

# Interactive Multi-User Electronic Music and Visualization

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Maker Festival 2016

# Description

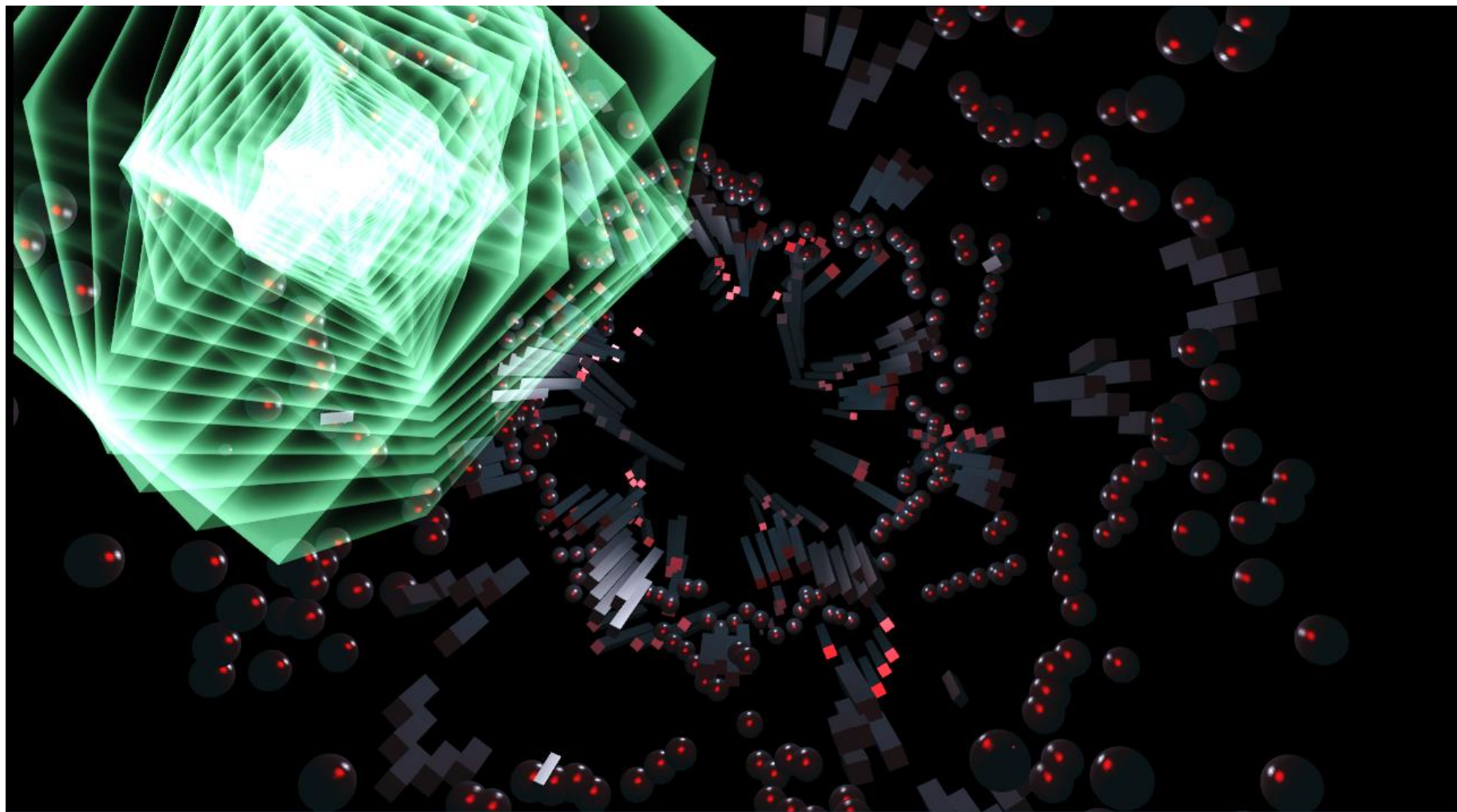
This would be a larger, louder, multi-user version of my popular demo from the 2014 Toronto Mini Maker Faire where participants could manipulate music and visuals through movement.

