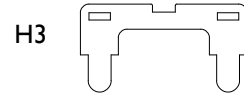
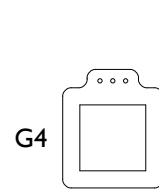
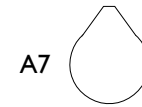
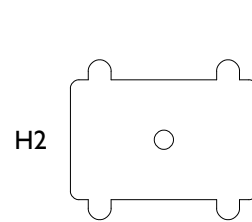
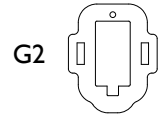
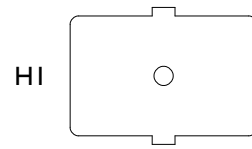
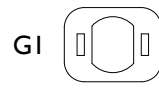
- G1 DC Motor Mounting Plate
- G2 Servo Motor Mounting Plate
- G3 Photoresistor Wire Mounting Plate
- G4 PIR Sensor Wire Mounting Plate
- G5 Crystal Top Mounting Plate
- G6 Crystal Bottom Mounting Plate
- G7 Wire Bottom Mounting Plate
- G8 Wire Top Mounting Plate
- G9 Blade Of Grass Mounting Plate

J. Pegs

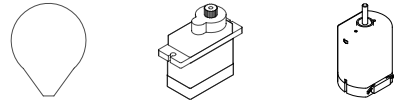
- J1 1-Plate Extension Peg
- J2 2-Plates Extension Peg
- J3 ZipTie Peg
- J4 Swivel Peg
- J5 Short Peg

H. Peg Platforms

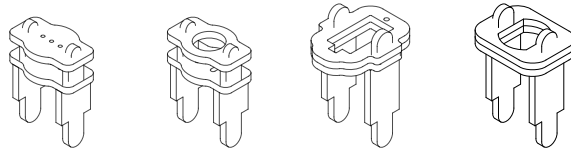
- H1 Large Quad-Peg Platform Bottom Plate
- H2 Large Quad-Peg Platform Top Plate
- H3 Large Quad-Peg Platform Leg
- H4 Small Quad-Peg Platform Bottom Plate (Flex Var)
- H5 Small Quad-Peg Platform Bottom Plate (ChainVar)
- H6 Small Quad-Peg Platform Top Plate (Flex Var)
- H7 Small Quad-Peg Platform Top Plate (Chain Var)
- H8 Small Quad-Peg Platform Leg



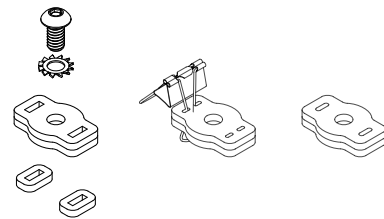
Actuators & Sensors



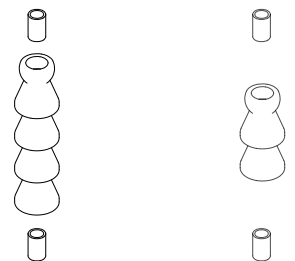
Mounting Plates



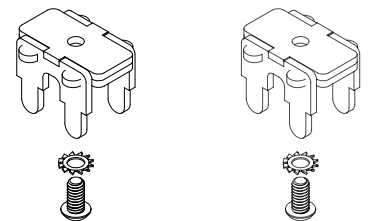
Arm End Plates



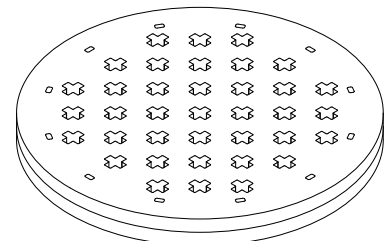
Arms (Flexible or Chain)



