

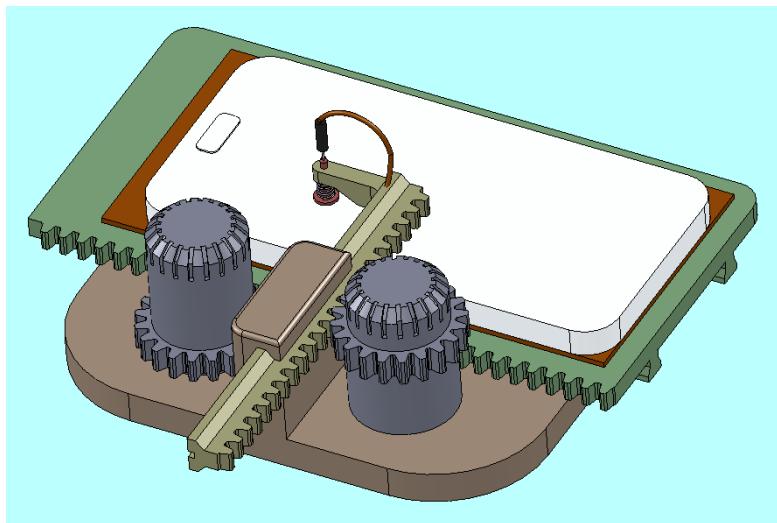
## Overview:

The Cell Phone Sketcher uses a conductive stylus mounted on a 3D printed device to turn a cell phone into a digital Etch-A-Sketch.

Interesting aspects of using a cell phone and drawing app as an Etch-A-Sketch are:

- Can easily save and reload your sketches
- Erase whole screen with the push of a button
- Erase specific areas only
- Change pointer size on the fly
- Can lift the stylus easily, to change locations on the screen
- Can change line colors

