Spatial Intervention @ Galvin Playhouse

A busy schedule may take students all over the Tempe campus. As a DC student I find myself bouncing from Stauffer to Physical Sciences to the Computing Commons to Barrett. A place that I rarely find myself though is by the school of music or Galvin Playhouse, even in spite of being a music concentration DC major. The few times I have found myself in that area though it appears completely desolate. Despite Tempe campus' growth, there is plenty of empty space in the area. It is an area that is quiet, barren, and mostly covered in concrete. The space could certainly serve as a second location for X-Squared, and it would draw much more deserved attention to the westernmost part of campus which could benefit the Galvin Playhouse box office.

The proposed intervention in this space would be much like an X-Squared project. It would represent students from the school of music, the school of engineering, and Arts, Media + Engineering. The installation would be a laser-driven 25-key electronic organ. Through a system of transparent pipes, emerald lasers, mirrors, speakers, photo resistors, levers (keys), and digital samples the system would create music. Building this system would bring together musicians, electrical engineers, and physicists "with each discipline well represented," (Furuto). Having such an unusual and visually stunning piece would certainly bring publicity to the Galvin Playhouse "patio" and all the schools involved in the installations production.

The audio signal is driven by emerald lasers that are triggered by traditional piano keys and receive signal from a stored sample in a basic computer chip, or Arduino. The lasers would shoot through clear, 1" radius PVC piping in order to display the lasers but protect the system and signal quality. To suit whatever design the pipes are assembled in, mirrors at the proper angles will be placed in the pipe-elbows to send the lasers in a straight path to the photo resistors that receives the signal and sends it to the speaker (Treehouse Projects). The speaker then projects the sound out of the amplifying pipe designed by the physicist of the project.

Two Arduinos would be required for sending the basic audio info to each laser. From RadioShack, an Arduino at $29.95 (to store and send audio samples to the laser), 25 CdS photo resistors at $19.95, and 25 audio output transformers at $74.75 would be required. A broken 25-key synth can often be found on EBay for $20-$30 which would

provide the keys. 32 1.5" round mirrors from Etsy cost $10.05. 25 2" round speakers from Parts Express cost $16.25. 20' of clear, UV resistant 2" diameter PVC pipe costs $150.20 from Alsco. 25 2" diameter 90-degree PVC elbows costs $60.15 from Lowe's. Finally 25 5mW green lasers from Amazon cost $125. The project breaks the bank at $511.30 just short of a basic power supply that only needs to supply 125mW. The PVC pipe is particularly expensive because it is clear and UV resistant. The UV resistant pipe is critical to ensure a long life under the Arizona sun. In order to stay green and economical, the audio signal wouldn't be artificially amplified, but given the circumstances designing a circuit that produces enough power for the speakers from the laser to be audible within 10' could be difficult. More PVC pipe may be needed for acoustic purposes.

The project is a complex one, but ultimately I believe it would draw plenty of attention to Herberger's part of campus.

Works Cited

Furuto, Alison. "Peritoneum Shade Structure / Arizona State University Student Team." Archdaily.com 22 September 2012. Web. 12 April 2013.

"Transmitting Audio Wirelessly Through Light." Treehouseprojects.com. 25 July 2012. Web. 12 April 2013.