S.A.R.A. – SYNESTHETIC AUGMENTED REALITY APPLICATION
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INTRODUCTION

S.A.R.A. - (synesthetic augmented reality application) is an App exploring the potential of using a mobile device as a unique and wearable musical interface. S.A.R.A. was originally developed as a standalone App to translate the surrounding environment into sounds on mobile devices creating a digitally augmented synesthetic experience. Artist duo Markus Vogl and Margarita Benitez (Kent State) started development on this project in 2012 with the gracious support of the National Endowment for the Arts.

METHODS

The imagery captured by the S.A.R.A. app via the mobile device's onboard camera is translated into synesthetic-inspired sounds. Our interests in developing this project stemmed from the desire to explore these research questions: Can technology be used to create a synesthetic augmented reality? What sonochromatic sound mapping should be used? Should a visual element be used as well? Could movement be used as a mitigated instrument?

While investigating these research veins it led us to the realization that the S.A.R.A. App and interface would be best explored in a performance setting, therefore we arranged for a collaboration with a local dance troupe (Travesty Dance Cleveland) that agreed to utilize S.A.R.A. as part of their repertoire. The performance version of the S.A.R.A. App is a fully interactive App that generates both its own sounds and visuals based on the camera video input and the movement of the device. The mobile device is complemented by a pico laser and mounted in a sleeve worn by each of the four dancers. S.A.R.A. becomes an extension of the dancer's arm and allows for natural movement to occur. The role of performer is also augmented as they are now gatekeepers of what sounds are made as well as what images are projected by deciding what live imagery and angles look most appealing to rebroadcast. Performers can choose to project images on themselves, their co-performers or onto the architectural structures of the venue. This format allows for a completely new interaction with wearable technology - augmenting and mediating their performance via several technological input and output mechanisms while still maintaining choreography as well as allowing for subjective choices during the performance.

RESULTS AND DISCUSSION

During various beta performances it became obvious that the lighting source needed to be on the performers body rather than from an external source. In response we are creating custom LED to provide a light source for the camera to pick up imagery more effectively. The LEDs were integrated into a neck cowl and the rest of the costume is designed in white to easily provide a surface to project on. Although within a set choreography, the performers role changes as their body's interactions directly produces sounds. The Human Computer Interaction between the dancers and the technology as extension of their bodies creates an altered/mediated/mitigated performance environment that is always unique to the specific performance venue. S.A.R.A. is not only an interface and an interactive software application for consumption, play, discovery and joy but is a jump off point for a larger discussion on transformational strategies in regards to both, S.A.R.A. as a wearable musical/performance interface, but additionally (in the Open Source distribution of) S.A.R.A. as a tool.

Figure 1: S.A.R.A. performance by Travesty Dance @ ingenuityfest 2012

CONCLUSIONS

As the technology will be released open source it is potentially possible to custom craft new versions for every performance or for other interested groups to adapt the technology with their artistic vision. Creating the App for an existing platform device such as an ipod touch and utilizing a relatively inexpensive laser pico projector (<$500) S.A.R.A. can be added relatively simply and cheaply as a versatile tool to one's art | design | technology toolkit. Therefore the artwork we created provides a new tool set for other artists, designers makers and scientists alike.

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