

AUDIENCE INTERACTIVE PERFORMANCE IN “THE LAST MAN TO DIE”

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ABSTRACT

The Last Man to Die is an ongoing interactive performance project by Last Man to Die, a cross artform group consisting of actor, Hanna Cormick, visual artist, Benjamin Forster and percussionist, Charles Martin. One of the goals of this project is to allow the audience to “play” with our system and enjoy unexpected and unguarded responses. This paper explains technical and artistic aspects of our open-ended performance, designed to meet this goal, and our focussed method of interaction with the audience, QR codes printed on their tickets.

1. THE PERFORMANCE

The Last Man to Die [3] is an ongoing installation and performance project involving interactions between the audience, computer driven audio and visuals, and live performers. The venue is transformed into an abandoned museum from the future that celebrates humankind’s ability to extend their lifespan indefinitely. As audience members enter the venue, they are each presented with a “ticket” featuring a QR code¹ [4], scanning this ticket is the audience’s method of influencing the performance.

The venue features two areas, illustrated in figure 1:

1. A theatrette area with seating surrounding a large screen and a podium with the “ticket scanning station”.
2. A small performance area lit with projected visuals. A small number of audience members can view this area at a time.

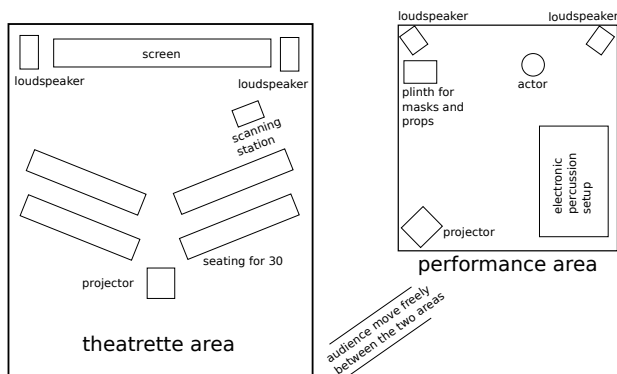


Figure 1: Stage setup for *The Last Man to Die*.

During the performance, audience members scan their codes to boot up “exhibits” in the performance area. The theatrette screen shows a camera’s eye view of the current exhibit in the performance area mixed with recorded residue of previous performances.

While an exhibit is being performed, the audience may still scan their tickets which manipulates the visuals in the theatrette and aspects of the current events in the performance area.

The exhibits are designed to be around 3 minutes in length, with 10 exhibits performed in one showing. A typical performance session would consist of 3 showings, around 40 minutes each with 20 minutes break in between. While the performers are not present, the theatrette area continues to function as an autonomous installation. Audience members are free to arrive and leave at any time during the session.



Figure 2: The theatrette area.

2. DESIGNING AN AUDIENCE INTERACTION

The main aim of our cross artform group is to create new, implicit connections between the artforms of the three members over a performance network. Ideally, throughout our works each artist/artform both sends and receives data from each of the others. Our development process involves “playing” with these connections, searching for a balance between our individual artistic freedom and linking elements of our work together for a group effect. For *The Last Man to Die* we decided to bring the audience into our interaction, allowing them an element of control over the direction of our performance.

For Martin, a musician and Cormick, an actor, the audience is normally hidden in darkness. Forster’s experience through his visual art practice is different. At

¹QR Codes are two dimensional barcodes designed to be read by mobile phone cameras.

an exhibition opening, for example, audience members can interact with the artist or artwork or simply observe. We prefer the exhibition style experience to interactive performance where audience members are forcibly and embarrassingly cast as characters. Rather than expect the audience to become performers, we invite them to be another data source.

With this experience in mind, we limited our design for interaction with the audience to meet the following goals. First, the interaction should be simple, audience members should understand how to interact or have it explained simply. Secondly it should be accessible, audience members shouldn't need to have particular devices or an internet connection to participate. Finally, the interaction needed to fit the context of our "ruined museum" aesthetic.

3. QR CODE TICKETS

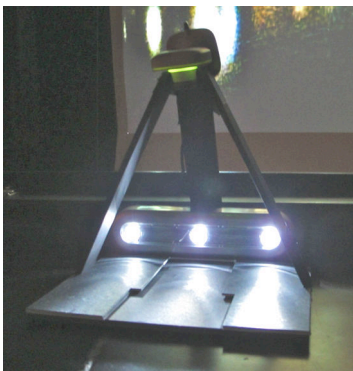


Figure 3: The QR Scanning Station

To meet our goal of allowing the audience to interact with the performers we implemented a QR code scanner using a webcam and custom software in openFrameworks [6]. QR codes were printed on tickets for the performance using a receipt printer controlled by a Teensy microcontroller [7].

This system allowed us to print codes for each audience member so that everyone was able to participate in the interaction if they wanted to. Since the tickets are disposable and easy to print, the audience could take home a unique element of the performance.

Although QR Codes are not new and are well established in advertising, they still retain a sci-fi aesthetic which suits the themes of the performance. On the other hand, many people are familiar with QR codes so little explanation of the technology was required.