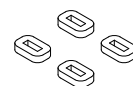
Peg Platforms



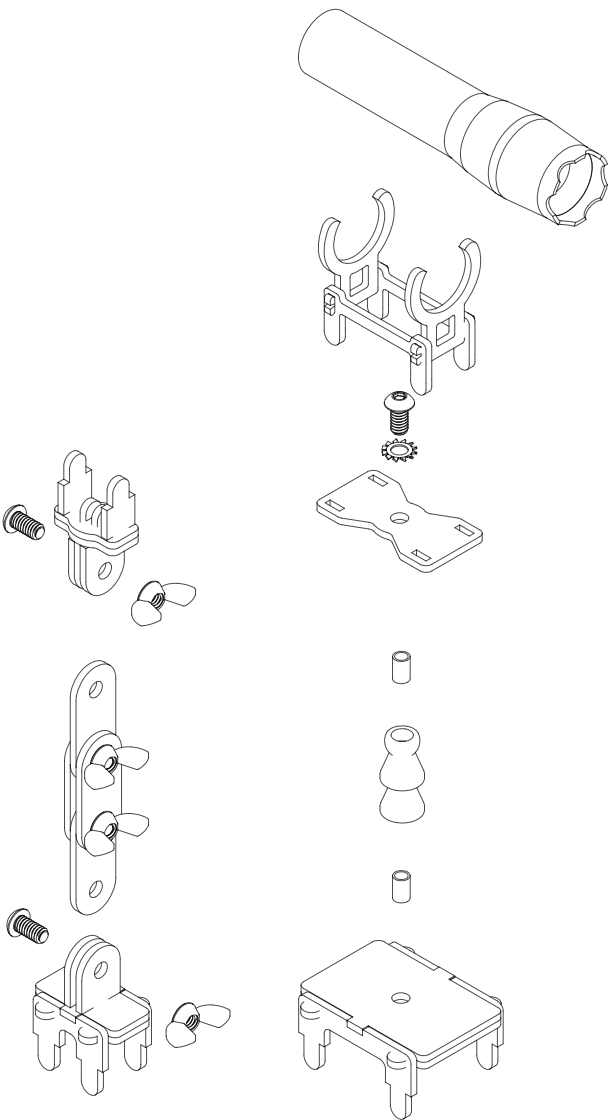
Cardboard Peg Disks



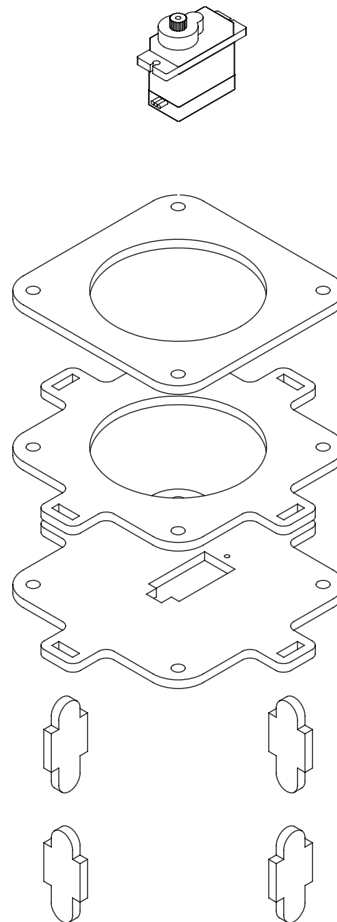
Locking Clips



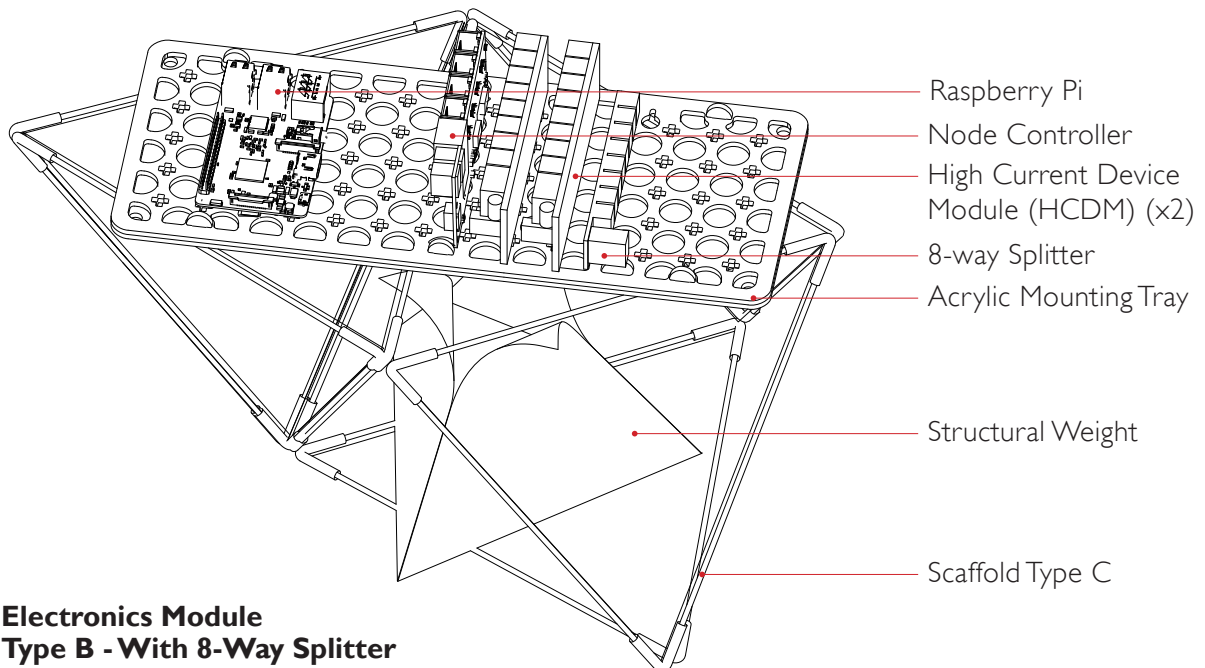
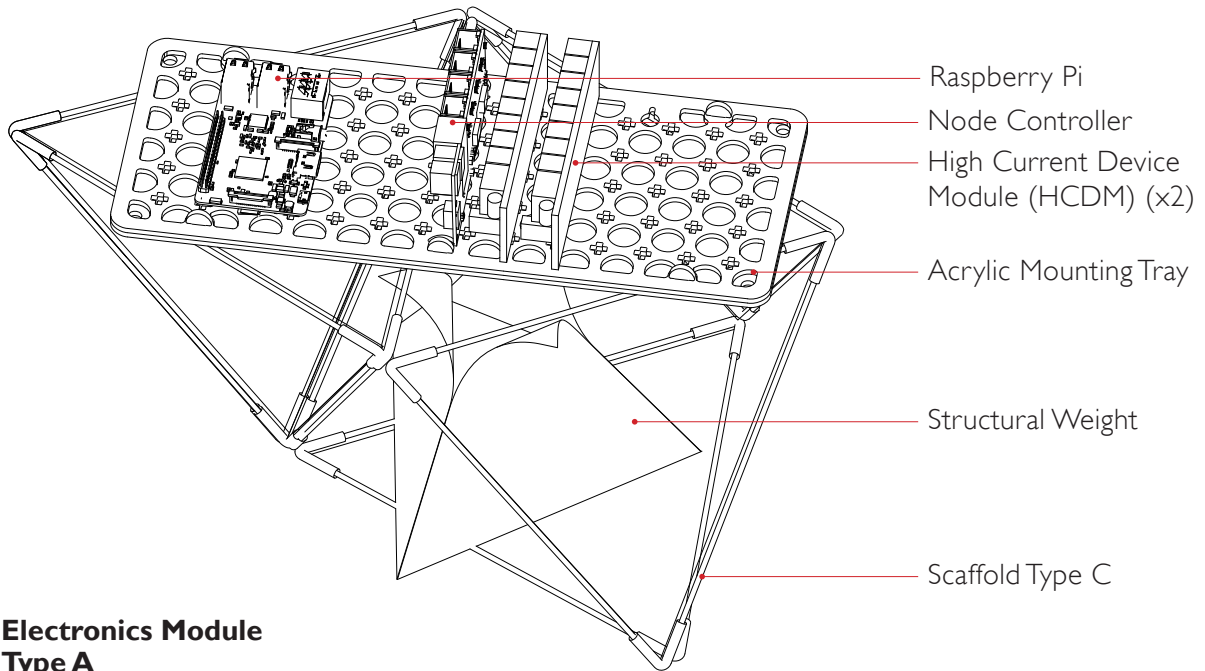
Exploded Component Assemblies



