Rochester KLUG Keyboard Meetup

Tim Anderson

I recently gave a talk at my local Linux User Group about my experience building a Dactyl ergonomic keyboard; along with my reasons for doing so. The notes for that talk follow. You will find a downloadable PDF version of the notes at the bottom of the page.

TODO Gather Raw Data for Presentation Prices Ali Express for Keycap Price Digikey for Hardware Cost Collect Info & Tutorial Sources for

Tim Anderson

Who am I?

- https://github.com/mcdviii
- http://aberrent.online

I've worked 8 years in manufacturing. About 6 of those years I've worked as a machine operator for a local furniture manufacturer. I own a reasonably sized 3D printer. I tinker with electronics & free software on my free time, because being social is for normies.

What is this Dactyl Keyboard thing?

- Columnar, Ortholinear, written in Clojure

Those are a lot of fancy words. What does any of that mean? Well we'll get back to that.

History or Background

- Matt's Clojurcon Youtube Video
- Matt's Reasons for making the design
- Dactyl was Written in Clojure with the Help of OpenSCAD

Reasons for Choosing Dactyl

- Kinesis Advantage form factor
- Open Source

- Looked like the most comfortable design
- Also looked hella cool

Why Would You Want That?

While browsing around looking at these ergonomic keyboards I see a recurring question: "Why would you need/want that.", and I think that it's a fair question. It smacks of iPhone ownership or RGB lighting: Do you really need that? To the outside observer it might look like an expensive, showy & unnecessary gadget. But I think there are real health benefits to using a proper ergonomic keyboard, and in this talk I'd like to go over some of the things I've found while looking into the topic.

First I think we need to get a better understanding of why a regular keyboard is the way it is, so that we can understand what we're working with.

Let's look at a regular keyboard

- History of Typwriter According to Matt Addereth
- Keyboard design may be a bit antiquated

Now, before we get into this, I should state that I am not a doctor. I do know how to use Google, so I might as well be one–but that being said–obviously, this is my understanding from my cursory research. None of it should be construed as medical advice. Consult your doctor before making any changes to the ergonomics of your workstations or workflow. So with that out of the way, let's look at some things the internet tells you not to do.

- Compare bad hand posture to OEM keyboard
- RSI Injuries & How to Avoid Them https://www.rsiprevention.com/rsi_prevention.php
- Other relatable reasons (Programmers, emacs pinky)
- My personal reasons

I consider my hands to be my greatest physical asset, other than my brain. To be clear, I don't experience RSI issues, nor have I ever. But, over the past year I've just decided to make a concious effort to avoid them given my hobbies & future plans. I use a computer a lot, and I would like to continue using a computer a lot with as few negative affects as I can manage. I had the means to build my own badass keyboard, so I did.

Benefits of Ergo keyboards

Notable Mentions

Kinesis Advantage2

- Advantages:
- Disadvanteges: $320.00 USD
- Open Source: No

ErgoDox

- Advantages:
- Disadvantages:
- Open Source:

Let's Split

- Advantages:
- Disadvantages:
- Open Source:

Atreus

- Advantages: Small, single-board form factor
- Disadvantages: Not a split design?
- Open Source: Yes

This is another keyboard I saw referenced a lot. It's a single board & not split, but it's small (the website shows it fitting in someone's jeans pocket). The single board design could be an advantage or disadvantage depending on what you're using it for. It's potentially less comfortable to use, but I see it being easy to grab & go if you're using it in a mobile set-up.

Signum 3 (Troy Fletcher)

- Advantages:
- Disadvantages:
- Open Source:

Notable differences between the Signum 3 & Atreus are the thumb clusters.

Other Dactyl Variations

Ergo Dactyl

- Advantages:
- Disadvantages:
- Open Source:

Redesigned to fit Ergodox keycaps.

Lightcycle Dactyl

- Advantages:
- Disadvantages:
- Open Source:

Dactyl Manuform

- Advantages:
- Disadvantages:
- Open Source:

Dactyl Project

My Reasons for Building by Hand Instead of Purchasing

- At the time there were none being manufactured
- Sense of self-satisfaction
- Building my own helps me to improve the project by contributing personal improvements back (Open Source)
- I already own a 3D printer
- Screw paying someone else >$300, I'll just build my own!
- One year later joke

Build Overview

Shell/Case

Switches & Keycaps

Hardware

PCB & Wiring

Firmware

How Does it Work?

- Explain matrix positions

Challenges

- Which way to wire the diodes
- How the keyboard is controlled by the MC (key matrix)

Where To Buy

I have no affiliation or experience with the following. YMMV!

- Drop.com (formerly MassDrop)

Crowd sourced, limited manufacturing.

- Ergodox EZ
- OhKeycaps.com

References

Das Blog.com