ANIMISM AND ARTEFACT: THE ENTANGLED AGENCIES OF A DiY [DO-IT-YOURSELF] MAKER

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ABSTRACT
Using images from my own creative practice, the entangled agencies of DiY [Do-it-Yourself] making are expressed through a messy, intuitive and exploratory engagement with materials. The combination of animism and material are used to describe a techno-animist approach to technology and investigated visually through notebook sketches, photographs of the workshop and the artefacts produced, highlighting parallels between the material turn and more ancient belief systems which recognise a spirit or life force within objects.
The notebook is of particular importance as a space of creativity and as a support for mental processes: an 'extended mind' of material agency which plays an important role in the production of artefacts. As an ethnography of both materials and human practice this article challenges the human-centred focus of autoethnography, or self-ethnography, acknowledging materials as active forces in the production of artefacts. DiY maker culture offers a unique contemporary context in the generation of a type of knowledge which is contained within both human and the material substances of the artefact.

KEYWORDS
Animism, creative technology, ethnography, Do-it-Yourself'

BIO
Dr Emit Snake-Beings is an educator, researcher and practitioner in the field of DiY (Do-it-Yourself) digital creative technologies and media ethnography. His interest is in combining digital media with the practical, hands-on and material focused approaches of critical maker culture. Emit's own practice as research circulates between DiY electronics, programing interactive media, film, video, soundscape and location recording. His most recent research has involved the observation of workshop practices through documentary making and he is currently offering workshops investigating dynamic relationships to technology through video ethnography.

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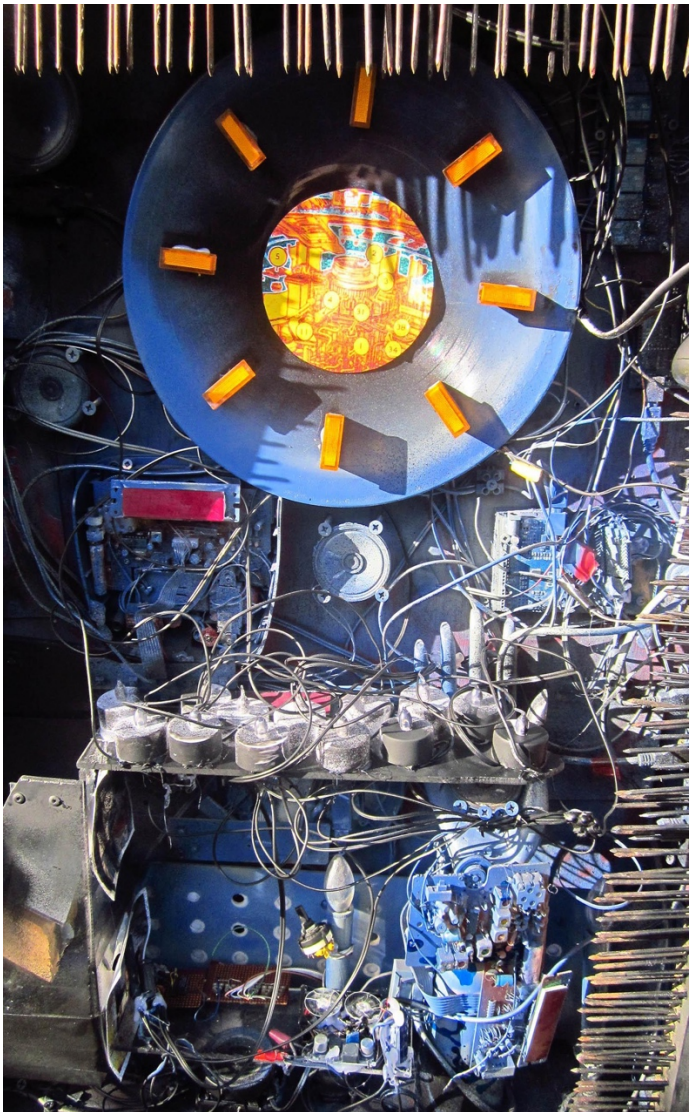

FIGURE 1: Detail from the Cledonomancy 418 Machine: divination machine under construction by the author.

The Cledonomancy 418 machine (shown above), a device made by the author in 2017, selects and plays randomly-selected sound-snippets from several different spoken word folders within its built-in MP3 audio player. As seen in the image, the machine incorporates a baffling array of recycled materials and re-functioned electronic devices in a confusion of wires, electric candles, objects and materials: suggesting an ambiguous technical function. In response to a question, the result is a mishmash of words which are equally baffling and occasionally, extremely pertinent and to the point. Cledonomancy, a form of divination sacred to the Greek god Hermes, traditionally involved using scraps of overheard conversations as a source of receiving messages for the purpose of fortune telling (Hyde, 2008, 135). The purpose of this device is to access configurations of words and sentences beyond human conscious intention, that is, to playback pre-recorded words in a random order with the assumption that these new sentences will have some kind of new message for the listener. On the insertion of a coin, as well as through the desire of the listener, the Cledonomancy 418 machine becomes part of the 'extended mind' of the operator, allowing access to the loosely formed meanings which occur as a result of randomly configured words and sentences.

Given the above description of the electronic shrine to Cledonomancy it is, of course, a subjective experience of the user of such a device as to how far these claims can be verified. In a similar vein, the extent to which the technologies of the artefact can become an extension of human (or material) forces is the subject of this article: using examples of my own creative-technology practice to observe and identify the role of material agency as a contributor to the form of artefact created.

Material agency is something we may sense when we feel that 'technology has a life of its own': that technology doesn't always do what we want or in a way we want it to. The functions of technology can be mysterious and unexplainable, particularly when we are not sure how a device works, or we are blinded by the complexity of its operations. Often when I build a machine of some kind I find that the materials have their own 'idea' about how they want to function and what it is they want to 'be'. Working with broken technologies and recycled materials heightens the occurrence of things 'going wrong', that is to say, objects deviating from the intention of the person making the artefact. Whilst my own work is with electronic sculpture, the artist working with marble, or the wood carver, has been known to utilise this trait of materials 'wanting to be something else': observing the forces within the stone or the grain within the wood; recognising the 'intention' of the materials as the dynamic forces involved in making something (Malafouris, 2013). The role of the sculptor is often said to merely consist of revealing the object which already exists beneath the surface of the raw block (Malafouris, 2013), or else "they'll talk about how the marble 'wants' to become something else" (Bryant, 2014, 50) in contradiction to the intention of the artist. In a contemporary context these forces can be explained as 'material agency' - the ability of materials to contribute to the final shape of the artefact, to influence our thinking, and to exert a force similar to human intention. Malafouris defines agency as being "of actual practice and being-in-the-world [..] [or as] intention-in-action" (2008, 30) meaning that intention is linked inextricably with action and practices within the material world. When it comes to building complex technological devices, I find that there are two distinct paths, that: materials can be chosen for their supposed utility; but also, artefacts can come from seeing what functionalities emerge during the making.

