CROSS REFERENCE TO RELATED APPLICATIONS

This application is the provisional application of a utility patent application to be filed within 12 months and claiming priority under 35 U.S.C. § 119(e).

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not Applicable

NAMES OF PARTIES TO A JOINT RESEARCH AGREEMENT

Not Applicable

INCORPORATION BY REFERENCE OF ELECTRONIC MEDIA

Not Applicable

STATEMENT REGARDING PRIOR DISCLOSURES

Not Applicable

THE UNITED STATES PATENT AND TRADEMARK OFFICE

Provisional Utility Patent Application

Natural Grip Remote

Samuel Li Liu
Carlsbad, California

1. Background of the Invention/Inventor.

The present invention generally relates to button input computer equipment. More specifically, a handheld computer keyboard which uses directional finger input.

2. Background of the Invention.

This innovation is a handheld device. The reasoning behind the design of a something that would fit in the hand instead of a glove is so that the user wouldn't need to put it on and take it off each time they discontinue use. Ergonomically, the user would just have to pick and up and set it down as they use and stop using the keyboard. The way it works is that it laid out into sections of the hand and for each finger to motion in 3 directions so that they get 3 inputs. I used a combination of touch sensors and pressure sensors to create this input system. The sensors only need to be touched in the up and downwards motion and pressed on the knuckle sensor. To use special characters and all the different keys on a keyboard, there is a switch on the left thumb slot which changes the layer into 4 different possibilities. To switch to a specific layer, the left thumb presses a direction on the thumb dial. With 4 layers, each key that is already in place for the fingers gains 4 inputs for each button. So, with 3 inputs per finger, and 8 fingers, you get 24 unique inputs. But since the functioning keyboard has about 90 keys, I added 4 layers so it would achieve 92 inputs that can be bound to each and individual layer-key combination. These 92 keys include the capitalized letters and lowercase with all the special symbols.

I started off with the raspberry pi in 3b+ model which had the most basics of developing tools. Using the pi, I was able to get the signals from the GPIO pins. Then using the signals, I wanted to convert the signals through a dictionary that then binds the keys to a specific thing such as "F" key or something. In the last world, the pi functioned only with the single f key and that didn't even have a way for it to debounce or anything, so it wasn't entirely well made. I have improved on this design.

3. A Brief description of Current Invention.

The proposed invention is a handheld computer keyboard which uses directional finger input. The keyboard is in two pieces, one for the left and right hand. The keyboards fit in each hand and the thumbs/straps are used to hold it in place. The user of the keyboard features three inputs per finger on all eight-finger excluding the thumbs. The thumbs are used to switch between layers to get more button inputs or use a built-in trackpad. This invention allows a user to use a full mouse and keyboard setup in many position and locations without much effort.

4. Brief Description of Drawings

Fig. 1 is an illustrative representation showing four colored photographs of the invention from four angles in accordance with an embodiment of the present invention.

Fig. 2 is an illustrative representation showing two colored photographs of the invention worn on the left and right hand in accordance with an embodiment of the present invention.

Fig. 3 is an illustrative representation showing three colored photographs of the inventions input buttons using one finger as the example in accordance with an embodiment of the present invention.

5. Detailed Description

The Natural Grip Remote will be referred to as “keyboard” in this description.

Fig. 1 is an illustrative representation showing four colored photographs of the invention from four angles in accordance with an embodiment of the present invention. The photograph shows a front view (100), back view (102), left side view (104) and a top view (106). This photograph only shows the right-hand keyboard device for simplicity. Both hands wearing the keyboard can be found in figure 2. The front view provides the best depiction of the 3 sensors on each finger. Each sensor is activated or pressed when a conductive part of the skin touches it. This gives the sensor input. In this photograph, the top finger sensor (108) is seen extending upwards about 1 inch. The center finger sensor (110) is seen depicted as a touch button located on the body of the keyboard. The sensor is not installed in the photograph but would be in the holes. The bottom finger sensor (112) is seen extending out. Detailed explanation of how this system works is described in figure 3. The 4 photographs clearly show the ergonomic shape of the keyboard which contours to the user’s hand comfortably. The layer switcher/mousepad location will be shown and described in figures 2 and 3.