Instead of wearable sensors, I propose to upgrade to LEAP Motion gesture controllers to make it easier for participants to walk up to and interact with the installation.

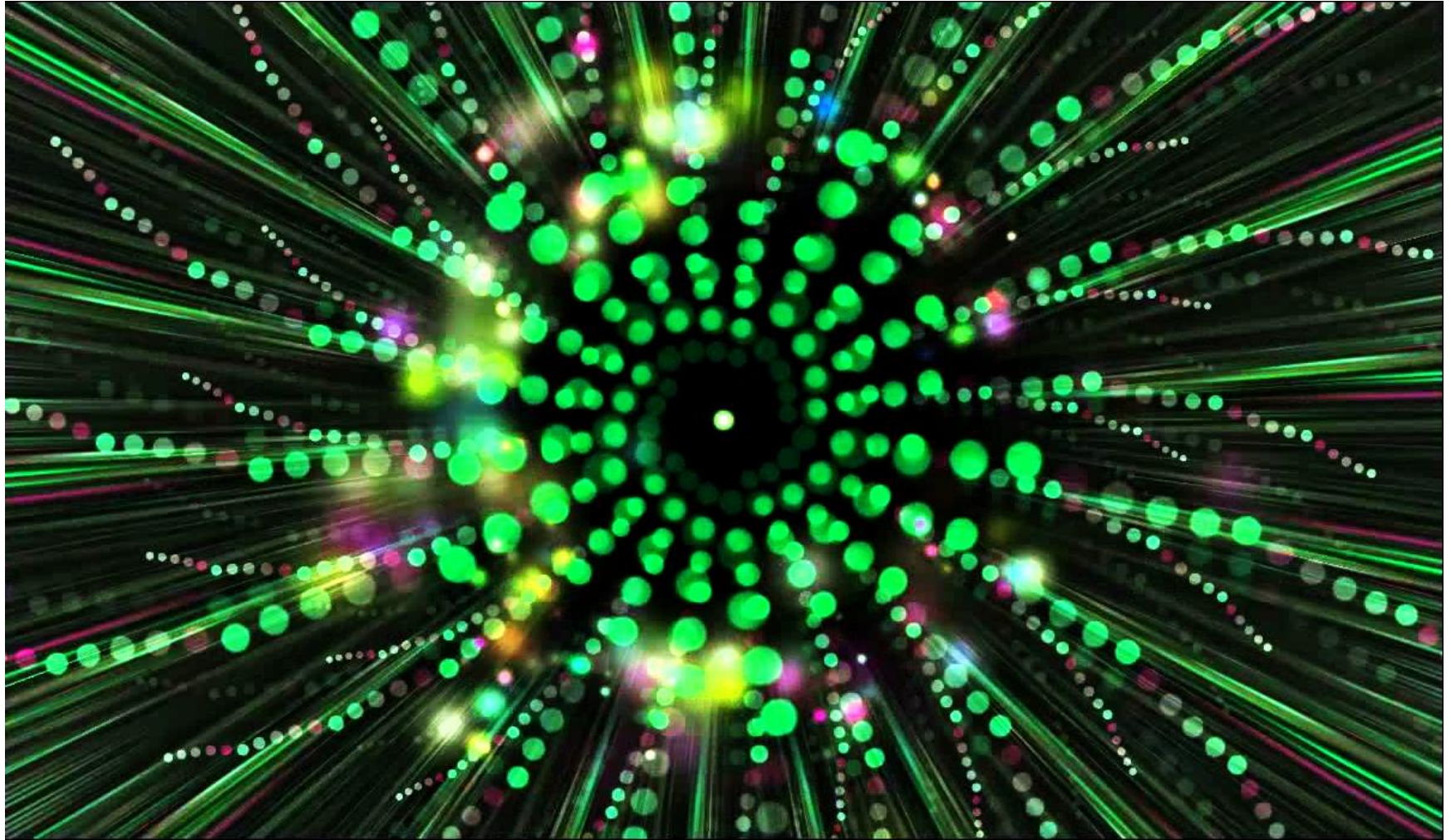
I envision three "stations": One for the beat, one for the melody, and one for the visuals. This will allow the participants to control the music and visual effects with their hands, **interacting with the music as well as each other in real-time**. The music and effects will all be synchronized, with interplay between the elements.