Before the material turn, agency was generally considered as an exclusively human intention, the will of the maker imposed onto the materials to make an artefact. However, ideas of material agency recognise the important role that materials play in the process: acknowledging a two-way interaction between materials and the human (Barad, 2003; 2007; Bennett, 2010; Guerrini, 2016; Latour, 2005), that extend beyond the flesh and blood of the artist.

In another ethnographic context the material forces discussed above might be labelled as belonging to an animist belief system. Postmodern anthropological approaches to animism challenges the traditional dichotomies between human and material, animism as nature and scientism as the view that science is able to express every truth within the world (Richardson, 2016; Hornborg, 2006; Bird-David, 1999). In following this approach techno-animism is a term I have employed to connect material agency with postmodern concepts of animism: to articulate the dynamic relationship between human and material object in the making of an artefact. Techno-animism suggests that material forces within technology are capable of operating as 'agents' of change: there is an agency to the materials which 'animates' the process of making something. Techno-animism can be thought of as a form of knowledge which emerges between the human and materials; and an agency which cannot be entirely situated within either the human or the materials of making.

The aim of this article is to articulate a specific engagement between human practitioner (AKA myself as researcher) and materials to draw out the various forces involved. To do this this article involves self-reflection on the processes of making a series of artefacts: a self-ethnography (autoethnography) in which the researcher explores their own practice using visual data. The three (mini) case-studies focus on three fields where the different material agents, *notebook, workshop and artefact*, are emphasised respectively.

In a wider scope, this article examines a new materiality emerging from 'maker culture', a significant social movement, described as the "fourth industrial revolution" (Hatch, 2014, 3-10). Maker-culture has been described as involving "novel applications of technologies, and the exploration of intersections between traditionally separate domains and ways of working" and is a significant contemporary global phenomenon affecting ways in which we perceive and organise diverse fields of knowledge such as education, technology and the material environment (Sharples, et al, 2013, 33). Using the maker-culture slogan of "make something" (Hatch, 2014, 189-191) as the entry point into this autoethnography of practice, the aim is to observe the processes of material agency in the production of the resulting artefacts. Through examining my own practices, as a DiY (Do-it-Yourself) maker, I will employ an autoethnography that blurs the divisions between the practitioner, the researcher and the various material forces of notebook, workshop and materials of the artefacts produced. David Butz and Kathryn Besio see autoethnography as focusing on the researcher and their relationship to the formation of knowledge, looking at: "*agents of signification* [who] strive self-consciously to understand themselves as an important part of what they are signifying" (2009). This is expressed in the aim of this article to

understand and articulate some of the otherwise unconscious strategies and creative processes involved in the making of artefacts. Since material agency, as well as human agency, is an integral element of this article, the visual materials of notebooks, workshop space and artefacts produced become part of these "*agents of signification"*, since they are also considered to be an important part of the process of making. Autoethnography is also used to articulate the tacit or unconscious knowledge which is supported through the use of notebooks and objects, allowing these unconscious processes to become visible. Another role of this autoethnography is as tool for incorporating marginalised voices into the academic world. In this sense, these marginalised voices are those of material agency and tacit knowledge which comes from practical making rather than from a realm of academic study (Butz & Besio, 2009). In this manner, autoethnography becomes a way of adding different forms of knowledge and 'unspoken' voices from within the accepted traditions of academia: "to cross, straddle, or inhabit the boundary between non-academic and academic subject positionings" (Butz & Besio, 2009). Additionally, by capturing the 'subjective positioning' of the DiY maker is a way in which the voice of the 'amateur' maker can be brought into an academic context which is biased towards the idea of the expert as a specialist within their field.

I consider myself a DiY 'amateur' since I am constantly working in field of making which I am not an expert of, but instead 'tinkering' with materials and technologies with which I am unfamiliar. This seems to be a process of learning to work with materials which opens the door to accidents and chance encounters, unexpected discoveries, a feeling of 'not knowing' and confusion, which often outweighs any feeling of expertise or clarity. This fits with Bochner & Ellis' idea of *Evocative Autoethnographies* "that investigate life's messiness, including twists of fate and chance" (2016, 10) and include the expression of changeable, ambiguous or messy situations which are common events within the tangled processes of making. Another influence has been Stuart McLean's aspirations for anthropology, *Fictionalizing Anthropology: Encounters and Fabulations at the Edges of the Human*, which are well suited to a study of creative practices which include the 'other than human':

> as distinct modes of engagement with the materiality of expressive media—including language—that always retain the capacity to exceed and destabilize human intentions [...] less as the study of an objectifed humanity than as the open-ended, performative exploration of alternative possibilities of collective existence—of new ways of being human and other than human (McLean, 2017, x).

The inclusion of material agency as an "other than human" force is both "open-ended, [and] performative" in displacing the human as the central, exclusive, figure of agency within the context of creative practice. In this sense, this article is an autoethnography which includes the material extensions of the self, and the forces of material agency at the edges of (conscious) human experience.

The specific project examined in this article is my own processes of working towards a sound installation which interacts with environmental triggers, as part of the *Hull, UK City of Culture 2017* festival. The project begins through an exchange of emailed texts brainstorming ideas for the commission, descriptions of various spaces available for the project and as research into historical practices which originated in the particular cultural environment of the city of Hull. The starting point for my designs comes from parallels between my own work and the historical practices of the sound-art-performance group *Throbbing Gristle* (TG, 2017), and in particular the sound device invented and made by TG member Chris Carter called the *Gristleizer* (Carter, 2017): a home-made DiY electronics device that breaks sound into small fragments to be re-configured in new assemblages (Logue, 2015, 40:13). For the purposes of the Hull exhibition my adaptation of the *Gristleizer* has the working title of *Bingo-Splicer*: since it uses random numbers similar to the popular lotto game, to select between different sound sources; breaking the sounds into fragments for use in re-assembled rhythms.

TG were a post-punk group which drew inspiration and influence from the industrial environment of Hull and east London between 1977 and 1983. As soundscapes for decaying post-industrial environments the combination of ritual performance and home-made DiY electronics are part of the context influencing my practice for the Hull project.

FIGURE 2: Electronic shrine combining industrial materials with relics - made in 1993 (photo by author).

The interface between DiY electronics and materials is a particular interest of mine and over the years I have built numerous devices and machines, including a series of coin-operated electrical shrines, one of which is depicted above, which explored religion and technology (Snake-Beings, 2018A). These early practices have influenced my thoughts on the connections and intersections between technology and ritual spaces and in particular influencing my thoughts on the practice of *techno-animism.* In traditional ethnographic reports, animism is entrenched within a religious-based world view which regards 'fetish' objects, divinatory oracles or objects which display some evidence of sentiency. Postmodern views on animism recognise a more fuzzy boundary between human and materials and begin to resemble concepts of material agency which have recently emerged in the social sciences (Richardson, 2016). In the ideas of techno-animism, developed in this article, material objects and technological objects are viewed by the practitioner as active agents in the making of artefacts: whereby the materials of technology are somehow 'living' actants: as Jane Bennett's 'vibrant materials' (2010, 23) where 'vital forces... [create] an open-ended collective' (24) involving a 'neo-animist ontology' (Bennett, 2011, 120). This 'open-ended collective' of a neo-animist worldview, is the space I will explore in this article and in practical terms indicates a way of making which allows materials to exert influence over the final artefact. In techno-animism the hypothesis is that certain aspects of animist practice can been extended to objects of technology.