Fig. 2 is an illustrative representation showing two colored photographs of the invention worn on the left and right hand in accordance with an embodiment of the present invention. This depiction shows two hands wearing the left and right keyboards. The left hand is seen holding the left keyboard (200). The right hand is seen holding the right keyboard (202). The keyboards may have stretchy straps (204) which would hold the hands tightly and not require the use of thumbs. The left-hand features a layer wheel (206) on the side of the body. The layer wheel switches inputs for each sensor and will be explained in full detail in figure 3. The right-hand features a small mouse pad (208) which can be accessed by the right thumb.

Fig. 3 is an illustrative representation showing three colored photographs of the inventions input buttons using one finger as the example in accordance with an embodiment of the present invention. This example will explain the use of the sensors, the layers wheel, and the mousepad. The first photograph shows the users finger pressing the center sensor (300). The second photograph shows the users finger pressing the top sensor (302). The third photograph shows the users finger pressing the bottom sensor (304).

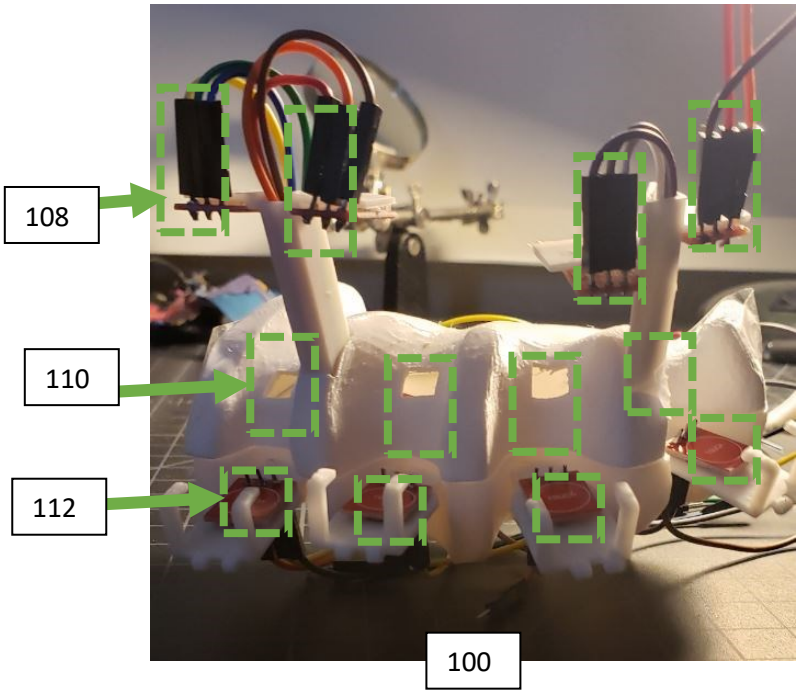
The way this system works is by giving 3 inputs per finger. 3 inputs with 8 finger give the user 24 unique inputs. A standard keyboard features more than 90 keys. The way the user is able to get more than 90 inputs on the invention is with the help of the layer switcher (306). The layer switches is a simple rotating wheel with 4 channels that it can go to the first being the lowercase alphabet. The user would rotate the channel to the preferred channel, such as but not limited to, capital alphabet and numbers. The user is then able to use the same 3 inputs on every 8 fingers to insert the capital letters and numbers. If the user wants to switch back, they may just rotate the wheel back to the original tick.

