

robotcowboy: button_box

A Wireless Play Button

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1 Abstract

This article presents the music performance project entitled robotcowboy. robotcowboy consists of experiments into ways in which a performer using computer-interaction oriented software can break the shackles of this forced interaction.

2 Introduction

Laptop computer based music has come to the forefront as high-performance machines become cheaper and cheaper. There is a distinct disadvantage, however, to live performance with computers due to the fact that much of the interaction is not tangible.

"Laptop's Are Boring" - The Scumfrog
"Every live electronic music performance I've seen in the past year and half has been laptop based," said the producer from his New York home.

"There's no entertainment worth in laptop DJing."

"The laptop DJs might be doing rocket science, and creating amazing soundscapes, but it's totally boring for an audience to watch." [1]

While digital music software and computing platforms offer a great advantage over dedicated hardware, such as effect units, sequencers, and synthesizers, the visual use of these devices is lost. Traditional acoustic instruments such as a piano or guitar draw a direct correlation between the physical action of the performer and the sound produced.

A hand pressing a key produces a note, a plucked string results in a sound, the greater the action, the greater the level of sound or difference in timbre.

"With DJing, what you see on stage, is what you hear coming out of the speakers.

But with laptop DJing, that connection between stage and sound is lost." [1]

An audience watching a laptop performance cannot make the connection between physical action and sound, as the action is very subtle a finger on a track pad, or an off board knob array. The performance, thus lacks interest for the audience as the energy and action done by the performer are lost through the computer interface.

3 Background

Computer interfaces have been driven by the mouse/keyboard paradigm for the last 20 years. Music software, naturally, follows this convention for its interaction, yet music performance demands many and varied types of control. The Musical Instrument Digital Interface (MIDI) is a protocol developed in 1983 to standardize digital musical instrument control and, naturally, has been integrated into personal computer music software. Most software packages however, only allow simple uses of MIDI data, note data from a MIDI keyboard for example, but not control of more complex operations such as the cuing of different songs or tracks. These higher-level operations were developed well after the design of the MIDI specification and their control resides largely in the realm of the typical interface of the programming platform: mouse/keyboard.

As a result of this interaction, performers using live instruments with computer accompaniment are forced to transition between playing their instrument and using the computer to setup the next song. There is a distinct rift between the audiences perceptions of these two actions. The physical action of the live instrument is easy to grasp the effect is tangible. The action on the computer is not abstract and the result is harder to gauge. The total result is the effect of the performance is limited as the energy built by the live instrument is

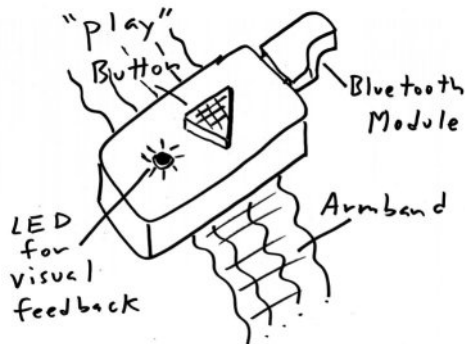


Figure 1: Conceptual drawing



Figure 2: Prototype with added power switch

drained when the performer is forced to interact directly with the computer.

4 Implementation

The initial robotcowboy experiment will take the form of a simple node of interaction to make the play list control of music software tangible. The node will consist of a box with a large button and a light emitting diode (led). (see Figures) An Arduino micro controller and Bluetooth wireless modem will allow communication from the box to control the scripting of FL Studio, musical production software, though Python and Puredata. The button is a tangible element that the audience can see the performer use. While the computer interaction hid the action from the viewer, the button places this interaction on the forefront. The button can

be mounted directly on the performer to further link the control to the person as opposed to the machine.

5 Artistic Relevance

Various music controllers exist already that allow control over various parameters in musical software. Many devices such as this have been custom built to provided specific musical interaction. The experiments in the robotcowboy project are designed to allow users of interaction-limiting software to build these simple devices themselves. The project will be open-source and aimed at non-technical users. Perhaps through projects such as this, the nature of computer music performance can be changed to emphasize the psychology of a live performance.

6 Closing

robotcowboy consists of experiments into ways in which a performer using computer-interaction oriented software can break free of this forced interaction. The interface of the computer is drains the energy of a live performer. These experiments attempt to provide an open-source hardware alternative to the typical forced-interaction control of music software.

References

- [1] Terry Church. Laptops are boring: Us djs form anti-digital group. *DJ-Mag.com*, January 2006. Available from: <http://www.djmag.com/newsfeat255.php>.