In a more scientific field, the quantum scientist Nick Herbert suggests that objects on a quantum level operate a form of consciousness similar to animism:

> animism', [is] the belief that every object possesses sentient "insides" like our own. The quantum consciousness assumption, which amounts to a kind of "quantum animism" likewise asserts that consciousness is an integral part of the physical world (Herbert, 2002).

Although I am not familiar with the intricacies of quantum mechanics, I find it interesting that there is a scientific parallel with the hypothesis of animism. Herbert continues in expressing that quantuum animism recognises the forces of agency which exist outside of the human brain:

> If the world is truly quantum animated, then there is an immense amount of invisible inner experience going on all around us that is presently inaccessible to humans, because our own inner lives are imprisoned inside a small quantum system, isolated deep in the meat of an animal brain (Herbert, 2002).

In terms of the tacit knowledge of making, the processes involved are similar to the "invisible inner experience" of quantum animism: whereby cognition and the creative process extends the confines of "the meat of an animal brain" to include the materials of technology. This is an idea which is similar to Clark and Chalmer's extended mind theory, which describes a form of material consciousness echoing the "cognitive artefact" as a seemingly sentient object (Malafouris, 2013, 67). The 'extended mind' views the space of cognition, usually restricted to the physical brain, to include objects and materials as forces of extra-bodily agency (Malafouris, 2013; Clark, 2011; Clark & Chalmers, 1998). The idea is that the extended mind occurs because material artefacts are entangled as part of the mental process. A simple example of this can be seen in the everyday use of a notebook as an extension of memory, with the notebook becoming a support for the mind. There are other more complex examples which I am experiencing myself, such as, the use of the computer keyboard or the printed word to access different modes of authoritative or visually objective thinking. I can see these different modes of thinking when I look at the handwritten scrawls, uncertain notes and sketches of my own notebooks, compared to the organising principles of the computerised word processor. Yet the notebook remains a valuable asset in the process of extending thoughts, since it retains the physical marks of ambiguity, trial and errors which can so easily be erased by the word processor program.

Following on from the entanglement between human and materials, the idea of the artefact is influenced, in this article, by Anita Guerrini's work on the material turn in the history of life science, where she describes the artefact as combining "the brute matter of things and the incorporation of human labor in their design, making, and use [so that] these things are artifacts as well as facts" (Guerrini, 2016, 470). This suggests to me that these types of 'facts', contained within the artefact, represent a merging of human and material traits which combine science and art: "turning attention from facts to artifacts" (471). Technology, and the science involved in its making, is driven by facts, whereas the arte(fact) also contains an additional form of knowledge which comes from a more intuitive and humanist realm. By combining art with science the artefact becomes useful in the "discovery of [scientific] laws" with the purpose of explaining how nature "operates", whilst, at the same time, also useful in exploring art as "subjective and intuitive" forces aimed at the "discovery of the self" (Lapointe, 2015). The intention here is to use artefacts (arte-facts) as tools in exploring intuitive practice as well as the forces contained within technological materials.

Through my own experience of making I can observe that artefacts emerge from an indeterminate process filled with human error and constant changes in design, as the mind interacts with the materials. Making is an indeterminate and messy process which diverts from an exclusively human intention to incorporate a multitude of forces and agencies. To represent these indeterminate processes I have included several designs and sketches which illustrate some of the numerous twists and turns involved in the making of the Hull project. This embraces the idea of the "perpetual prototype", in which the process is an ongoing, important and visible aspect of the artefact (Snake-Beings, 2017A; 2017B; 2017C; 2016; 2014).

The significance of the notebook in this article is as an object of cognition: as part of the process of cognition which extends beyond the human. This extension of cognition, or extended mind, allows material agency to become a visible aspect of 'thinking', as Lambros Malafouris observes: "a cognitive

process is not simply what happens inside a brain; a cognitive process can be what happens in the interaction between a brain and a thing" (2013, 67). This means that the notebook and the artefact can be viewed as extensions of human thought processes: a material engagement which goes;

> beyond the individual in order to accommodate broader cognitive events [...] [so that material] space is not simply the passive background against which the activity unfolds; it is something that can be used as a cognitive artefact (Malafouris, 2013, 67).

The extended mind supports my own intuitive feeling that materials and objects exert their own form of animism through technology and that the use of notebooks, objects and even the general workshop space, is vital in the development and support of cognitive processes and ideas which lead towards the generation of artefacts. I believe that these materials support a form of tacit knowledge: the "unconscious trial and error [of making] [...] without specifically knowing how we do it" (Polanyi, 2005, 65) and as such, have become important aspects of methodology. In this sense, notebooks are not seen as a source of data in a world filled with stable "facts" but as complex assemblages of forces of agency. This is the kind of messy research which Andrew Pickering recognises, that:

> start from the idea that the world is filled not, in the first instance, with facts and observations, but with *agency* [...] as forces upon material beings (2010, 6).

This can be related to my own practices of making and the way in which the artefact emerges from an experimental engagement with materials and technologies, evolving in an indeterminate way which could not have been entirely predicted by the person making the machine. The notebook, the objects within the workshop and the materials used in constructing the artefacts play an important role of negotiating a path through the indeterminate. Through emphasising actions and practices within the world, I am following a performative research, as an attempt to incorporates these multiple "forces upon material beings" resulting in the making of artefacts.

Case Study One: Notebooks

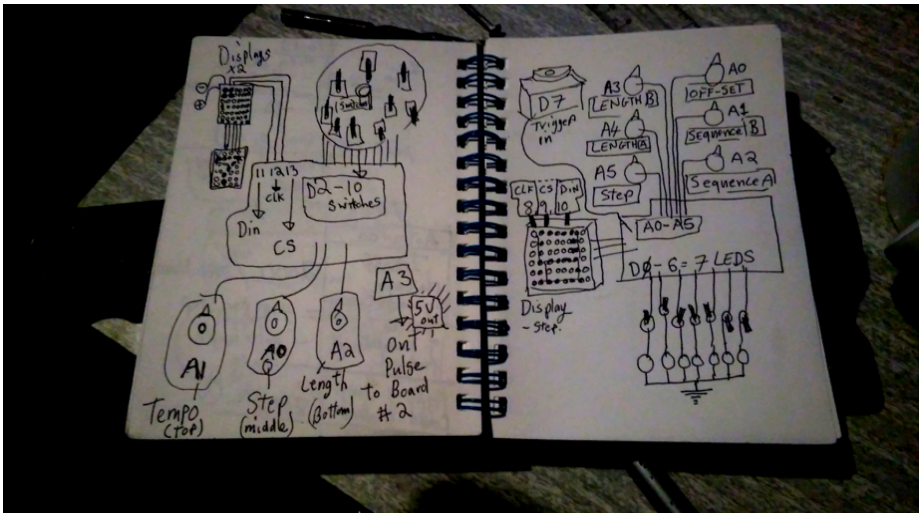

FIGURE 3: Workshop diagrams drawn from the prototype (photo by author).

