

Reverse CAD Report

Team: 750R

Item Deconstructed: Samsung Galaxy Tab 4 10.1 Advanced SM-T536

Image:

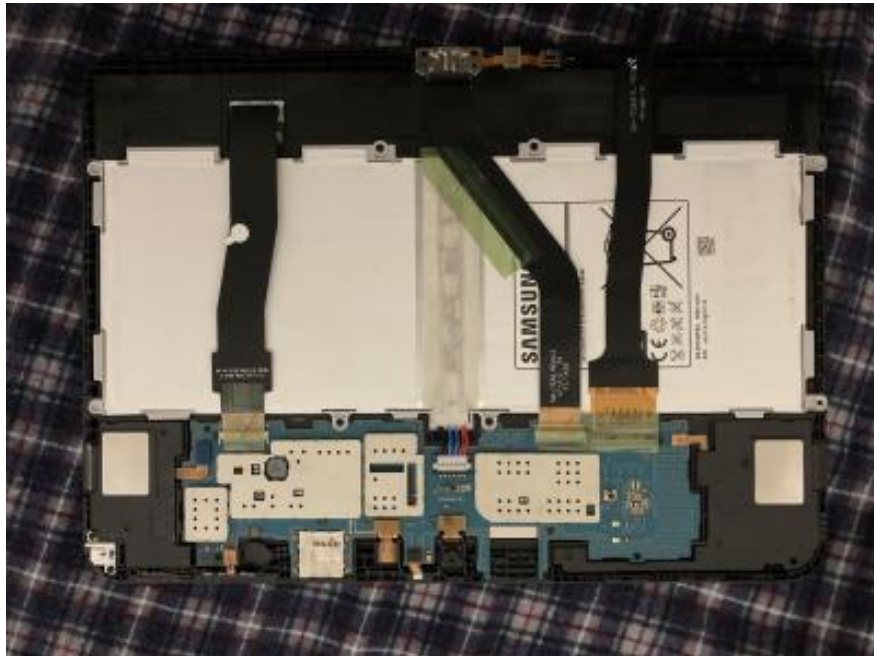


Submission By: Shriya Guduri, Mohit Shah, Dilan Patel, Abhaya Surya Avalur, Mayank Deoras, Esha Vigneswaran, and Rakshna Ravishankar

Introduction:

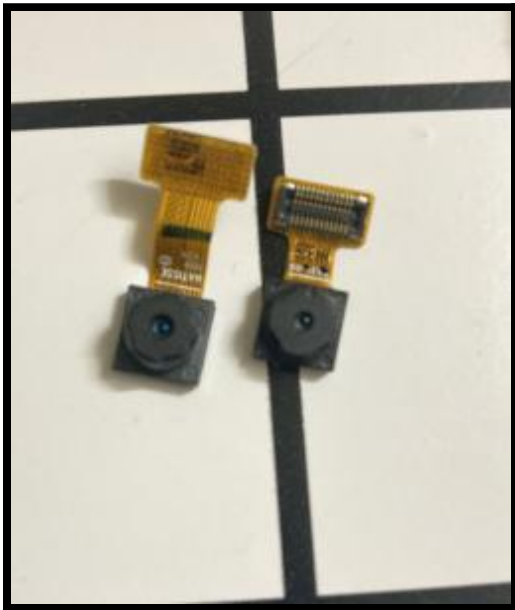
For this challenge, we deconstructed a Samsung tablet to learn more about the engineering process. We chose this device because it is a piece of technology that is relatively new and portable. The simplistic design of the exterior contained an intricate interior that we analyzed.

Components:

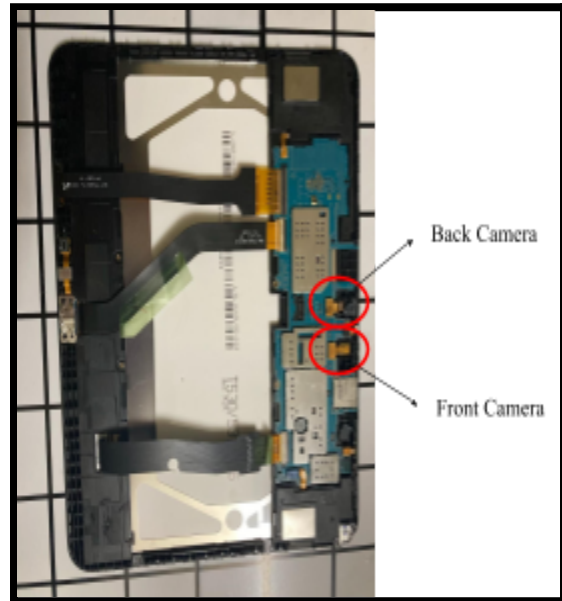


Cameras

Cameras: (back-camera, left; front-camera, right)





Placement:





- The main purpose of the camera is to take pictures and/or videos.
- Both the cameras are connected to the main motherboard
 - When the user clicks on a button to open the camera, the motherboard sends a signal to the camera to activate it.

