Journal Entry

**01/24/22 – 02/06/22**

Objective: Rese/arch about the Razer Mechanical Switches to see how a piece of metal sheet can be inserted or adhered to the keycap or the area where the keycap is inserted to avoid any problems with the key’s original construction and its motion. The keycaps are made of plastic and not metal, so they are not conductive because they are insulators.



A picture containing text, plastic, close

Description automatically generated



Original Keycap Construction

Wire



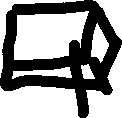
Idea #1:

Insulation



A picture containing text, plastic, close

Description automatically generated



* A copper metal sheet with a hole could be inserted inside the keycap

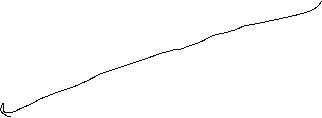


* + The hole can be created using a small drill bit at the center
* Solder a wire to the metal and have the wire sit on this area of the switch



A picture containing toy

Description automatically generated



Disadvantages:

The metal sheet may affect the motion of the keys as it is pressed down, so it will have to be tested.



02/06/22:

Objective/Problem: Determine area for the compartment of the hardware in the physical keyboard.

Why: If the space is not determined, then we will not be able to house our compartment.

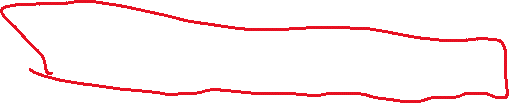
How: I am planning to resolve this by inspecting the keyboard myself and informing my team of my findings.

<https://www.youtube.com/watch?v=FvHaXWMRfx8&ab_channel=SlowLivingTech>

|  |  |
| --- | --- |
| Razer Blackwidow Chroma Layers | Description |
| A picture containing keyboard, indoor, electronics  Description automatically generated |  |
| Graphical user interface  Description automatically generated with medium confidence | Keycaps removed |
| A picture containing text, electronics  Description automatically generated | PCP board |
| A picture containing text, indoor, stainless, steel  Description automatically generated | Keyboard Case |

A picture containing text, indoor, stainless, steel

Description automatically generated



The keyboard space is not sufficient to carry our compartment since there is limited space because of its design. The bottom half of the case labeled in blue cannot be used as the location for the compartment since there is no empty space. The only location that seems to have a bit of empty space is what is labeled in red, but it cannot be housed there due to its small size. Therefore, it may be advisable to use a custom keyboard instead that can be modified for our specific needs.

02/09/22

Problem: Our initial keyboard does not have sufficient space to house our compartment.

Why: We need a keyboard that is customizable that can adhere to the space that our hardware requires as we decided that the hardware should be not visible to the user’s eye.

How: I am planning to resolve this by researching customizable keyboards that may be applicable to what we are looking for as a team:

There were different custom keyboards that I searched for throughout the internet. I discovered that the Keychon brand were popular for customizable keyboards and a best seller. There are different types that they offer such as the K2, K6, and K8. They all are similar in layout but differ in terms of their number of keys. All of these types have a USB passthrough which is a similar feature to our initial keyboard.

|  |  |  |
| --- | --- | --- |
| Keychon Keyboard Model | Keyboard | Keyboard Specifications |
| Keychon K2 | A picture containing text, keyboard, computer, electronics  Description automatically generated | * 75 % layout (84 keys) * Wireless Bluetooth/USB Wired * Shortest on the front, taller on the back |
| Keychon K6 | A close up of a keyboard  Description automatically generated with medium confidence | * 65% layout (68 keys) * Wireless Bluetooth/USB Wired * Shortest back |
| Keychon K8 | A close up of a keyboard  Description automatically generated with medium confidence | * 87 keys * Wireless Bluetooth/USB Wired * Tallest in the front and back |

The Keyboard K8 has a lot of empty space which may be useful for us for housing our compartment. Since it is the tallest in the front and the back, it may be suitable to use due to space depending on its thickness.

**Keyboard K8 Disassembly**

|  |  |
| --- | --- |
| **Parts** | Description |
| A picture containing text, keyboard, computer, electronics  Description automatically generated | Initial Model |
| A picture containing text, electronics, scoreboard  Description automatically generated | Keycaps removed |
| A picture containing electronics, keyboard  Description automatically generated | PCB board with keyboard case |
| A picture containing indoor, case, accessory  Description automatically generated | Keyboard Case with battery |
| A picture containing text, indoor, tiled  Description automatically generated | As you can see above with this figure, it is easy to place external objects in here such as foam which is commonly used underneath keyboard switches to get rid of the metallic sounds. |

Reference videos: <https://www.youtube.com/watch?v=LKK6WHnLQsk&t=443s&ab_channel=AustinV>

<https://www.youtube.com/watch?v=LN1yAAdHc-M&ab_channel=Clackson>

02/11/22:

The EPOMAKER GK68X/GK68XS keyboard may also be useful due to its empty space that is available with the keyboard case. There is no USB passthrough which should not be a problem, but the thickness of the case may be a concern to fit the compartment compared to the Keychon V8. According to this video, another user attempted to insert foam into the case and when assembling it back together, the PCB was in contact with the foam in so many areas and it was not screwed back properly. This meant that it had to be installed in the battery compartment. In addition, its size may be an issue when routing wires since it is so compact.

Purchase Link: <https://epomaker.com/collections/mini-64/products/epomaker-gk68xs> (Keyboard)

Price: $119.99

|  |  |
| --- | --- |
| EPOMAKER GK68X/GK68XS | Assembly |
| A picture containing text, keyboard, computer, electronics  Description automatically generated | Initial Model |
| A building with many windows  Description automatically generated with low confidence | PCB Board with keycaps removed |
| A picture containing indoor, printer, electronics, square  Description automatically generated | Keyboard Carrying Case |

[Amazon.com: GK61 GK61X PCB Plate Case 60% Keyboard Custom Hot Swappable RGB Keyboard DIY Kit Wired Tyce-C for 3/5 Pin Switch (GK61X White) : Electronics](https://www.amazon.com/Keyboard-Custom-Swappable-Tyce-C-Switch/dp/B09BZ22CM2/ref=sr_1_13?crid=3JHNOOIY0DJO8&keywords=custom%2B60%2Bpercent%2Bkeyboard&qid=1644791038&sprefix=custom%2B60%2Caps%2C104&sr=8-13&th=1)

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| EPOMAKER GK68X/GK68XS | Technical Specifications |
| EPOMAKER GK68X/GK68XS | A screenshot of a computer  Description automatically generated with medium confidence |

Reference video: <https://www.youtube.com/watch?v=auKFo3hnT7g&ab_channel=minimalistik>

02/13/22:

I discussed my findings with my team, and we found an alternative. Our team decided to purchase a keyboard kit with swappable keys. I was able to contribute to this decision based on what I discovered from my research.