The above image shows a functional diagram of the connections used in a prototype device for the environmental sound installation designed for Hull, UK city of culture 2017. The image, found in one of my notebooks of the time, depicts both 'completed' parts of the projects as well as components which I had yet to be make. The drawing functions as a technical diagram to aid with the 'thinking process' of

making complex mechanisms, including pin numbers of the Arduino such as 'A1, A0 and A2'. Through the process of creating the circuit diagram from a semi-finished artefact I noticed an appealing aesthetic emerging from the technological content, or technical process of making. This is a kind of unconscious art emerging from the technical diagrams which dwell at the intersection of art and technology – a process with the primary function of aiding technological cognition which can be re-situated as an aesthetic object. in this way, lettering such as A3, A0, A4, A1 relate to the wiring pins on the Arduino circuit boards used in the construction, but also, function as part of the hieroglyphic mystery of the object.

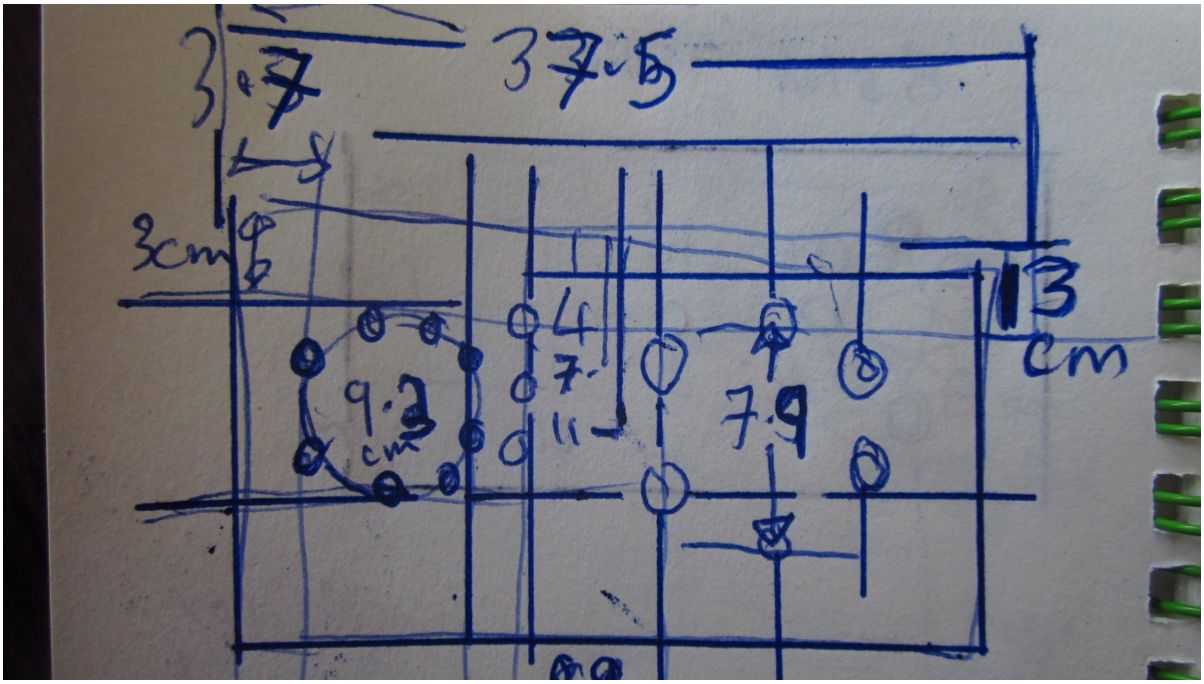

FIGURE 4: Notebook sketches of distances (Image: Author)

The above image, a notebook sketch made by the author, shows a working diagram used in the placing of holes in the control panel of the Bingo-Splicer. The numbers represent the distances to be measured but also, interestingly, have been adapted, where possible, to include prime numbers. This is reflected in the video clip of the finished artefact (Snake-Beings, 2018D) which generates prime numbers between 0 and 100 and displays them on a primitive dot matrix display. It is one of the many sketches and working diagrams produced as a side product of manufacturing the device and although the purpose was purely functional I have found that there is also a working through of aesthetic ideas that have found their way into the finished artefact. In this way, I find that there is a cross-over between the functionality of the technical sketch and more abstract sketches and compositions which evoke intuitive and subjective responses. Perhaps this is because, when making, using and observing the sketches, there is a part of me which disengages the dichotomy that separates art and technology and the notebook sketches become viewed as objects of creative-technology: entanglements between human and technology.

