Electronics Online Challenge Sponsored by Texas Instruments

Samsung Galaxy Tab A Deconstruction

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For this project, I have decided to deconstruct a Samsung Galaxy Tab A 8.0 (2015). Our family has several broken tablets around our house ranging from a first-generation iPad to several Samsung tablets that are useless now. My brother actually uses a newer version of the Galaxy Tab A and my Phone is a Samsung as well, so I wanted to discover what makes it all work inside. In turn, the Galaxy Tab A seemed like the perfect choice for this project.

During the deconstruction process, I discovered a few surprising developments. The first thing I noticed upon opening the tablet was how much space the 4200 mAh battery took up, it was placed in the center of the tablet and took up about 50% of the space. Built around the battery was the motherboard, every component of the tablet was connected to the motherboard, from the power switch, headphone jack, charging port, cameras, and the LCD touchscreen. Some of these parts were built right into the motherboard while things such as the battery and LCD screen were incorporated using flat flexible cables and a six-pin connector. The second surprising discovery was the protection that was given to the important chips. The Qualcomm Quad-Core Snapdragon CPU, Skhynix 16Gb Ram kit, and the Qualcomm power management chip were encased in the stainless steel coverings to protect those critical components from drops or any other damage. The third surprising aspect that was discovered in the breakdown of this tablet was the lack of Texas Instruments components. Although I looked at every part and even researched parts that had no name on them and just numbers and letters, none of those pieces indicated that they were made by Texas Instruments which was surprising because I know that their components are used in so many different devices and electronics.

While working on this project I have learned that taking apart electronics is fun but difficult at the same time. I went into this thinking that I would just open up the tablet and I could easily identify what everything was and take it apart just as easily, that was not the case. I had to pry open the tablet with a precision flat-head screwdriver. After that was revealed the tablet was densely filled with small parts attached all over the motherboard. My
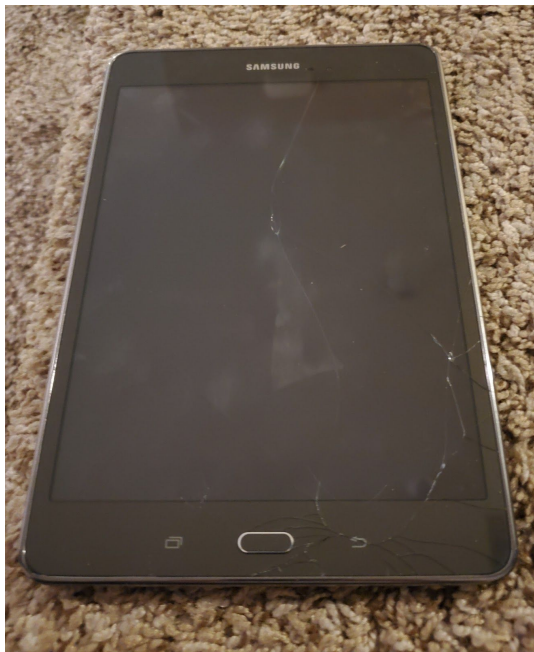
main difficulty was discovering what every part was and its function in the use of the tablet. While most parts were pried off with the flat head screwdriver some were completely built into the motherboard. Overall, I have a much greater appreciation for how our everyday electronics work and truly am beginning to understand how much work goes into making things that we use everyday and take for granted.

Final Report Summary Word Count: 459 (excluding page numbers, captions, and title page)

