DIY DAW Controller with Teensy: Hardware Creation on a Budget

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***Abstract-***

***When using a DAW to create and perform music, professional DJ’s and artists use a variety of controllers, keyboards, and mixers to operate the software. The other choice available to musicians is to use the keyboard and mouse for interacting with the software. This way of working with the DAW loses the ‘old-school’ feeling of mixing; the actual disc jockey work of producing music. As musicians just starting out, as well as students, money is not a luxury available to help buy one of these expensive machines. Using affordable microcontrollers and parts from the Arduino line, a controller was successfully created. The approach, steps, and comparisons of other methods will be discussed.***

***Keywords-***

***Teensy; Arduino; Hardware; DAW (Digital Audio Workstation)***

I. INTRODUCTION

As a group of musicians that work with music software, primarily the Digital Audio Workstation (DAW), in its many flavors, creative results are what we crave for. From high quality production to original mixes, the heart of music production (or music making in any way) is to achieve a result with good sound. After all, music is merely entertainment; but it is so much more than that at the same time. Not everyone has the time to learn and master an instrument, as that takes years of commitment. Even so, much music today is produced by electronic means, evolving from a purely acoustical means to an end. Much music is produced electronically, not just for convenience, but for the sounds that can be produced only with a computer.

That is where the DAW comes in; many people can learn to use and incorporate a DAW of their choice into their work. Whether using Ableton Live, Studio One, or FL Studio, a DAW is the computer musician’s instrument. It allows artists to compose music that is personally satisfying to music that is used to head festivals worldwide. It is where all the effort and hard work of composing, producing, and/or performing is stored for the world to see. These types of software programs by themselves are expensive. When using them, people are limited using the mouse and keyboard.

With acoustical instruments, musicians can practice on the instruments themselves; in older days, when people created music by electronic means, their primary devices were synthesizers, sequencers, and magnetic tape. When it came to performance, the old disc jockey way of scratching vinyls was the means of expressing their artistic souls to people.

There is a positive and negative to the DAW to put it simply; there is so much that can be done with the DAW that it can make the experience of creating music seem too robotic, taking the organic, human part of it out of the process. This is especially noted when using the DAW with only a keyboard and mouse; the tactile feel of making electronic music is absent due to no synthesizers,