## Assembly Views and Component Labels



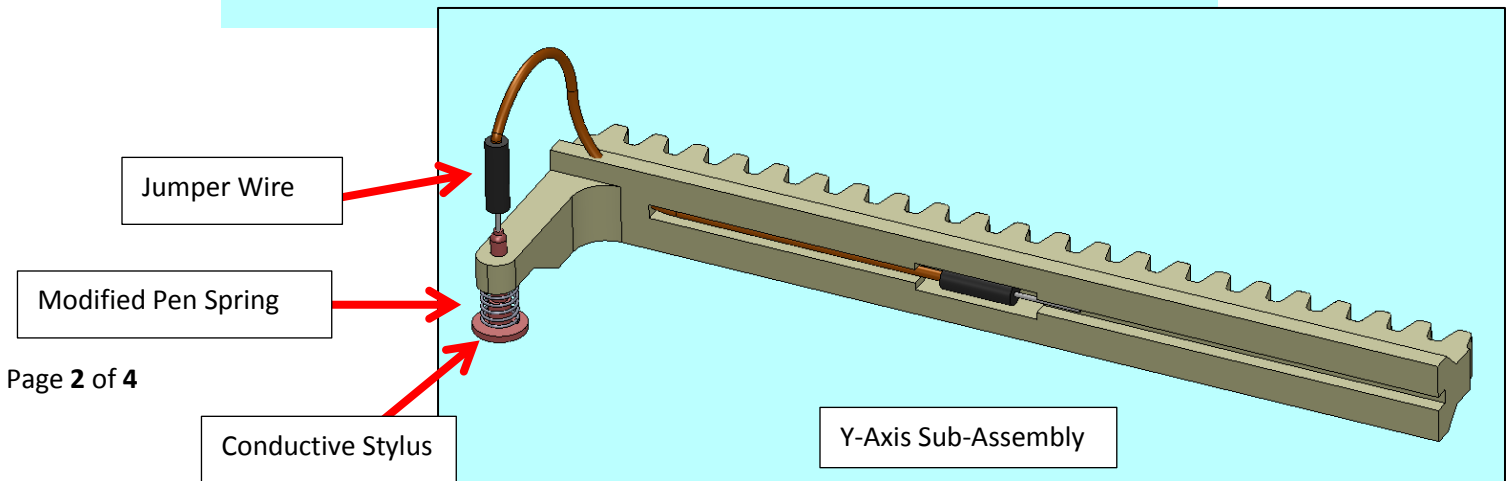
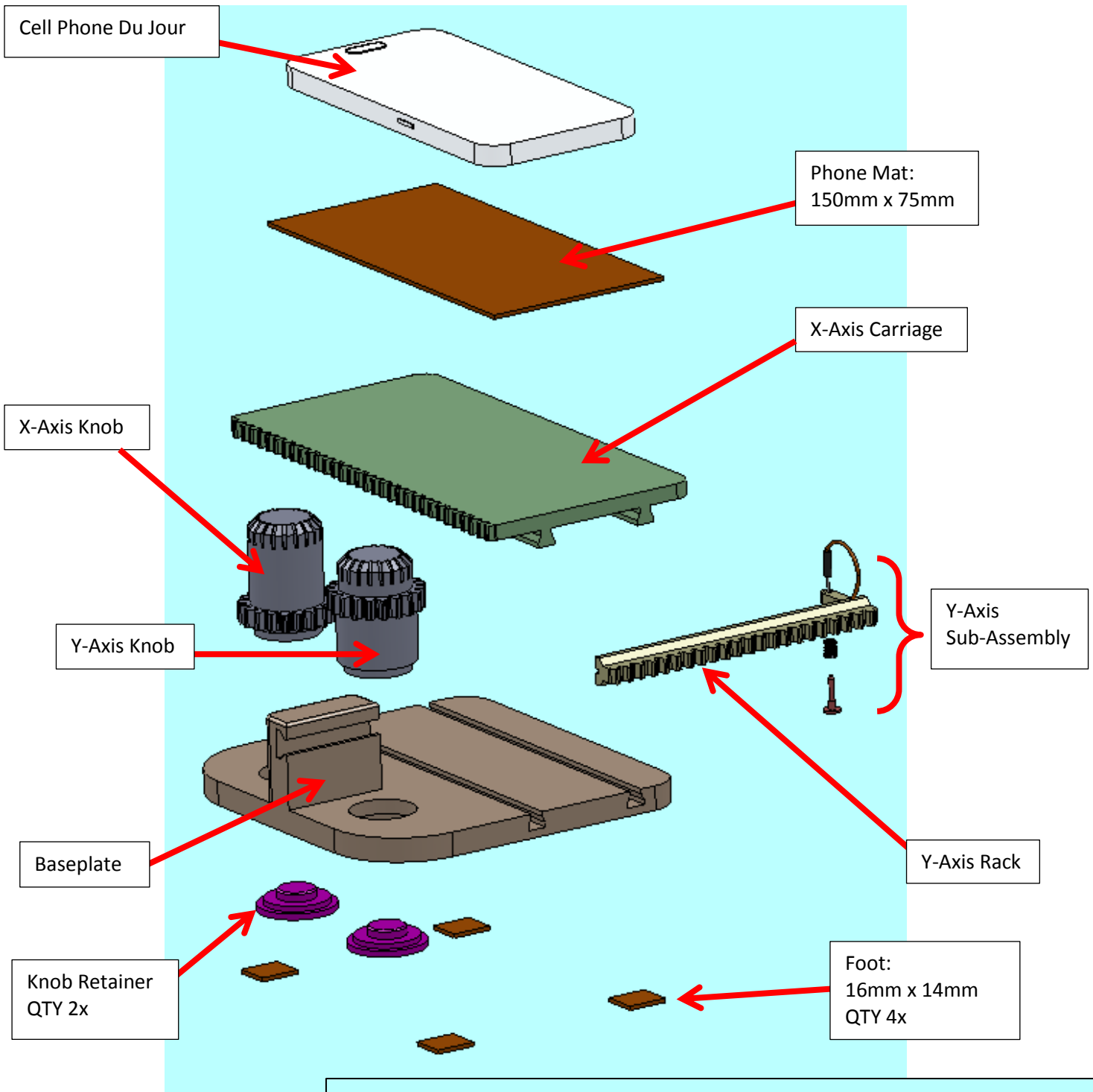
Iso View of Completed Assembly