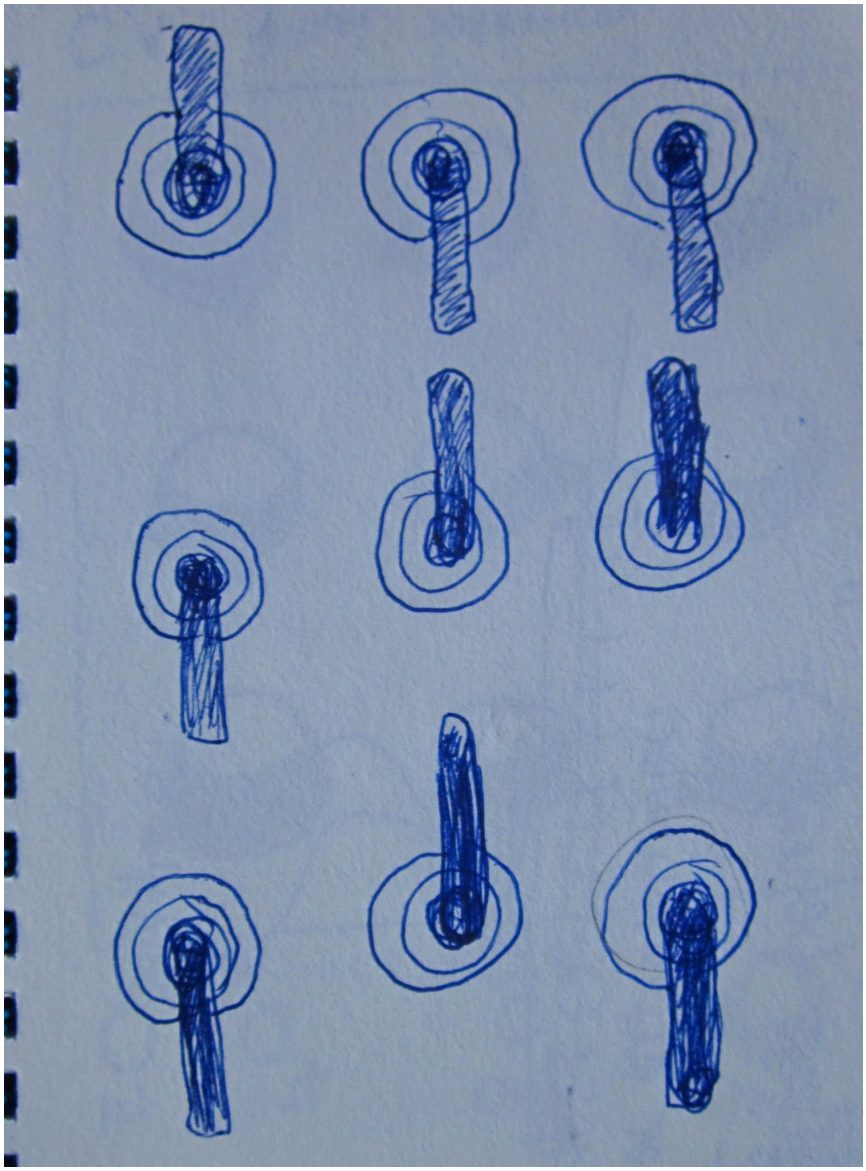

FIGURE 5: Functional switch diagram which create visual motifs in operation of the 9 step sequencer (photo by author)

The image above depicts a sketch made in my notebook of nine switches used in the Bingo-Splicer design. In the above sketch I was interested in the clearance space necessary for the positioning of the switches and the way in which this would affect the operation of the switches if placed too closely. I find the positions and shapes made by the switches of particular interest and it was this image which prompted me to include visual artworks, influenced by the working diagrams, in the final exhibition. Whilst the intention of the drawing was initially as a design sketch for potential layouts for the control panel, for me the drawing symbolises a cross-over between visual art and functional design. Whilst making the sketch I realised that the positions of the switches held an aspect of visual signalling: an unconscious, tacit understanding, that material objects hold the potential for influencing living entities; operating beyond the simple functional qualities assigned to them by their human operators. For me, the sketch is suggestive of a techno-animist current: that the images and materials of the switches are unconsciously influencing my practice at a level of material intelligence. This initial sketch has led to the practice of producing new sketches which experiment with the representation of functional aspects of technology: incorporating programming flow charts, circuit diagrams and schematics used in my practice of building and programming functions into the electronic circuits used in the *Bingo-Splicer*; as visual works which blur the borders of function and aesthetic: technology and art. Observing these diagrams as artefacts, and as objects of expression in themselves, interests me because of the way they

have come into existence as by-products of the main intention of making the Bingo-splicer artefact. These sketches are left-over remnants from the processes of design, made as supports for the human designer to imagine what the switches would look like in their various positions. Not designed to be shown to anybody else, these drawing have been produced in a different way to something that is intended for display: the engagement between the human drawing and the materials of the paper and pen has been intended as an extension of thinking processes; the actual image is redundant beyond that function - except as an indicator of material agency.

One place where material engagement is most emphasised is in the space of the workshop, a space where many of the ideas extend their materiality from brain via notebook to actual artefact.

Case study two: Workshop

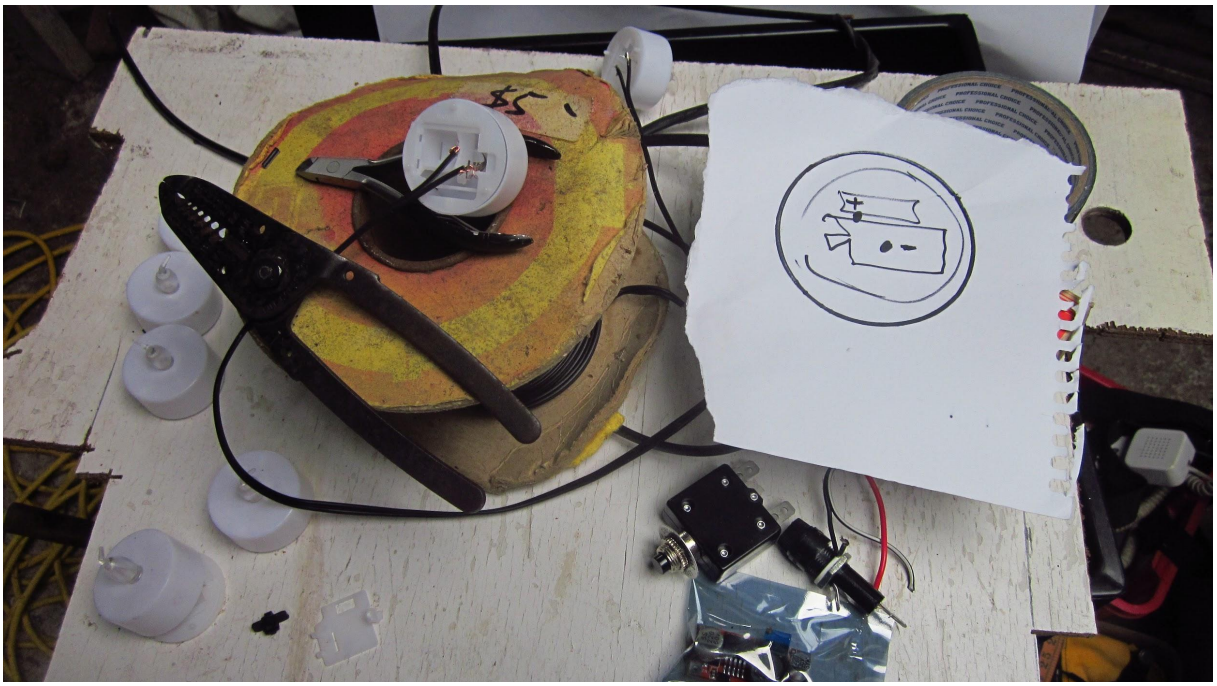

FIGURE 6: Wiring diagram and tools in the workshop.

The workshop is a space where the placement of objects occurs as a result of complex interactions and engagements between the human and materials. Tools are left at places which are convenient for use and sketches are made on whatever scraps of paper happen to be around. Within the workshop the physical placement of tools, sketches, objects, components and materials is ephemeral and constantly changing: just as thoughts come and go. The diagram, seen on the right of the image above, functions to illustrate the correct wires to connect from an electric candle used in a shrine I was making at the same time as the Bingo-Splicer. It has its own significance amongst the other objects but I also find that, if viewed out of its functional context, there is an abstract and indeterminate appeal to the shapes and lines created by as a by product of a practical support for ideas. For me I find that the 'accidental indeterminacy' which occurs once the diagram is removed from its functional context crosses boundaries between art and science. The function of the sketch is situated within the technical process of making, but once this process has finished and the wires have been soldered, the sketch shifts from being a functional object to being just another scrap of paper lying around the workshop: an abstract indeterminate object made without any apparent function in mind.