The back of the tablet

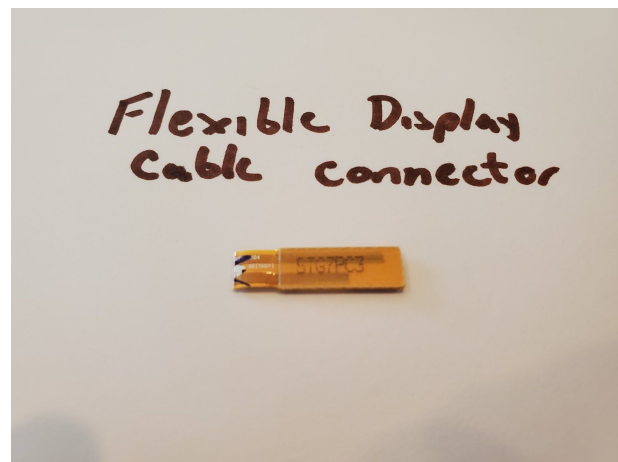The front of the tablet with LCD Screen

Inside of the tablet before
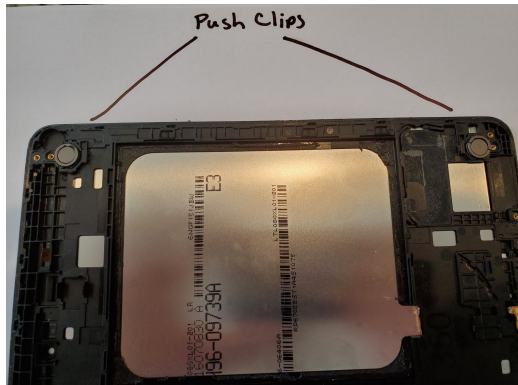the deconstruction process.
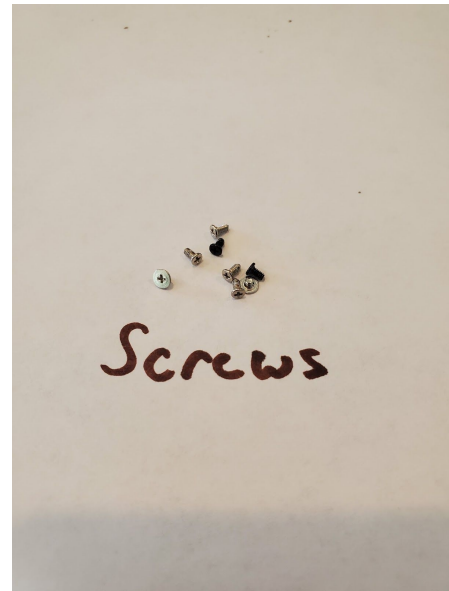
The screws that held the
motherboard together.

An LCD wire that held the screen
to the motherboard.

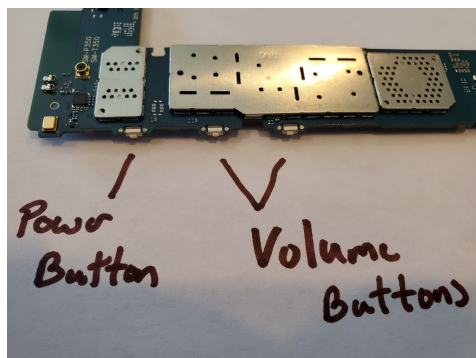The wire that held the back and the front of the
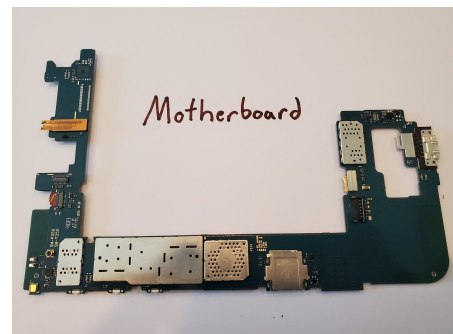tablet together.

This is where you can put a tablet stand.

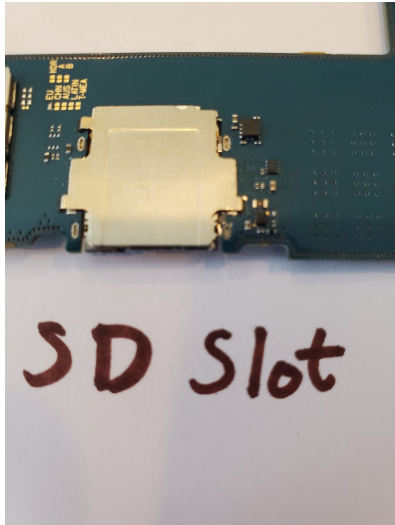This is for people who fix the tablets to fix a broken headphone jack or speaker.

These buttons are very important to the functioning of the tablet as they are the power and volume buttons.

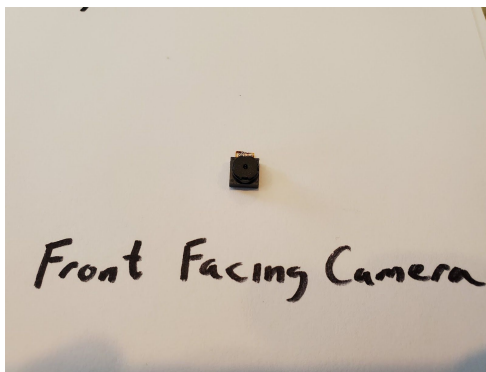This is the circuit board where every component goes.

SD Slot

The SD slot is used for micro sd cards for more storage.

Charging Port

You plug the charger into this then a wire plugs into the battery.

Front Facing Camera

2 Megapixel Camera good for selfies.

Battery

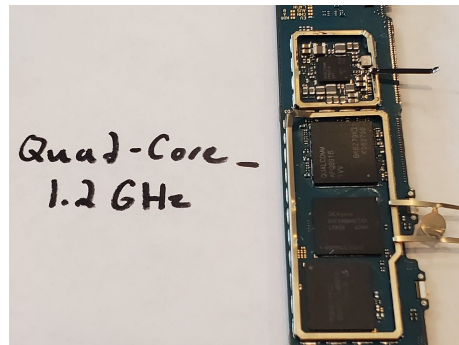The power holder to power the tablet.

3.5 mm audio jack for speakers/headphones.

Qualcomm Snapdragon CPU at 1.2 GHz and is the best mobile CPU for gaming.

The Skhynix ram is very fast and power-efficient with only a few watts of power being used.

Citations

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