This installation would be set up all weekend.

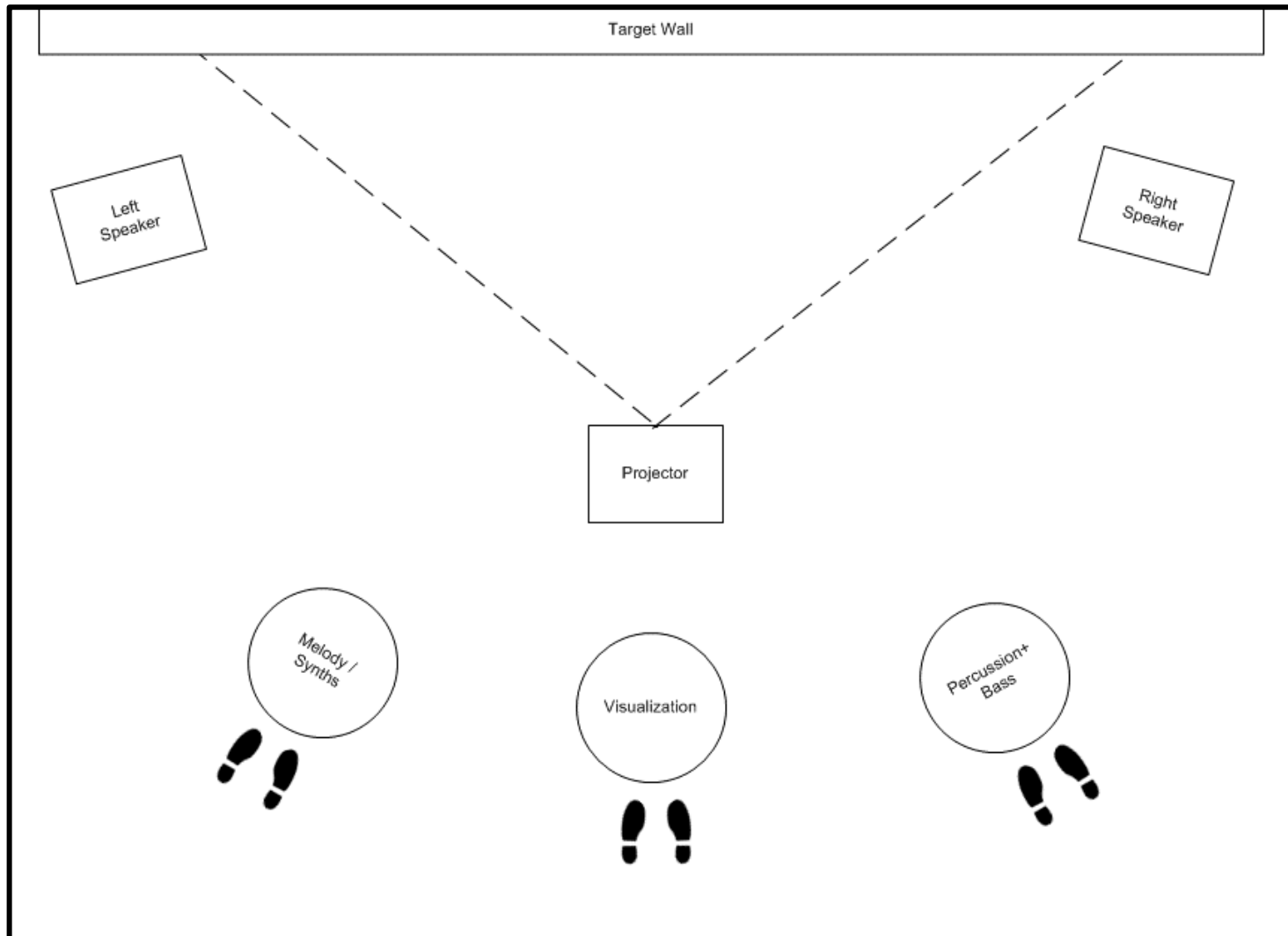
# Example Visualizations (#1)