Turntable Assembly

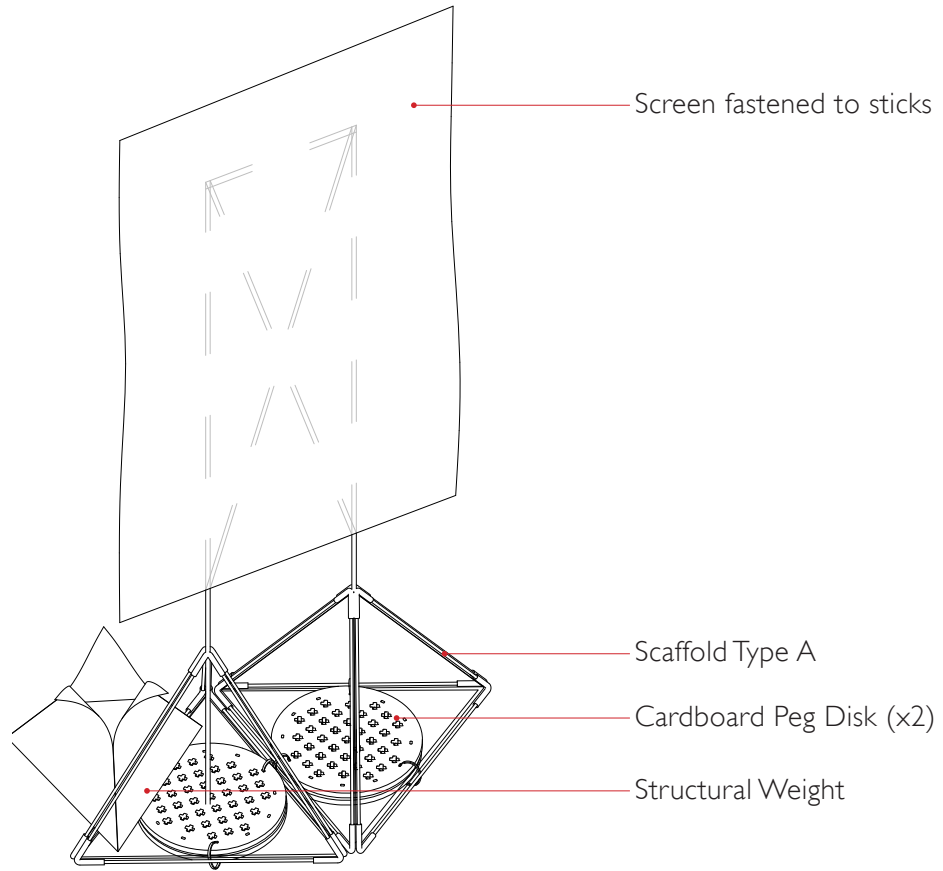


Electronics Stations

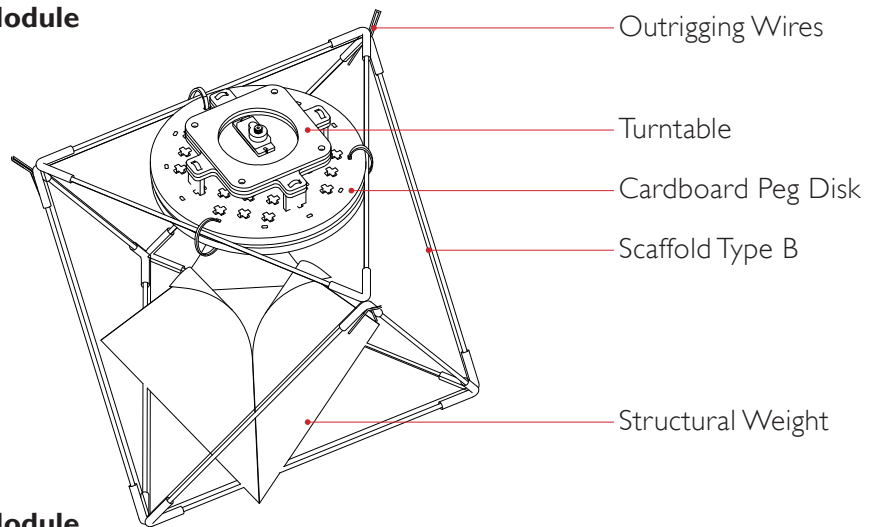


Light Station