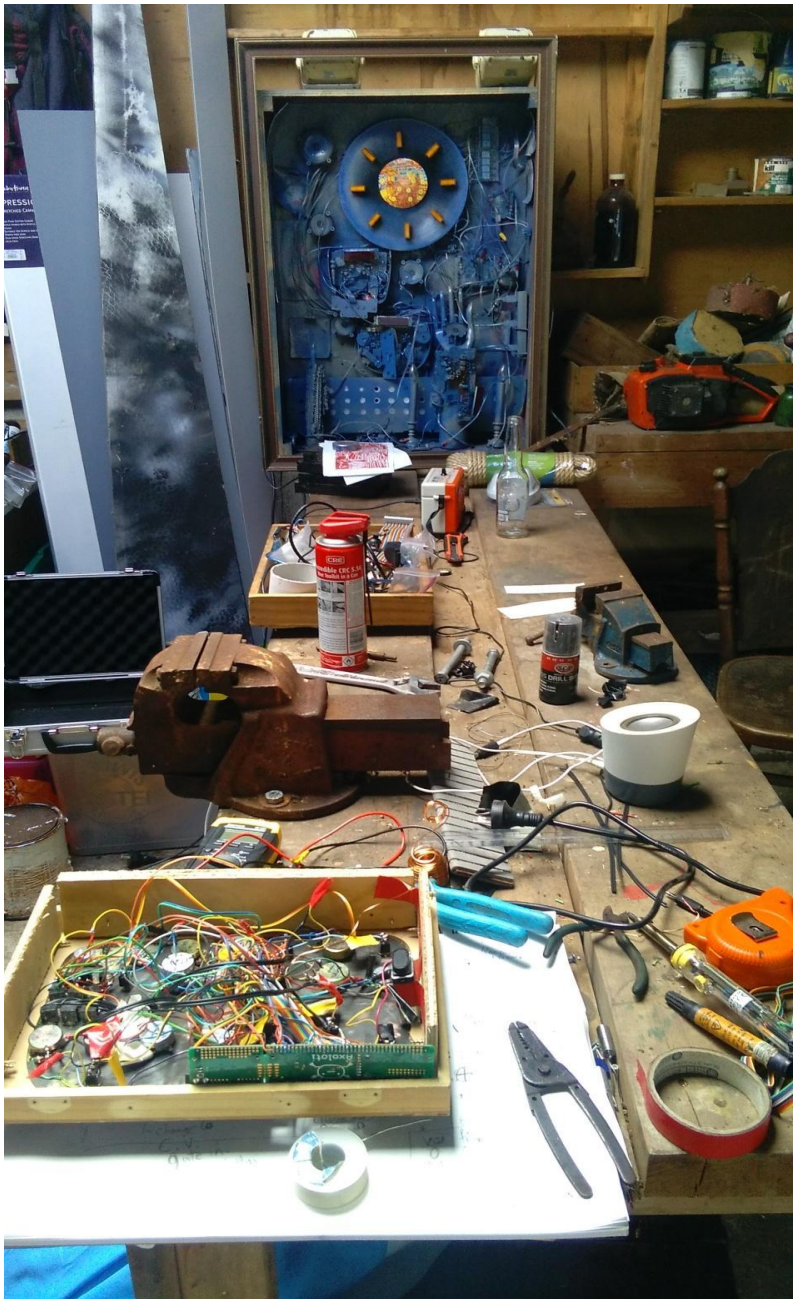

FIGURE 7: An assemblage of workshop actants, tools and components (Photo: Author)

Since my practice is situated in the intersections of technology and art, complexity and messiness seem an inevitable part of the process – as evident from the variety of complex processes occurring in the workshop in the image above. Often there are several projects in process and this increases the complexity of the influences which the objects exert. One great aid in assisting the process is the ability to leave objects where they are at the end of a making session: providing a continuity which would be less defined if the space had to be cleared and stored away at the end of each visit. Inevitably there is a dynamic between messiness and continuity, with the force of objects assisting in both clarity and clutter of the mind. In this way, the workshop can be seen as part of the extended agency involved in the processes of making: as such its space suggests a messy, haphazard and indeterminate process; filled with chance accidents, errors and multiple actants in the form of materials, tools and resources. My personal experience of making, and perhaps a common experience, is that of failure: broken and dysfunctional technologies and complex on-going extended processes; whereby I am engaged in an unscripted, improvisational 'dance' between intention (the vague impression of what it is I want to make) and

material agency (what it is that the materials seem to 'want' to make). The workshop provides the space between mental ideas and material manifestation where it often appears that technology and materials are either fragmented, broken, in a state of repair, abandoned or slowly assembling themselves through a complex and indeterminate process which can only be articulated through the performance of making. This suggests further studies which are beyond the scope of this article: visual ethnographies which use timelapse photography to capture these interactions between human and materials; observations made which do not interfere with the intuitive processes of making; and comparisons of workshop situations where either continuity or cleanliness are emphasised, such as necessary in temporary or mobile workspaces, small or extremely large spaces where objects can remain for weeks before having to be moved. Another function of the workspace is as a storeroom for the accumulation of future materials and the constant process of shifting affiliations between objects as they are shuffled and arranged through complex interactions with humans. I am reminded of the practices of the Surrealists and Dadaist, who adored the accidental and seemingly random connections between objects, as Comte de Lautréamont famously inspirational quote reads: "as beautiful as the chance encounter of a sewing machine and an umbrella on an operating table", suggesting a life of materials which goes beyond our usual expectations.

Case study three: Material artefacts

Within my own practices the phrase 'without conscious effort' has a long history, as a process in which it seems artefacts emerge as if 'found'. This process includes the acknowledgement of chance discovery of discarded objects, such as recycled and redundant technologies and the 'error' of broken technologies, revealing other more interesting and ambiguous functions. Artefacts also seem to emerge from complex material processes which are 'messy' and difficult to keep track of, suggesting that objects exhibit qualities of non-human consciousness.

FIGURE 8: Micro-cassettes used in collecting 'found sounds' and street recordings

My ongoing practice of collecting street recordings, on the magnetic micro-cassettes seen above, has played an important role in providing materials for electronic sculptures. The tapes have been recorded over a number of years travelling in europe, middle-east, Mexico and australasia and can be listened to on the online archive (Snake-Beings, 2018C). The method of recording these tapes has been quite simple, if I hear a sound which I like I will, if possible, record it: usually in a way that will not interfere with the production of sound, whether it is made by human, object or machine. In this way, the sound recordings have been collected as a result of haphazard, accidental and chance operations. Whilst these recordings do not follow any structured ethnographical methodology, they do represent a personal documentation of the aural sensory experience of movements through various territories and are used as in the Bingo-Splicer as the raw sounds which are fragmented and re-arranged.