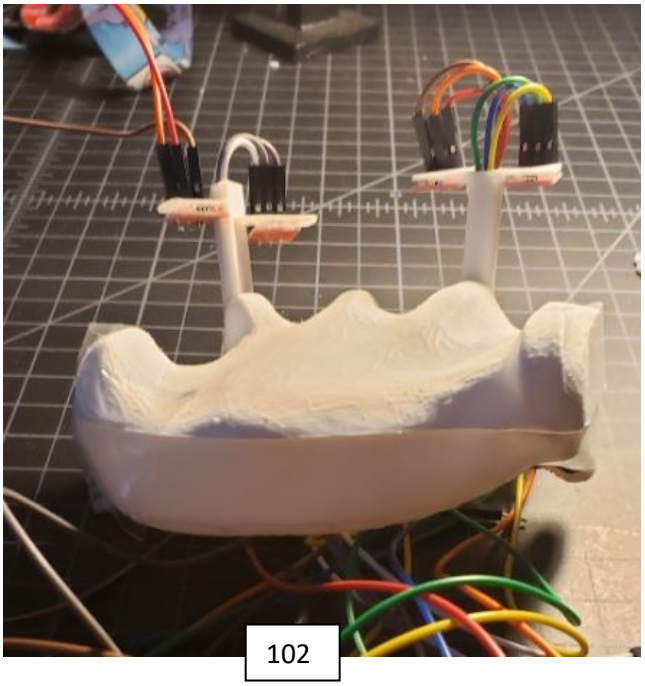
The keyboard may be programmed for buttons such as “shift” on layer 1. This way, there would be no need to switch layers if the user only wants to capitalize 1 letter.

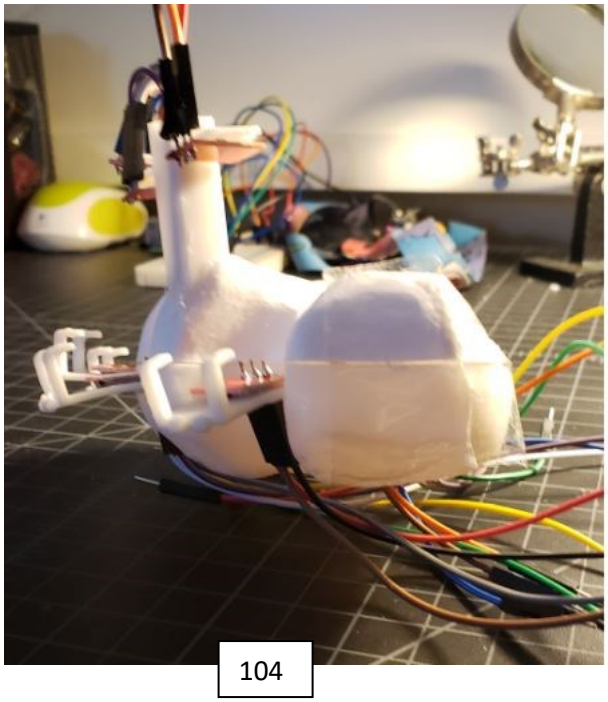
The right keyboard part features a simple touch keypad and two buttons. The right-hand thumb would be responsible for navigating the mouse and clocking objects instead of switching layers.

6. Abstract

The proposed invention is an optical computer mouse that works the same as a standard computer mouse. The difference to this mouse is the laser diode that tracks the mouse movement is located on the upper left, right below the index finger. This provides the user with better precision when using the mouse for signatures, drawings, and other activities.







