Tremolo-Chimes

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1. PROGRAM NOTES

The Tremolo-Chimes is an interactive performance system that consists of a set of tubular metallic wind chimes that have been modified by removing the striker and wind catcher [1]. MIDI-controlled vibration motors suspended in each chime produce continuous, tremolo-like sounds where the dynamic shape can be controlled over time. This system is inspired by acoustic wind chimes and explores questions about performative agency in automated instruments.

The Tremolo-Chimes interactive installation employs multiple control methods, including synthesized wind and sensors that detect the proximity of participants to the chimes. Both synthesized wind and sensor input are fed through a mass-link physical model, evoking the movements of a wind-driven clapper bouncing off traditional wind chimes. Synthesized wind represents the default control mode of the installation when participants are not interacting with the sensors. When a participant enters the sensing field, their body will actuate the chimes similarly to how a percussionist uses their hand to sweep across a set of chimes.

Fig. 1. Tremolo-Chimes

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2. INSTALLATION DESCRIPTION

I plan to bring two sets of chimes to present this installation in-person at NIME 2023 in Mexico City. Each set of chimes is completely self-contained. Vibration motors are suspended in each individual chime, and each set of chimes includes a Teensy microcontroller, laser ToF sensor, motor control circuitry, and Raspberry Pi running Pure Data. Each set of chimes is mounted on a folding stand that I will provide.

Fig. 2. Tremolo-Chimes at SEAMUS 2022

3. SPACE REQUIREMENTS

Each of the Tremolo-Chimes requires 15-feet of clearance in a 30-degree arc in the front of the chimes. As long as this clearance is available there is flexibility in terms of their placement. In 2022 the Tremolo-Chimes were presented in a gallery space at the Society for ElectroAcoustic Music in the United States (SEAMUS) National Conference (see Fig. 2). However, they could also work well in a resonant space such as a stairwell, as long as there is room for participants to interact with the chimes. They do make sound while they are unattended, so they need to be located somewhere where “constant” sound (as in the first video link below) is acceptable. They could be set up in an enclosed outdoor space (with a roof) but would not be appropriate in an open outdoor space. If this installation is selected, I will happily work with the conference organizers to find an appropriate location.

4. FLOOR PLAN & LOGISTICAL REQUIREMENTS

See Figure 3 for specific dimensions. The Tremolo-Chimes requires 1-2 hours to set up and 30 minutes to break down. They are self-contained and only require

AC power connections. They can run unattended for several hours, however if set up for multiple days I will need to start/stop them each day.

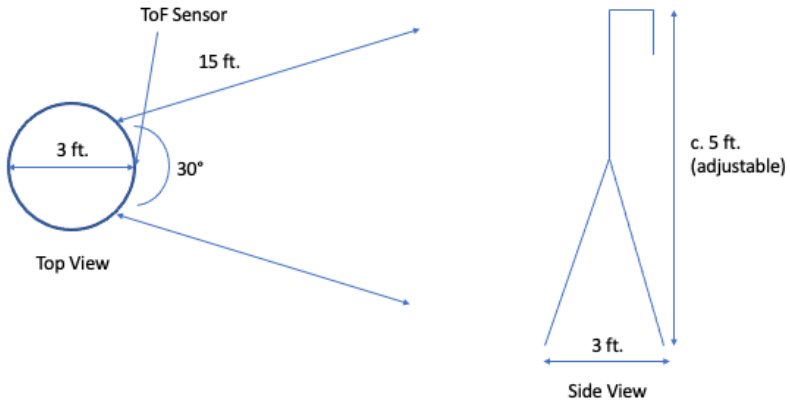

Fig. 3. Tremolo-Chimes dimensions, top view and side view (single set of chimes)

5. EQUIPMENT REQUIREMENTS

The only equipment required from the conference hosts are AC power connections at each Tremolo-Chimes location. I will bring all other equipment.

6. MEDIA LINKS

- Video of Tremolo-Chimes Installation ("wind" mode): https://youtu.be/aXxE4Ie7cIY
- Video of Tremolo-Chimes Installation ("interactive" mode): https://youtu.be/h53woaM1saA

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ETHICAL STANDARDS

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REFERENCES

[1] Steven Kemper. Tremolo-Chimes: Vibration-Motor Actuated Robotic "Wind" Chimes. *NIME 2021*. DOI: 10.21428/92fbeb44.d85b5f00.