Team 4

Jakob Wulf-Eck
Alex Crane
Austin Irvine
Kari Cieslak
Dylan Vondracek

SoundAround

Synopsis

AR headset music synthesis application, allowing users to create and modify songs by 'wiring up' objects, which produce sounds and effects based on physical properties.

Full Description

This project is being undertaken to explore the rapidly-developing augmented reality space and its potential intersection with music production. Once AR technology is widely adopted, tools like SoundAround could allow consumers who own AR devices to experiment with making music with very little barrier to entry. AR can provide musicians with a highly-intuitive user interface which is easier to learn and interact with than existing PC-based music production software. AR music production tools would remove the cost and physical space overhead of purchasing dedicated equipment - synthesizers, MIDI keyboards, instruments - enabling users to make music using full-featured tools through a device they already own.

The incorporation of physical objects into the application - as 'modules' which will have sometimes-unexpected effects on a user's creation - adds elements of fun and exploration to music creation. Additionally, it is an embodiment of one of the most fascinating aspects of AR - the way in which, unlike video games or VR, AR encourages its users to interact with the environment around them. Rather than obscuring reality, it enhances reality and allows users to see it in new ways. To further enhance reality and produce a more engaging user experience, we plan to investigate additional means of sensory engagement possible only in augmented reality.

Ultimately, our goal is for this project to result in a robust, fascinating, and accessible music creation tool, with intriguing visuals, an intuitive interface, and an immersive concept which will allow our customers to transform the world around them into sound.

Milestones

Fall Semester

1. Produce in-depth proposal and video
2. AR headset received, begin testing
3. Develop AR keyboard or integrate MIDI keyboard
4. Recognize limited set of objects
5. Begin integrating sound synthesis library

Spring Semester

1. Complete sound integration - map effects/instrument voices to objects – ‘wiring’
2. Wide range of effects and options
3. Expand set of recognized objects
4. Final reports and promotional materials

Budget

Microsoft HoloLens dev kit OR 2x Meta 2 AR dev kit - $3000
    Required ASAP

Potential Additional Expenses

Windows development machines - $1000-3000
    Required to build Unity code for HoloLens
    Only necessary if VR-ready machines are not available for all team members

MIDI Keyboard - $100
    Only other hardware expense
    Should be able to provide our own

Initial Work Plan

Jakob: AR dev, Unity dev, core implementation

Alex: AR dev, Unity dev, additional feature research/design

Austin: AR dev, graphics, audio synthesis research/code

Kari: Unity dev, core implementation, documentation/deliverables

Dylan: Graphics, Unity dev, core implementation