Welcome

INTRODUCTION:

My project focuses on how we can explore and push the boundaries of how we engage with electronic music – and the ways in which we can more easily connect with it.

Music can be created from something as primitive as assembly, and the potential of technology is limited only by how we choose to engage with it.

All these questions and ideas shape the direction of our research.

MOTIVATION:

There’s clearly demand for electronic music in 2018 – few can deny that it has entered the realm of popular music over the past few years. However, there’s still this kind of black-box effect surrounding electronic music. These are the things that people usually think of when they think of “playing” electronic music.

While perhaps not the *most* difficult thing, it is certainly not the most intuitive. This is especially true for those who just want to have a go at engaging with electronic music, not serious producers.

All types of music are something that should be accessible to everyone. You don’t need to be a master in something to be able to enjoy, experiment and play around with it. These are a few problems with existing electronic music equipment – expensive, steep learning curve, not necessarily beginner-friendly to anyone without a technical background. There are people all over the world who are simply novices at piano and guitar, but they still manage to enjoy themselves playing them. Why can’t we achieve the same with electronic music?

So my goal is to build an instrument to create just that, while still being enjoyable and fulfilling to play.

BACKGROUND:

Electronic music is still relatively a new field, and there aren’t firm definitions of what it actually entails – how do we conduct research in such a field? Thankfully, there already exists a conference just for this purpose: NIME – New Interfaces for Musical Expression. NIME has been a large portion of the inspiration for what I am currently doing, as well as detailing the logistics of actually developing the instrument.

When it comes to the more Human-Computer Interaction side of Computer Science, evaluation becomes tricky. NIME has long been working on evaluations to suit this. Human-centred products need human-focused evaluations – and so we’ll evaluating the instrument through an interview-style setting with people that have musical background.

Arduino seemed like a suitable platform as it is an open-source platform that allows very easy-to-learn input output usage. Due to this accessible nature, it has a large global community where ideas and development tutorials are everywhere. This allows us to focus on actually building the instrument rather than tinkering around with low-level code.

PRELIMINARY RESULTS: [15sec]

I made a mini-piano, mainly for the purpose of getting familiar with the application of Arduino to musical projects.

APPROACH: [35sec]

So this is a model I’ve made for my next prototype – I thought I’d step up from the mini-piano by adding multiple paradigms of expressivity. Create continuous sound rather than discrete sound (which is what we saw with the piano), and adding a percussion element.

1. We can use a capacitive touch sensor, which is capable of taking in continuous input, to create a continuous sound surface
2. An ultrasonic sensor can be a percussion element by detecting the hand’s distance from the sensor
3. How the sound is actually outputted

Screen – potential for displaying the equaliser. Might be a nice touch.

And I can also experiment with more paradigms of expressivity e.g. using pressure to control volume.

ROADMAP: [20sec]

And as you can see, the design and implementation are constantly being revised, as is the nature of research. In fact, the model shown previously is unlikely to be the final version – we’ll see in October.

In about 2 months, we will conduct the interview-style evaluation, which the ethics approval has been recently submitted for.

CONCLUSION: [25sec]

So as you can, this is where I’m at and where I want to go.

We’ll see how it turns out with the multiple dimensions of expressivity, and the NIME-based evaluation.

Ultimately, the goal is to address the issues introduced in the beginning. Hopefully, this project can help people more easily connect to electronic music by creating an intuitive platform to play and experiment with.