The NibbleTronic

Building a MIDI Controller and Coming Up With a New UI For Wind Instruments

Introduction

This is a proposal for a talk in one of the 20 minute slots. The appropriate tracks are ‘Hardware & Making’ and ‘Art & Culture’. The described project is non- commercial and fully open source. If I’d bother with a license, it would be the MIT ‘Don’t expect anything and do what you want’ license.

The Project

The NibbleTronic is a MIDI wind controller that features a novel user interface resulting in a unique tonal range. The standard configuration allows to precisely play a bit more than four full octaves including semitones with only one hand. This range can be easily extended in Software.

The instruments evolution is currently in the third stage and nearing kit status. The device is Arduino based to allow for easy modification of its behaviour by its user. The source code and the schematics are accessible via a free GitHub repository, as well as a complete bill of materials.

In my talk I want to describe the individual stages of development from a barely usable electronic recorder to a useful and unique instrument that could come as a kit. The interface that puts four octaves at the fingertips of a single hand will be the second core topic.

The Talk

This is the outline of the talk I want to hold. It will be done in the traditional fashion with a couple of slides for illustration and me doing the talking.

1) Motivation and Basic Concept

I will show the first iteration (Some electric conduit, pushbuttons, a pressure sensor and of course an Ardu micro). Additionally I will explain the basic principles behind an electronic wind controller.

2) Inspiration and Evolution

This part will deal with the shortcomings of the first design, the sources I used to learn more and draw a comparison with a commercial product (The Akai EWI series of controllers). I want to illustrate what I learned from their product and which design choices I made for the second generation NibbleTronic.

3) Innovation

The second gen. NibbleTronic is the first to use my new interface for wind instruments. In this part I want to explain what I came up with. This chapter may include a short demonstration if I can convince a musician friend to do this part.

4) Further Development and Outlook

The final chapter will explain what I learned from the previous design, which tools I used for the current generation and explore possible future improvements. From there I want to enter the Q&A part seamlessly, as this part lends itself neatly for discussion.

Further Information

1) About the Device

The build of generations two and three is documented here: http://www.schlimme-gegend.de/schlimme-ideen/nibbletronic/

The current state is that I'm waiting for the PCBs for the latest iteration to be delivered but I'm sure that I will have a completed example before December.

2) About Me

As an engineer I feel obliged to make technology accessible to my fellow humans. My current projects are centered around the interface between art and technology. Educating others about the possibilities at their disposal is important to me. Right now I'm part of the developing audio group in my local hackerspace (SubLab Leipzig), where I want to build a stage synth from a controller keyboard, a rasPi and a rooted kindle fire 7. I am 39 years old and this would be the second Chaos Communication Congress I attend.

Kind regards, Christian Trapp