Projector Screen and Turntable Modules



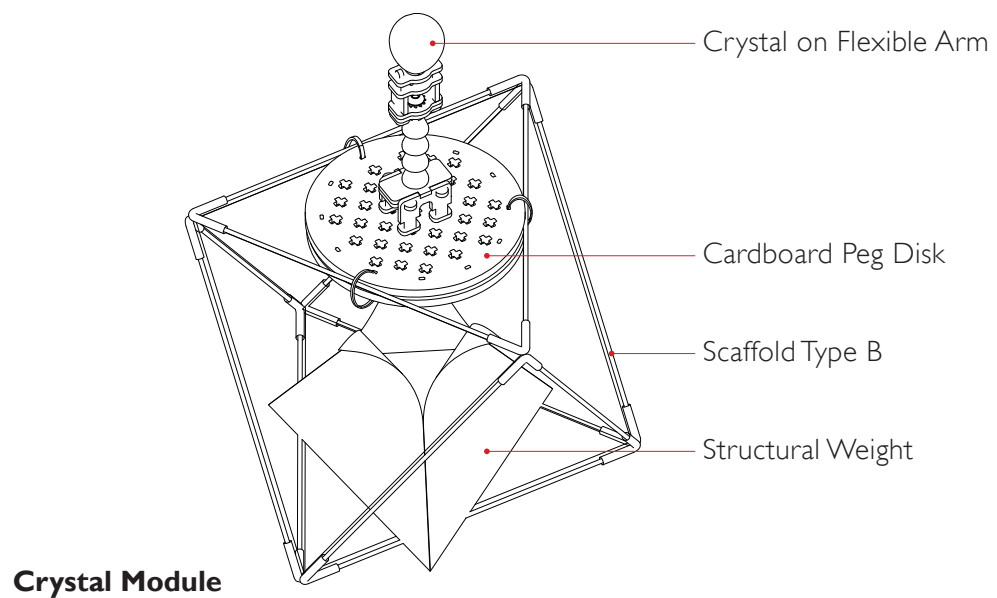
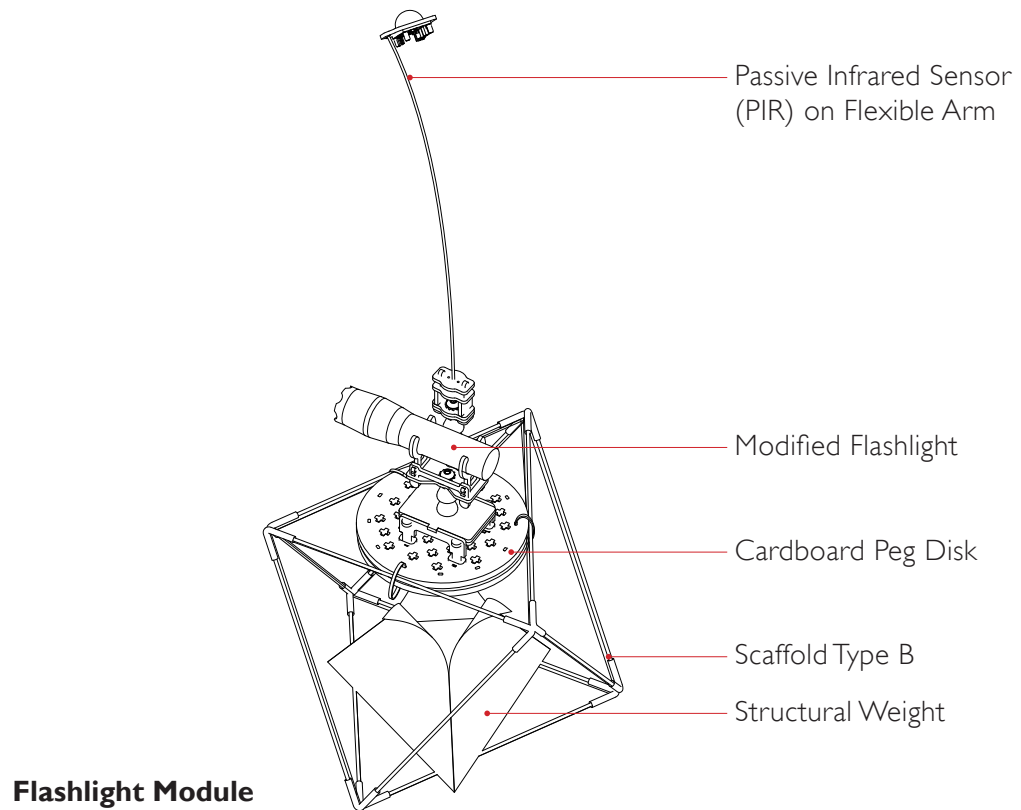
Projector Screen Module



