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Rebuilding Ernest Edmonds' Communications Game

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1. INTRODUCTION

In the summer of 1970 Ernest Edmonds and Stroud Cornock had just completed a collaborative project called DATAPACK (Cornock & Edmonds 1973). The interactive computer system was created for the Graphics'70 exhibition at Brunel University and allowed participants to have a "pseudo-English conversation with a computer" (Edmonds & Franco 2013, p.122) with the output being printed out to a drum plotter. While observing DATAPACK, Edmonds began to consider the deeper nature of this interaction and how systems thinking could be further combined with these ideas to facilitate meaningful communication.

2. COMMUNICATION WITHOUT LANGUAGE

In parallel to the technological advances, the 1960s saw great leaps forward in the understanding of developmental cognitive psychology. Cited as a key influence by Edmonds in his research, T.G.R. Bower brought together descriptions of 7 key experiments relating to areas of developmental psychology in his book "Development in Infancy". Bower describes how very young infants seem able to "detect and utilise a contingency between response and reinforcement events" (Bower 1974, p.13). Suggesting that even before language is learnt infants are able to recognise patterns of stimulus and understand their ability to interact and affect them. It is from these considerations of our innate ability to interact with patterns that the first Communications Game was created.

3. COMMUNICATION GAME

Communications Game was first shown as part of Stroud Cornock's "Invention of Problems II" exhibition at Leicester Polytechnic in 1971 (Edmonds 1975). The interface was very simple, each participant was presented with a number of switches and lights. By altering the states of one of the switches, the participant alters the states of two or more of the lights. Some visible to the participant, some to a participant at another station.

Screens kept the participants apart (Figure 1). The stations were not controlled by computer, but rather electric circuits soldered together by Edmonds utilising logic circuits and a truth table to determine the effect of each interaction.

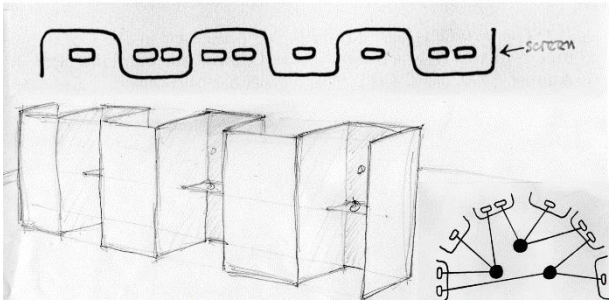

***Figure 1**: Sketches of the Communications Game layout (c. 1971). © Ernest Edmonds.*

The Communications Game was described by Edmonds as a piece of "conceptual art" (Edmonds 2019). He states that it should not be an aesthetic physical object and could be realised in many different manifestations and explains the point as being that the art is "the machine in action" (Edmonds 2019).

The goal of the artwork was not to replicate communication in a way familiar to the audience members but to allow them to explore "low[er] bandwidth" communication (Edmonds 2019). "The responses are such that the participants are likely

to understand each other's actions only partially and even that understanding may be transitory" (Edmonds and Franco 2013, p.124)

While the first version of Communications Game contained six stations. A second, simplified version of the artwork with only 3 stations was created for the Cognition and Control Exhibition at the Midland Group Gallery in Nottingham in 1972 (Edmonds 1972). A much later version of the work was created in 1990 that utilised a LAN network but kept to the 3 station design. The work was shown in the exhibition Art Creating Society at the Museum of Modern Art Oxford (Edmonds 1990).

4. REBUILDING COMMUNICATIONS GAME

In 2015 Ernest Edmonds worked with Sean Clark to create a new version of Communications Game using current technology. The rebuild used Arduino microcontrollers, LEDs and toggle switches (Figure 2) to replicate the functionality of the 3 station original and was housed in a three-sided pyramid that used screens to separate the participants. This was shown as part of Edmond's 2017 exhibition "Constructs, Colours, Codes" in Leicester.

***Figure 2**: The rebuilt Communications Game (c. 2015)*

A new build was started in 2021 with the goal of creating a modular platform on which new variations of Communications Game could be constructed. The current implementation features a small hardware "terminal" (see Figure 3) with switches and LEDs and a WiFi-enabled microcontroller.

The terminals communicate using the MQTT protocol with an Internet-based server that hosts the logic. As buttons are toggled, messages are sent to the server and responses are sent back to illuminate the LEDs. The current configuration of the artwork uses three such terminals and is able to fully replicate the earlier 3 station versions of Communications Game.

***Figure 3**: The new Communication Game terminal.*

Additionally, a web browser version of the terminal has been constructed that also makes use of MQTT communications. The hardware and browser versions of the Communications Game terminal are interoperable, allowing larger networks to be constructed using the Internet for communication between terminals.

5. COMMUNICATION GAME AT EVA LONDON 2022

The first public exhibition of the new build of Communications Game will take place using both hardware terminals and the web at EVA London 2022. Additional information and documentation of the exhibition will be made available on the web at https://www.interactdigitalarts.uk under "Projects".

6. REFERENCES

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