L04 Hardware Dissection Lab
IST 110

1. Description

In this assignment, two computing devices are analyzed to identify their key components from a teardown. Additionally, a comparison on the process of analyzation is given.

2. Comparison

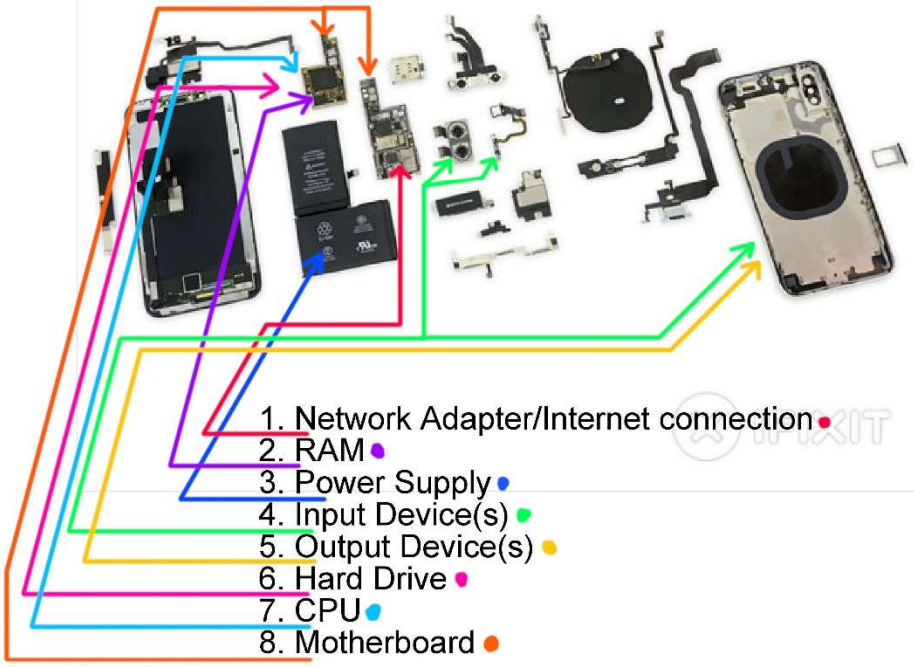
I chose to look through the teardowns for the Apple iPhone X and Apple MacBook Air 13 Inch (mid 2012 model). Having opened laptops before, the only thing that surprised me was how Apple handles batteries, in that they combine multiple batteries together instead of using a singular unit. The windows-based machines I've opened before all have used a singular battery. As for the iPhone, it seems to have a cramped internal layout generally like other smartphones.

As for identifying components, I found it much easier to spot them when looking through the MacBook compared to the iPhone. Due to its incredibly compact nature, the iPhone uses multiple logic boards and small components that look unlike what you would find on desktops or even laptop computers. Since the iPhone uses an SoC, the RAM is inbuilt into this chip instead of being on dedicated chips like in the MacBook. I find it incredibly interesting to see Apple's approach to both these devices as someone much more familiar with windows and android devices. Though this "unique" choices when it comes to their internal components does explain the famously difficult repairs process on these devices.

3. Dissection & Labeling

3.1 Apple iPhone X

Step 24



- We hope you enjoyed your 22-course te
  We found it very nutritious.
- In case you missed the iPhone 8 or iPhor
  teardowns, you can check those out for s
  comparisons. And feel free to check out
  Smartphone Repairability list for past de
  well.
- Thanks once again to our handy helpers,
  Creative Electron, and TechInsights!

Want to see the inside of your phone wit
it up? Check out our HD see-through an
X wallpapers.

Final Thoughts

Display and battery repairs remain a priority in the iPhone's design.

A cracked display can be replaced without removing the biometric Face ID hardware.

Liberal use of screws is preferable to glue—but you'll have to bring your Apple-specific drivers (Pentalobe and tri-point) in addition to a standard Phillips.

Waterproofing measures complicate some repairs, but make difficult water damage repairs less likely.

Fussy cables tie unrelated components together into complex assemblies—expensive and troublesome to replace.

Glass on front and back doubles the likelihood of drop damage—and if the back glass breaks, you'll be removing *every* component and replacing the entire chassis.