Turntable Module

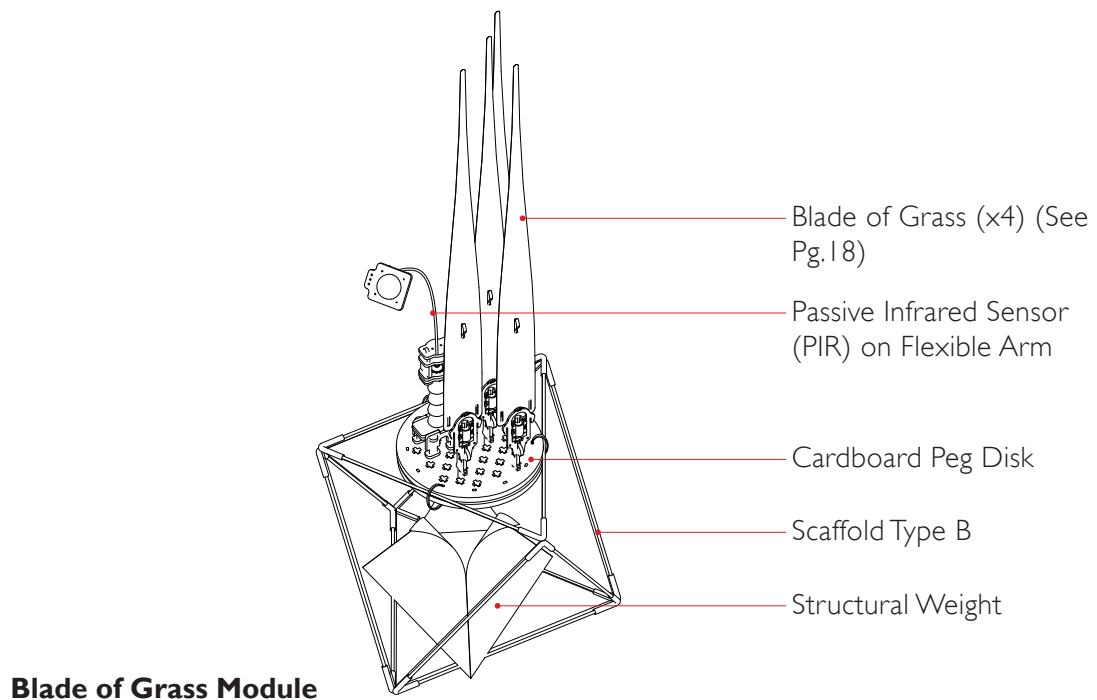
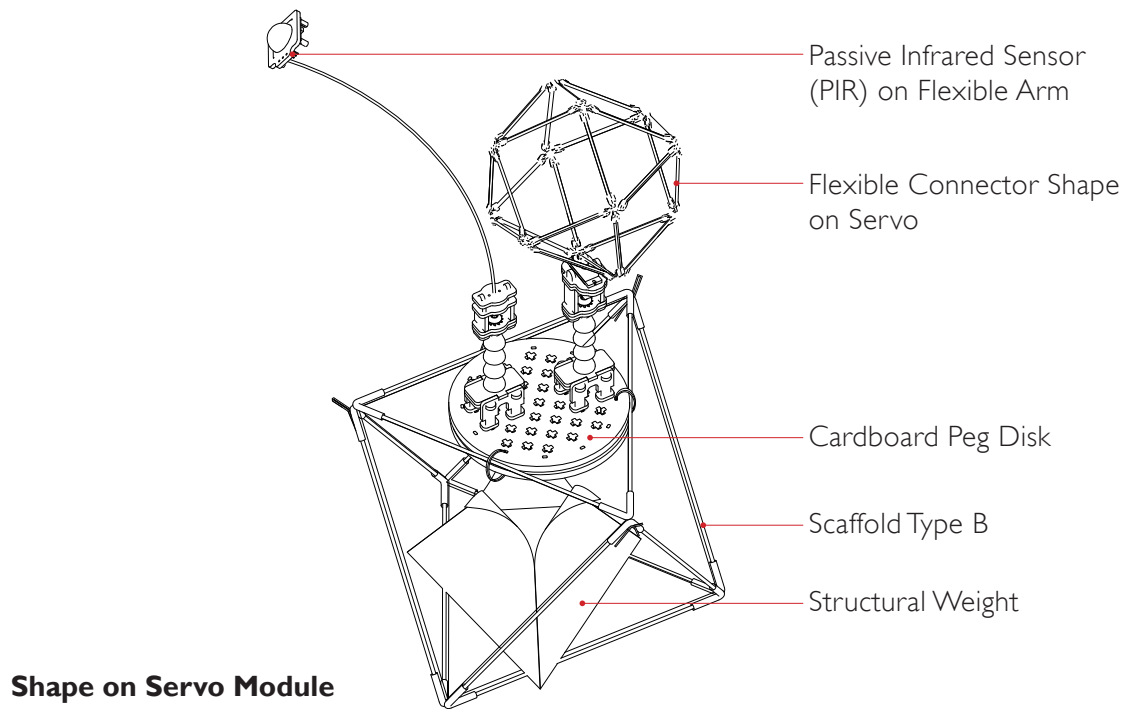
Light Station