# Example Visualizations (#2)



# Proposed Layout





# Gear List

Item	Quantity	Description
LEAP Motion	3	Used to sense participants' hand motions, as inputs into the music and visuals generation software.
12" SONO Tubes	2	To serve as as "podiums" to hold the LEAP Motions. (cut into sections)
Spraypaint	2	To paint the SONO Tubes shiny futuristic black.
Sound System	1	Mixer, 2 speakers, cables. Power depends on the space. Long and McQuade "System One" rental is baseline.
Projector	1	To project generated visuals on the wall. 4000 Lumens+, HDMI, 1920x1080
PC #1	1	To run the visualization software.
PC #2	1	To run the music sequencing/generation software.
PC #3	1	Extra PC to interface to the third LEAP Motion (linked to PC #2)
Gigabit Ethernet Hub	1	To link PCs together
Ethernet Cables	3	To link PCs together
Floor Mats	3	With "footprint" pattern to show participants where to stand.
Signs	3	Graphics for drum/waveform/melody to indicate the function of each podium.
Plexiglass/etc to support LEAPs	1	Top cover for SONO tubes
Miscellaneous	1	Cable guides/covers, other supports/stands, duct tape

# Budget

Item	Qty.	Estimated Price	TotalSource
LEAP Motion	3	80	240Best Buy
12" SONO Tubes	2	25	50Rona
Spraypaint	2	10	20Rona
Sound System	1	36	36Long and McQuade
Projector	1		0TBD (assume loaner)
PC #1	1		0TBD (assume loaner)
PC #2	1		0TBD (assume loaner)
PC #3	1		0TBD (assume loaner)
Gigabit Ethernet Hub	1	25	25Canada Computers
Ethernet Cables	3	5	15Canada Computers
Floor Mats	3	10	30TBD
Signs	3	10	30TBD
Plexiglass/etc to support LEAPs	1	50	50TBD
Miscellaneous wiring, etc.	1	50	50Creatron
Contingency	1	50	50

**TOTAL**

**596**

# Enhancements?

- Pressure sensors so the pedestals “light up” when participants stand in front of them
  - 3 x Arduinos+LED strips+wiring ~\$200



# PC Requirements

- PC Requirements
- Windows® 7+
- Intel® Core™ i5/i7 processor
- 8 GB RAM
- USB 2.0 port
- NVIDIA GTX 970 / AMD R9 290 equivalent or greater (For Visualization PC)
- HDMI Output

# Timeline

**29-May-16**  
 30-May-16  
 31-May-16  
 01-Jun-16  
 02-Jun-16  
 03-Jun-16  
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 05-Jul-16  
 06-Jul-16  
 07-Jul-16

## Project Start

Detailed concept definition

Configure tracking software

Develop musical generation rules and algorithms (these build on existing concepts from Maker Festival 2014)

Develop visualization generation rules and algorithms (these build on existing concepts from Maker Festival 2014)

Hardware Available - install drivers and software

First "full up" integration test (tabletop) - at Hacklab?

Construction of podiums

Test with volunteers  
 Incorporate feedback

Testing and tweaking

**Final Integration and test - at Hacklab or Electric Perfume**

**08-Jul-16 Load-In and Setup**

**09-Jul-16 Maker Festival Main Event**

**10-Jul-16 Maker Festival Main Event**

# Links

- LEAP Motion used for Interactive Music+Visuals (one person)

<https://www.youtube.com/watch?v=PWN5hufwWRQ>

# Guidelines

- The music should **sound good** no matter what the participants do.
- The visuals should **look good** no matter what the participants do.
- It should be **fun** and **easy** to use. Intuitive.
- It needs to be **awesome!**