In our March 2010 performances, the QR codes controlled two functions, selection of the next short scene out of nine possibilities and control over aspects of the visualisation playing in the theatrette.

Overall, audience members participated in scanning codes and did not require any specific guidance. Although scanning codes sometimes produced a strong reaction from the performers when changing a scene, the reaction was generally too subtle. Some audience members were frustrated and felt that since they didn't see an immediate result their tickets didn't work.

On the other hand, when there was a clear reaction, the audience members discussed amongst themselves what was going on, engaging and exploring our work. Inventive audience members even attempted to break our system, for example, by making new QR codes from two folded ones.

In future performances, it would be highly desirable to have more significant feedback when each ticket is scanned. Not only should we include stronger reactions in the visualisation, music and actor's actions, but a sound effect or light on the scanner would help communicate a reaction to each scanned code.

Ironically, we did not explore the usual purpose of QR codes, containing a URL. Perhaps each ticket could contain a URL leading to an online aspect of the performance, accessible through a computer or mobile phone.

4. PERFORMER INTERACTIONS

In *The Last Man to Die*, we continued to develop connections between the three artists/artforms that we explored in our previous works, *Cognition* [5] and *Vital LMTD* [2]. The connections were made through a computer network using OSC messages to communicate actions or states from each artform.

The data outputs used were:

- Martin: MIDI note output from the MalletKat percussion controller.
- Forster: events in programmed visual systems, computer vision data from live and recorded video of the performance.
- Cormick: Data from three axis accelerometer attached to upper arm.

Data inputs were:

- Martin: Musical parameters, progression through sections of the soundtrack, triggered sound events.
- Forster: Visual parameters, complexity of visual elements.
- Cormick: Four vibrating motors and LEDs attached to each hand and shoulder.

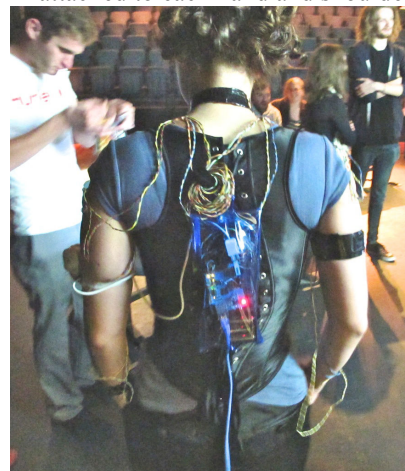


Figure 4: Hanna Cormick wearing the Arduino-based interface.

The March 2010 performance featured a wearable interface for the actor, consisting of an Arduino with Ethernet Shield [1], Nintendo Wii Nunchuck accelerometer and four paired vibration motors and LEDs. The accelerometer allowed Cormick's movement throughout the work to be connected to musical and visual parameters. We chose to limit the accelerometer data to the magnitude over the three axes. By observing this single value, we were able to program quite effective interactions. Complex impulse movements triggered flurries of panpipe like sounds and a swarm of projected jellyfish appeared to follow a current, pushed and pulled by Cormick's movement.

Cormick's outputs, four vibrating motors and bright white LEDs informed her movements and provided feedback from the musical and visual aspects of the performance. In sections of the work where Cormick was performing impulse movement, the pulses from each motor directed her gestures. The bright LEDs allowed the audience to see this connection.

In this performance, the Arduino chose a random motor and LED to pulse when it receives particular OSC messages triggered by strong actions in the music, such as a loud MalletKat note, or the visuals. In future performances each motor and LED could be connected to particular types of events in the visuals and music. Although this connection could be very interesting, the simple random choice made for a compelling performance. Sparse visuals and music led to sparse movement. As density of events increased, Cormick's movements grew more complex until finally, the instructions were overwhelming and the connection between pulsing motors, lights and the performer was visibly broken.

5. CONCLUSIONS

A prototype performance of *The Last Man to Die* was held at Belconnen Theatre, Canberra in March 2010 and development of this work is ongoing. From the prototype performance it became clear that the audience interaction through the QR code scanner was a strong and interesting mechanic for driving performance.

An additional benefit, was that when audience members engaged with the QR scanning system, they were more interested in understanding the other connections between artforms in our work. The technical simplicity allowed this system to work reliably throughout the performances and to fit in with our existing interactions.

More work needs to be done to let the audience truly feel that they are contributing to the performance. The first improvement here could be strong musical and visual feedback each time a code is scanned. Additional interactions could change throughout the work, reflecting the changing musical, visual and dramatic focus in each section.

The wearable Arduino-based interface brought compelling and reliable connections between the actor and the other elements of the performance. For future

performances, we hope to refine this device to improve its appearance and shorten the setup time. We also hope to use the existing accelerometer, motor and LEDs in new interactions with the other performers and audience.

6. ACKNOWLEDGEMENTS

Last Man to Die are supported by the A.C.T. Government through ArtsACT, the Australian Government through the Department of Innovation, Industry, Science and Research and PACT Centre for Emerging Artists.

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