Flashlight and Crystal Modules



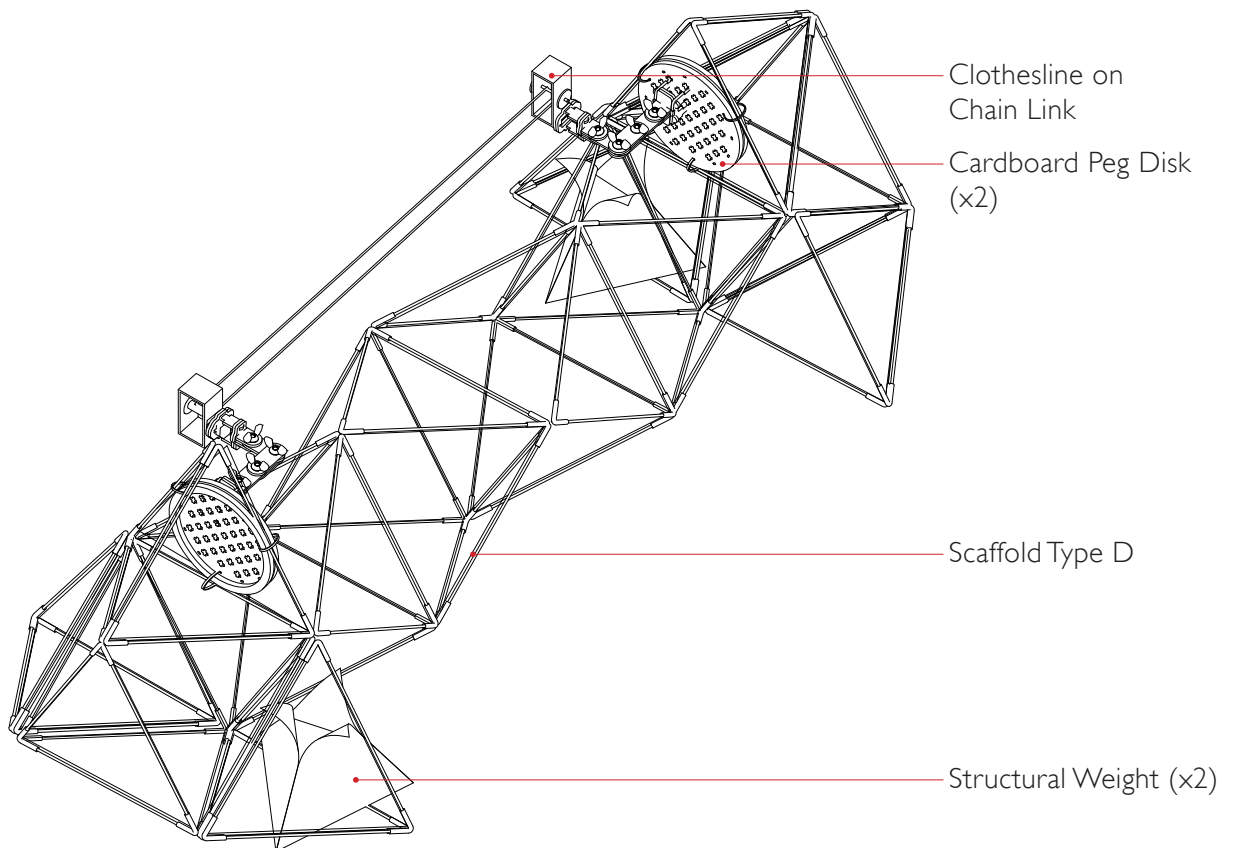
Motion Station

Shape on Servo and Blade of Grass Modules



Motion Station

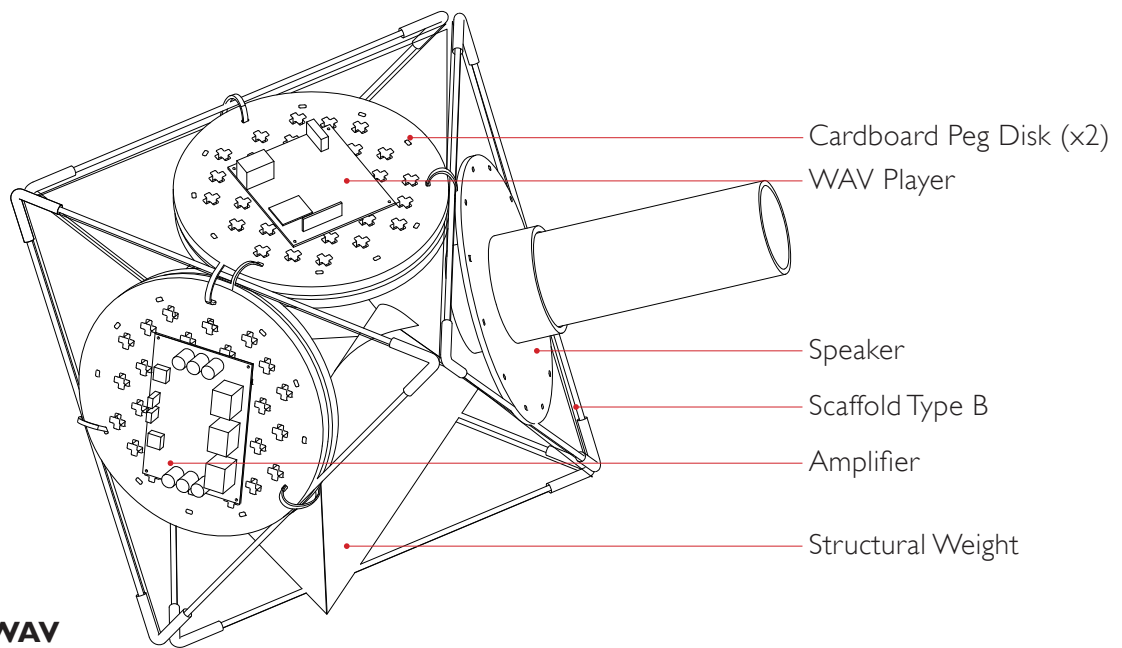
Clothesline Module