**\* A list of purchased parts that are needed can be found in "Parts List- Cell Phone Sketcher.pdf"**

**\*\* Assembly of Cell Phone Sketcher is described in "Operation- Cell Phone Sketcher.pdf"**

**\*\*\* There is a Troubleshooting section at the end of this document.**

# Exploded View and Component Labels



## General Usage Instructions:

### Android Cell Phone Operation-

The free drawing app I used was called "Simple Draw"

- A. Move the Y-Axis Rack out of the way of the Phone Pad (bring it all the way towards user).
- B. Place your phone on the Phone Mat, with the drawing app active.
- C. Pull up on the Jumper Wire that is stuck into the Stylus and turn the Y-Axis Knob to move the Stylus over your phone. This helps get the Stylus over the lip of the phone.
- D. Turn the Knobs to control where the Stylus goes. The left Knob moves the stylus in the horizontal direction and the right Knob moves it in the vertical direction.

### Apple Cell Phone Operation-

The free drawing app I used was called "Simple Draw PW"

- A. Move the Y-Axis Rack out of the way of the Phone Pad (bring it all the way towards user).
- B. Place your phone on the Phone Mat, with the drawing app active.
- C. Pull up on the Jumper Wire that is stuck into the Stylus and turn the Y-Axis Knob to move the Stylus over your phone. This helps get the Stylus over the lip of the phone.
- D. Place the Wrist Strap Band over your bare wrist and use the attached alligator clip to clamp onto the metal part of the Jumper Wire sticking out of the Y-Axis Rack. It is important that:
  - i. The metal plate on the Wrist Strap Band makes contact with the bare skin on your wrist.
  - ii. The metal of the alligator clip clamps down on the metal needle-like end of the Jumper Wire.
- E. Turn the Knobs to control where the Stylus goes. The left Knob moves the stylus in the horizontal direction and the right Knob moves it in the vertical direction.

During testing, I found differences in the sensitivity of Apple devices vs Android devices, with regard to the phone sensing and responding to the Stylus. For Apple devices, the conductive stylus needs to be tied back (electrically connected) to your skin, in order to trick the iPhone into thinking a finger is touching it.

## Tips

- You will probably have to take your cell phone out of any protective case you have over it.
- You can erase only specific areas of the screen by using the “eraser” function.
- Save your sketch so if you make a really bad mistake you can easily recover!
- You can lift the stylus as in step C above, to change locations on the screen without leaving a line/trail.
- Play with the Simple Draw app before putting your phone on the Cell Phone Sketcher, so you get an idea of what the buttons do and how it works.
- If the silicone Feet or Phone Mat stop gripping, try cleaning them off.

## Troubleshooting

- If the stylus stops “writing”, reseal it against the screen by either pulling up or pushing down.
- Screen Protectors make a difference in terms of the stylus being sensed. Try using the Wrist Strap with the assembly, as talked about in the “Apple Cell Phone Operation” section.
- For the Android “Simple Draw” app, there appears to be a bug regarding clearing the drawing screen. If you hit the clear screen button and the stylus is already touching the screen, sometimes a diagonal line shoots from the stylus to one of the corners. The way around this is to pull up on the stylus while hitting the clear screen button.
- If your Android phone is not detecting the stylus, try using the Wrist Strap with the assembly, as talked about in the “Apple Cell Phone Operation” section.
- If the Y-Axis Knob feels too tight or moves with difficulty, you can cut a coil or two off the spring, to reduce the upward pressure on the Y-Axis Rack.