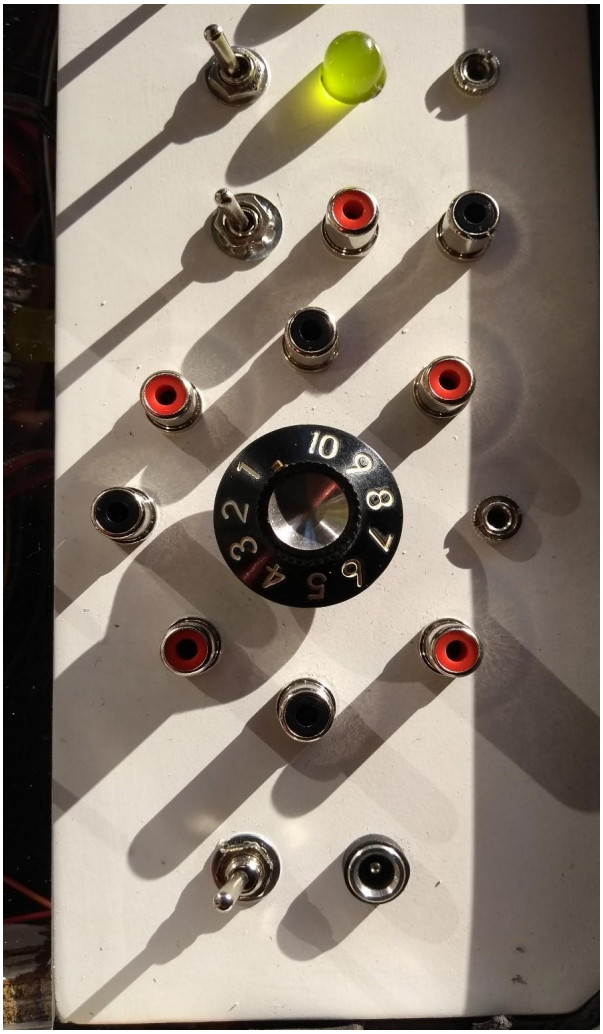

FIGURE 9: detail of bingo-splicer showing audio inputs and outputs (Photo: Author)

The above image is a detail from the finished artefact of the bingo-splicer. On the right of the image is the headphone out and the seven sound outputs from the device, used to send the sound to seven different speaker systems located around the room of the gallery. These are located around the central volume control. The are also seven sound input connectors which allow a variety of devices to add sound to the mix. The processed sound consists of sliced fragments of spoken word and environmental sounds from the micro-cassettes recorded in a variety of locations and cities. In this way, the sounds from diverse locations, timeframes and environments are fragmented and scattered across the space of the Hull gallery: repurposed into new configurations and sonic artefacts. This practice of reusing materials, in the form of 'found' sounds, represents an on-going process in which accidental chance is an important aspect

of the collection and ordering of materials: allowed to occur without direct interaction by a central human artist. At first this may sound odd, since the artefact is quite obviously made by human hand, rather than as a naturally occurring object, but the point here is that the device allows certain elements to circulate of their own accord: using arbitrary selections which occur in determining which fragments of sound are interlaced with each other. This improvisational dance of interactions between human and technology, forms the basis of a dialogue between the human maker and the material environment. The process permits and encourages the unconscious incorporation of material agency through loosening the human intention to direct every aspect of a particular artefact. Through this type of chance making we engage in a 'messy' and indeterminate process. In my own practice I describe this process as an engagement with 'objects found without conscious effort', since my experiences have shown me that human intention is limited in its agential power over the material environment: meaning, more simply, that I often start with the intention to build something which, through the process of making, becomes something else: through errors and accidental outcomes the materials have their own intention or agency.

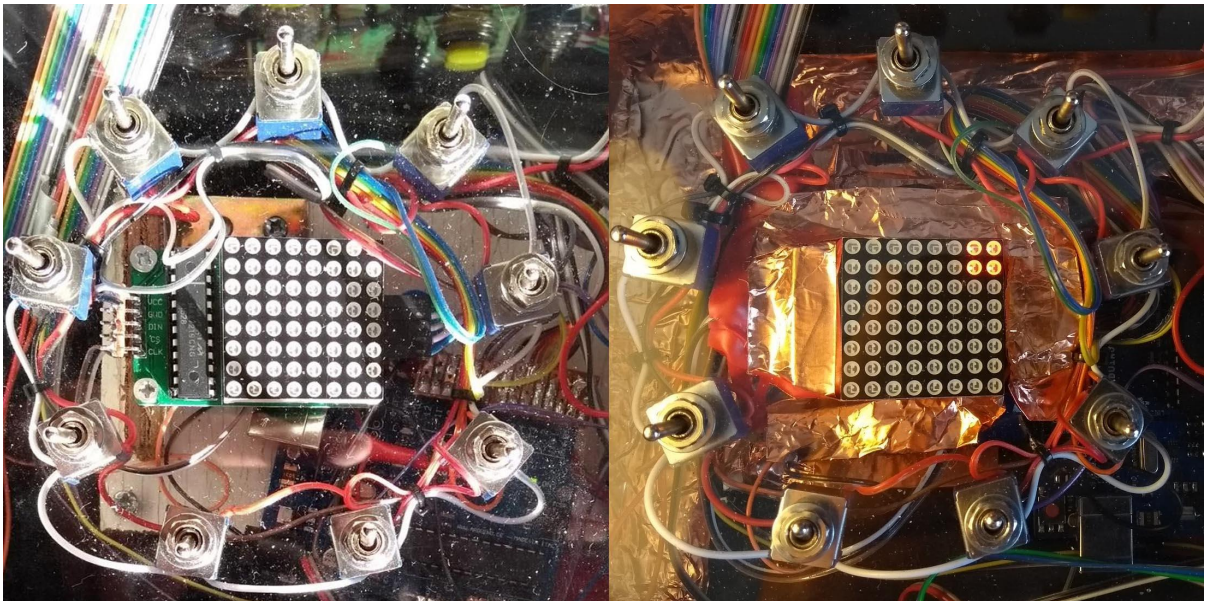

FIGURE 10: Circular pattern of switches developed in parallel to the development of ideas (Photo: Author)

In looking at the above photograph as an object of visual ethnography it displays an attitude of 'openness' towards the workings of technology. The visual use of the wires and connectors are both haphazard and composed – presenting a 'messy' method of making which incorporates transparency to allow the 'mess' to be seen. This attitude can be traced to a DiY ethos, whereby knowledge of processes are made visible within artefacts as signs for other makers. DiY maker-culture, in this way, focuses on producing work for other makers to appreciate: less concerned with consumption by a passive audience, it is the imagined community of makers which are best equipped to be able to hear the kinds of signals and ideas which are communicated through materials. In this way, the artefacts function as an interpellator which signal from maker to maker the possibilities of making; with a close attention given to the ability of materials and processes to 'speak for themselves'. The idea that materials can be given a voice, or can be included as active agents in the artefacts suggests that an almost animist form of material intelligence is once again being acknowledged.