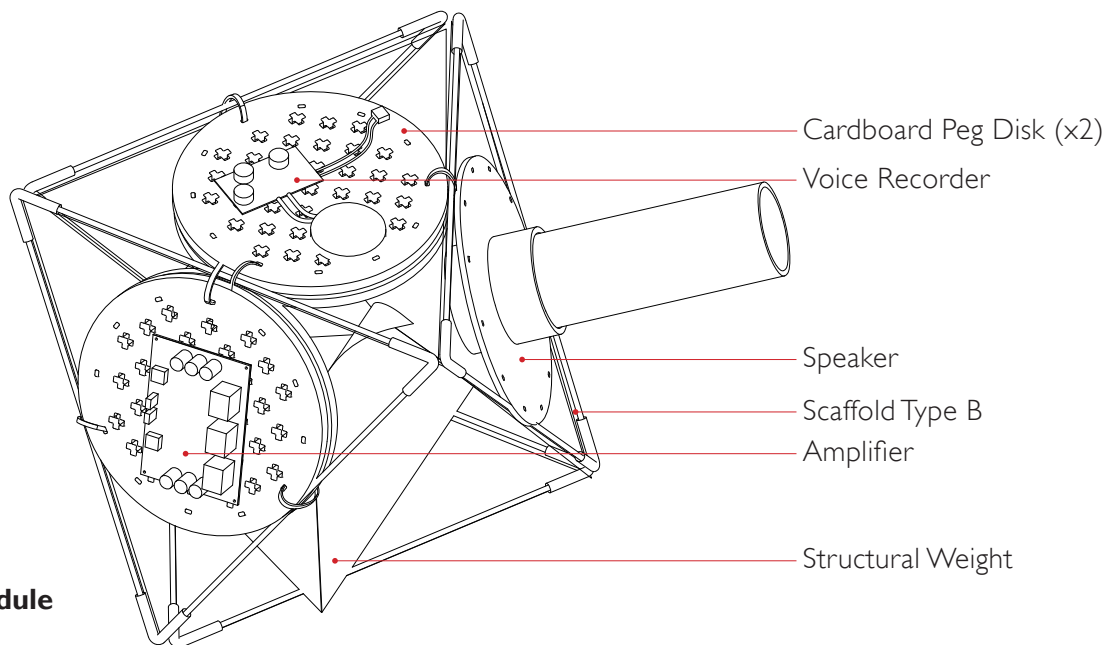
Sound Station

Sound Sampler WAV and Voice Recorder Modules

Sound Sampler WAV Module

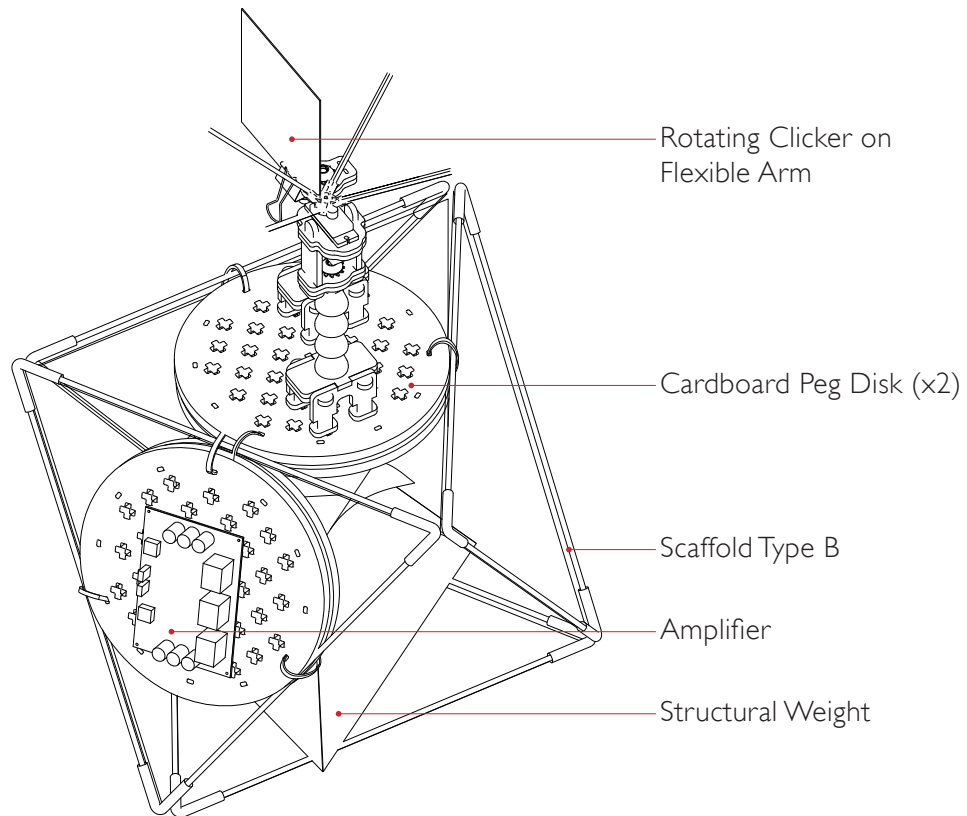


Voice Recorder Module