Repairability Sco

Repairability 6 out of 10
(10 is easiest to repair)

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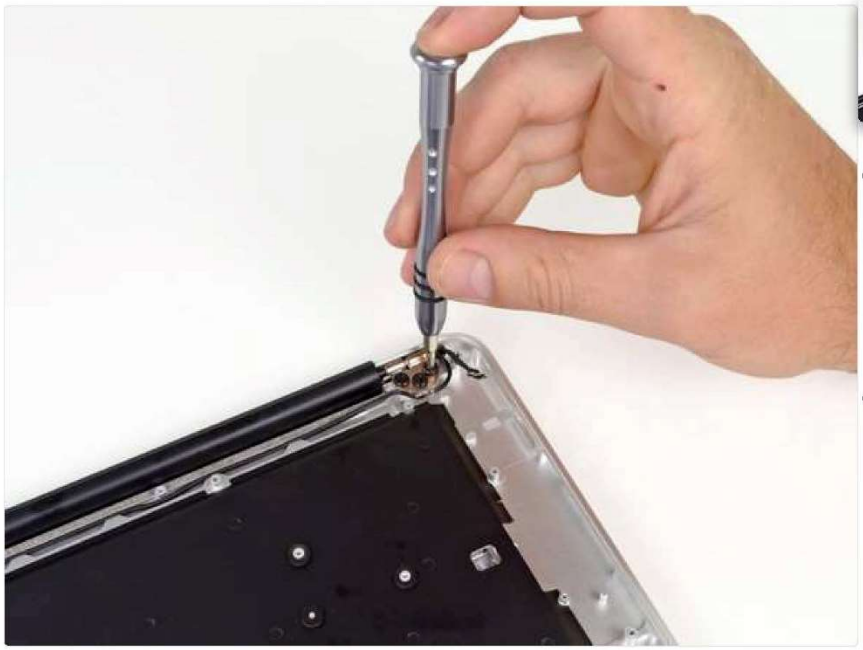
3.2 MacBook Air 13 inch (mid 2012 model)

Step 19

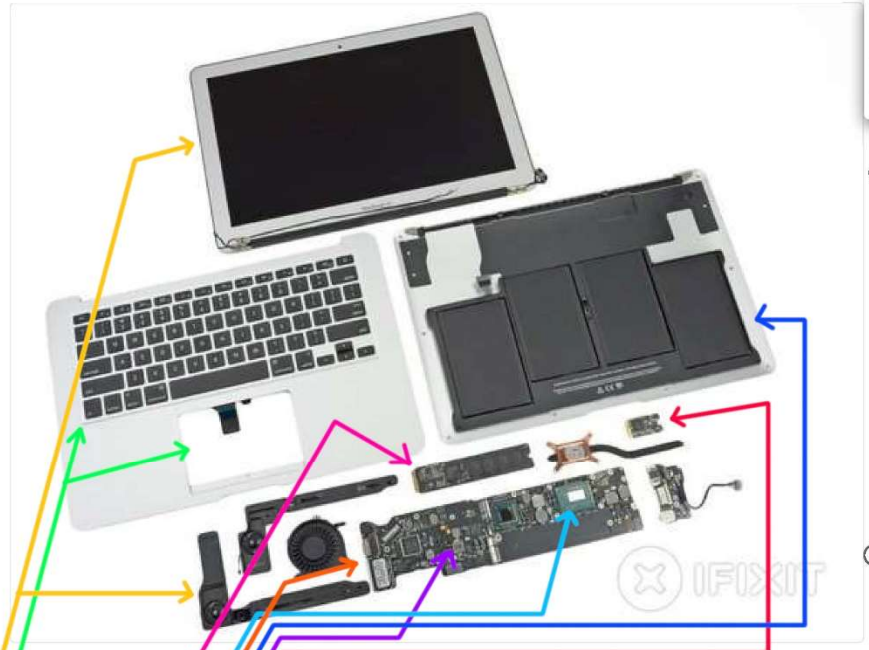


- The display assembly is screwed to the u six T8 Torx screws.
  - Because the display assembly is one moving parts in the MacBook Air, th to be pretty staunch.
- In order to save weight in the MacBook protective front glass covering the LCD li the MacBook Pro. This is also the reason aluminum bezel.

5. Output Device(s) (Screen)

A

Step 20



- MacBook Air 13" Mid 2012 Repairability **10** (10 is easiest to repair).
  - Once you manage to take off the bo the parts are pretty easily replaceabl
  - Proprietary screws on the case requi screwdriver.
  - All the components—including RAM proprietary.

This is a difficult machine for us to recom of the lack of upgradeability. The RAM a currently upgradeable, although SSD op become available in time. While Apple's of proprietary screws is helping our boo it's a bad thing for consumers.