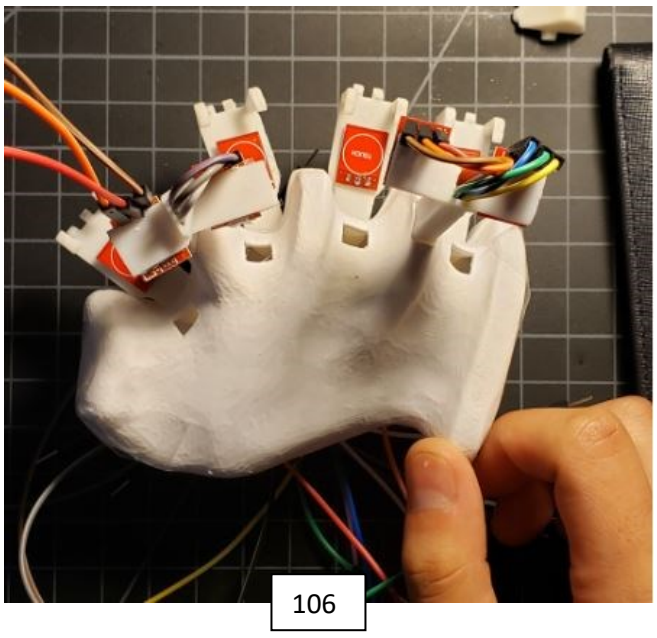


Fig. 1

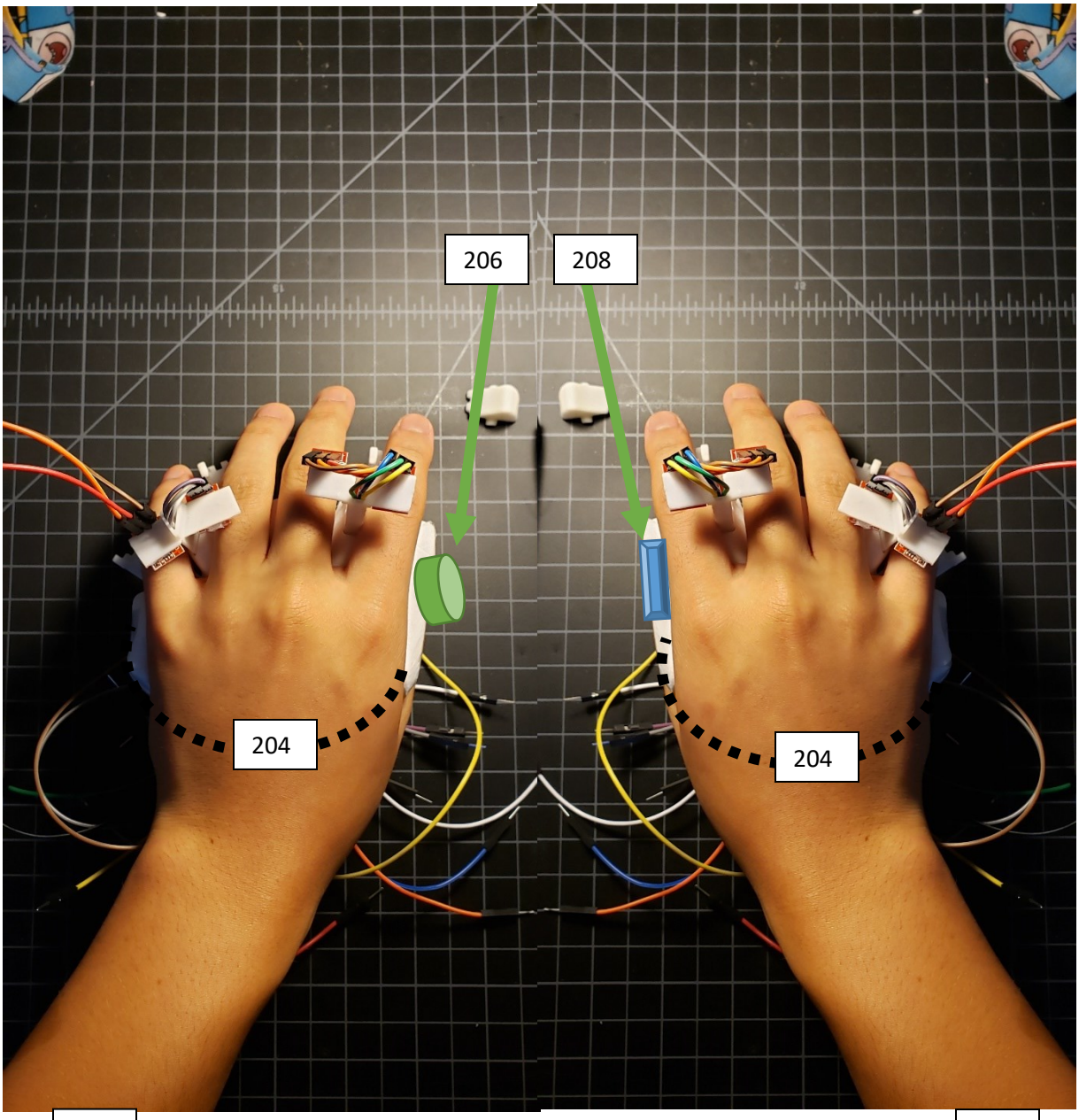
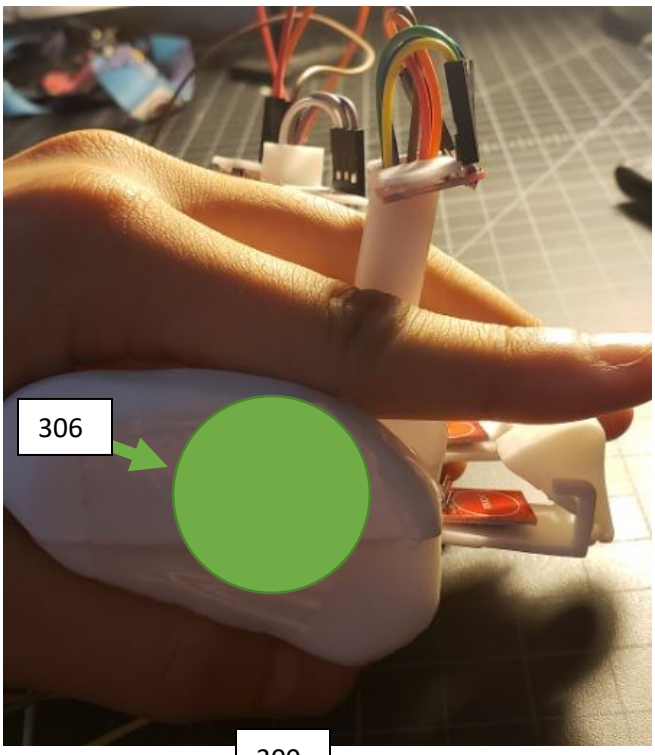
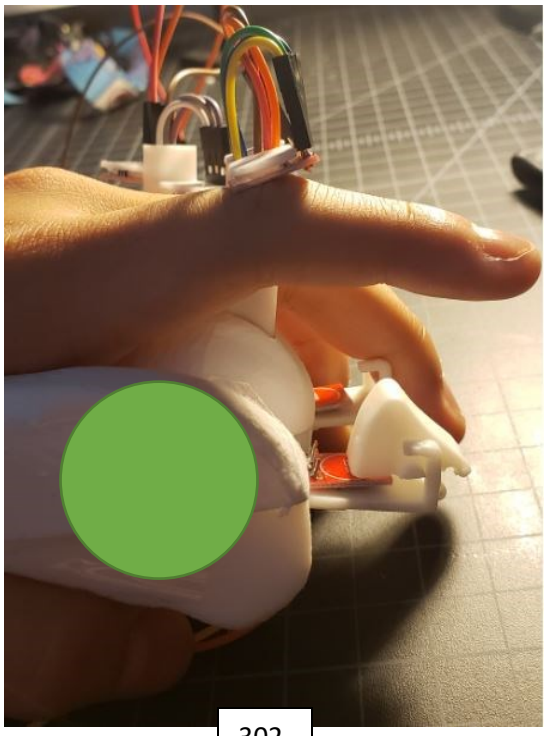