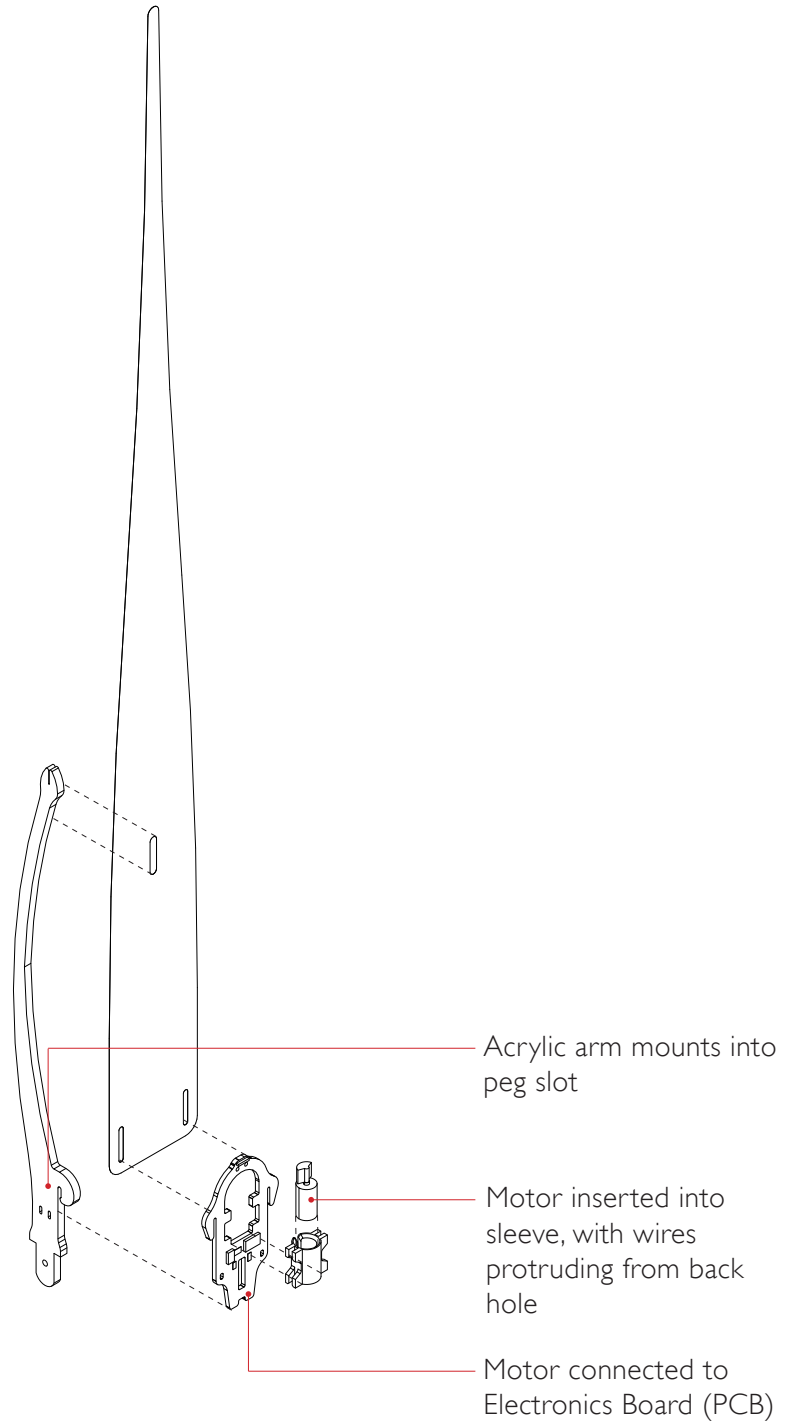
Sound Station

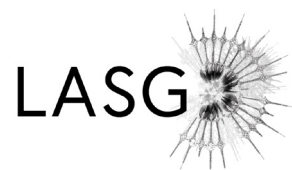
Rotating Clicker Module



Blade of Grass

Exploded Assembly





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