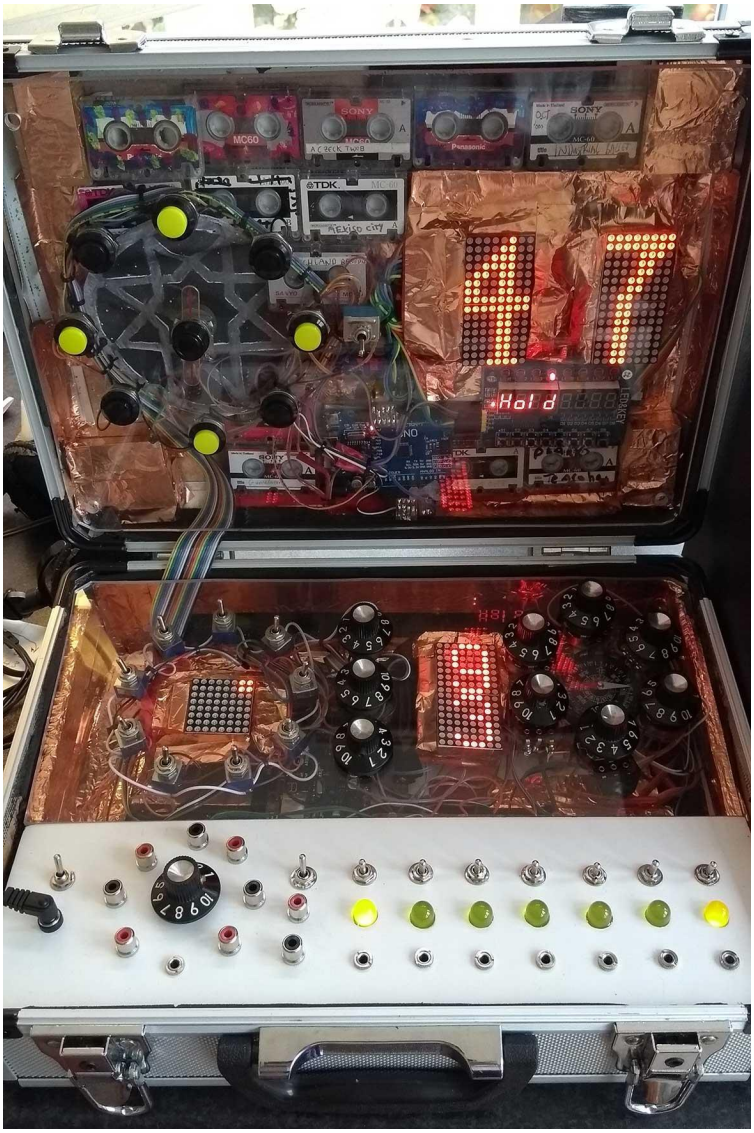

FIGURE 11: 'Finished' electronic audio artefact made by author (Photo: Author)

The construction of the Bingo-splicer artefact, shown above, has been examined throughout this article in its various stages and processes of being made by the author. It is difficult to say whether the artefact is 'finished' or whether the process will continue. The *Bingo-Splicer* remains a complex evolving machine, seemingly emerging from a process of making in which its functions have often been indeterminately 'cobbled together' without a clear view of an end product. The form of the artefact, as well as the recordings made with the device (Snake-Beings, 2018A), reflects its process: messy, indeterminate and haphazard. Listening to the recordings resembles the multiple agents contributing to the project: fragments of voices from diverse sources which combine within a rhythmic structure, just as the multiple components of the device are contained within the case of artefact. It can be said that my experiences of 'making something' have resulted in a material mess. With several months to go before the Hull exhibition my ideas have shifted multiple times, mistakes have been made, fixed and diverted and I am unable to keep up with them within the scope and timeframe of this article. Errors and mistakes are part of the process whereby my own human intention has been diverted through the 'improvisation dance' with the material environment. I have attempted to engage in a process of capturing the tacit

knowledge of the maker, with partial results. It is as if only "parts of the world are caught in our ethnographies... [and that] if they are then this is because they have been distorted into clarity" (Law, 2004, 2). Clarity is not something we associate as a necessary aspect of art: it is often the indistinct and ambiguous which keeps us looking and wondering about the world. When art is combined with science there is space for this ambiguity to infect some of our notions of technology: making us wonder if we really can control the world with science; with an exclusively human intention. I believe that this ambiguity is an inevitable part of the process of attempting to capture, within a linguistic framework, the entangled tacit knowledge of the maker, knowledge which is part human and part material. From a science view, the device, as it stands, reflects its components as potentials which have yet to be 'made into something': that have yet to be utilised into some form which serves a useful or recognisable purpose. From a art view, the object is an open-ended comment on our relationship with machines and the life of technology beyond human control. So far the machine has been used as a film prop in a video documentary attempting to capture my creative processes called 'Ritual Remnants' (Snake-Beings, 2018E). The title 'Ritual Remnants' describes the artefact as a left-over object, a by-product of a performative event, which acts as a placeholder for what has passed. In the documentary it suggests that the artefact serves its purpose as a supportive role for a particular consciousness to take place. This differs from viewing knowledge in terms of information that we can more easily share through words or images: consciousness represents a complex assemblage of ways of thinking and acting which need to be experienced; just as the experience of making can put one in close contact with materials and the various forces which they exert. The particular consciousness that the *Bingo-Splicer* artefact has supported, in this case, is that of an engagement between human and materials in which a consciousness of techno-animism has been the guiding principle of the maker. Techno-animism is both expressed and contained within the artefact of the *Bingo-Splicer* as an ethos or state of mind, rather than a specific set of beliefs. This has proven much more difficult to capture, as John Law says:

> if much of the world is vague, diffuse or unspecific, slippery, emotional, ephemeral, elusive or indistinct, changes like a kaleidoscope, or doesn't really have much pattern at all... how might we catch some of the realities we are currently missing? (Law, 2004, 2).

This relates to my own feeling, that the process of making is an attempt to capture an "elusive" reality which has yet to be defined in material form. Making is a performative act, a process rather than an end result. Out of the "vague" and "indistinct" forms of materials the maker is hoping to be able to "catch" hold of something. This has been the aim of this article, to capture some of the "slippery [...] ephemeral, elusive or indistinct [...] realities" (Law, 2004, 2) of making. This reality has presented itself as a series of snapshots and sketches held together by a consciousness of material agency, supported by the materials of the notebook, workshop and artefact. The aim has been to turn the artefact into a useful ethnographic object through the human intention of the researcher. Of course, the artefact might not have had that specific intention: it might have had other ideas which remain elusive to its human partners.

Links to visual and audio material

Snake-Beings, E (2018A) Bingodisiac device raw. [Sound files]. www.circuit47.com
Snake-Beings, E (2018B) Cledon device recordings. [Sound files]. www.circuit47.com
Snake-Beings, E (2018C) Various street recordings 1990-2018. [Sound files]. www.circuit47.com
Snake-Beings, E (2018D) A game of Bingo using prime numbers generated by the Bingo-Splicer machine. [video files]. https://youtu.be/rAC0ZoUZRes
Snake-Beings, E. (2018E) Ritual Remnants: A portrait of Emit Snake-Beings [video files]. https://vimeo.com/287933092

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