Fig. 2





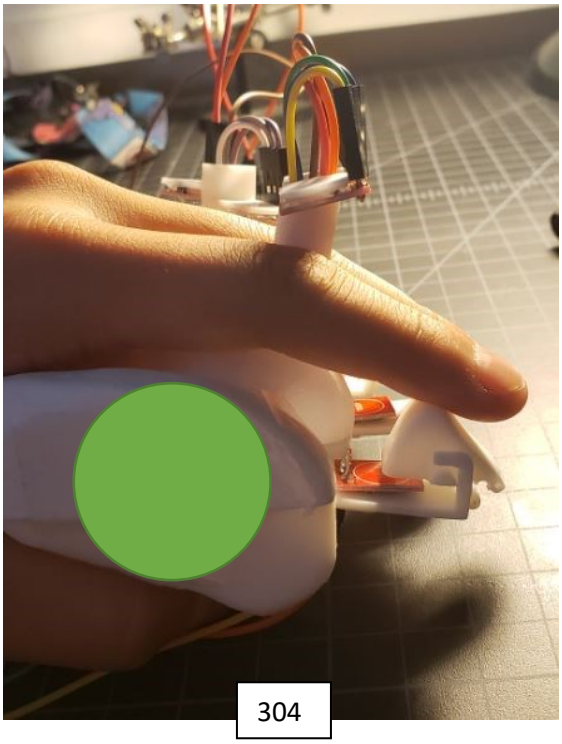


Fig. 3