Battery

Battery	Placement:
	

- The battery provides power for the tablet to function. It is a lithium-polonium battery with a 6800 mAH capacity.

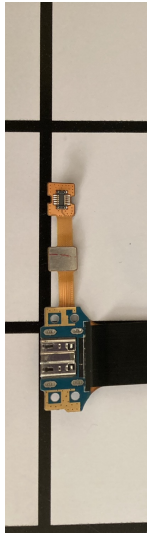
LCD Connector Flex Cable:

Cable	Placement:
	

The LCD connector flex cable increases the length from the motherboard to the LCD screen assembly. A benefit of a flex cable is that it allows the motherboard to stay closed while testing LCD screens.

Microphone and Charging Port

Microphone (yellow), Charging Port (blue and yellow)



Placement:

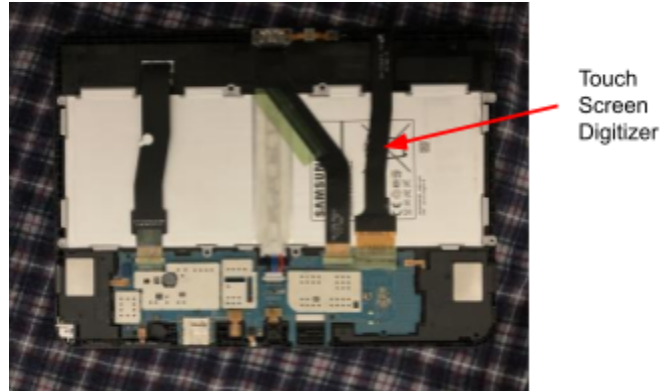


The microphone converts sound waves into an electrical current. A cable can be inserted into the charging port to charge the battery. Most of the time, a USB cable is used.

Touch Screen Digitizer

Placement:

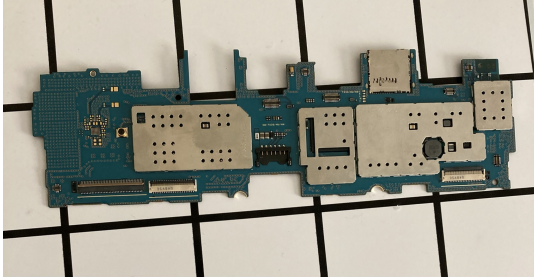
We weren't able to successfully remove this piece completely as it was attached to the tablet, so instead, we have identified it in the assembly itself.



The touch screen digitizer is a piece of glass that is on top of the LCD Layer. It converts touch from your finger into digital signals.

Motherboard

Cameras: (back-camera, left; front-camera, right)



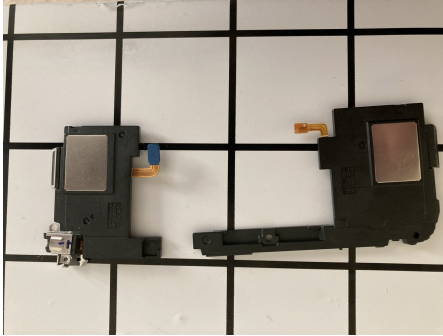
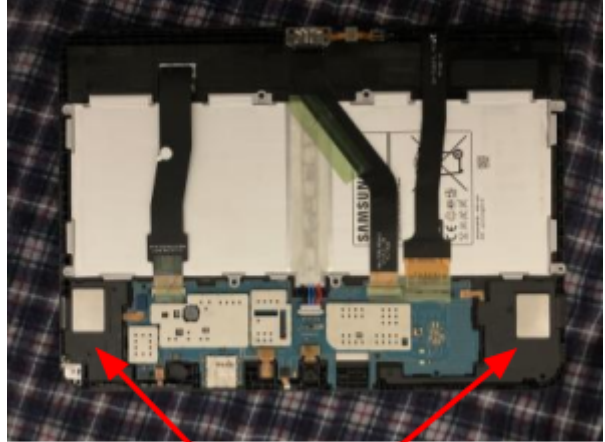
Placement:



Motherboard

- The motherboard acts as the brain or communication device for the tablet. It takes in data from the outside and directs the data to the hard drives. In this system, the motherboard takes data from external sources.
 - For example, if someone taps on an app on the tablet, the information will be sent to the motherboard which will then tell the system to open the app up.

Speaker Ringer Buzzer

Cameras: (back-camera, left; front-camera, right)	Placement:
	 <p>Buzzers</p>

Purpose

- The speaker ringer buzzer is a speaker, ringer, and buzzer all combined into one component. The purpose of this device is to create a sound that accompanies the actions of the user. In this tablet, there are two buzzers at both ends of the tablet that produce sounds the user can hear.

Conclusion:

We concluded that each component has an important function in providing utility for the tablet. By stepping in the shoes of a reverse engineer, closely examining each component gives us a better glimpse of how the device operates. Typically, engineers use collected information to improve their products by observing the efficiency and practicality of a component within a device to innovate the best design possible. Through deconstruction, new devices and products could be made from the same components, serving a different purpose.

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