

Laptop Deconstruction Report

Team:

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Participants:

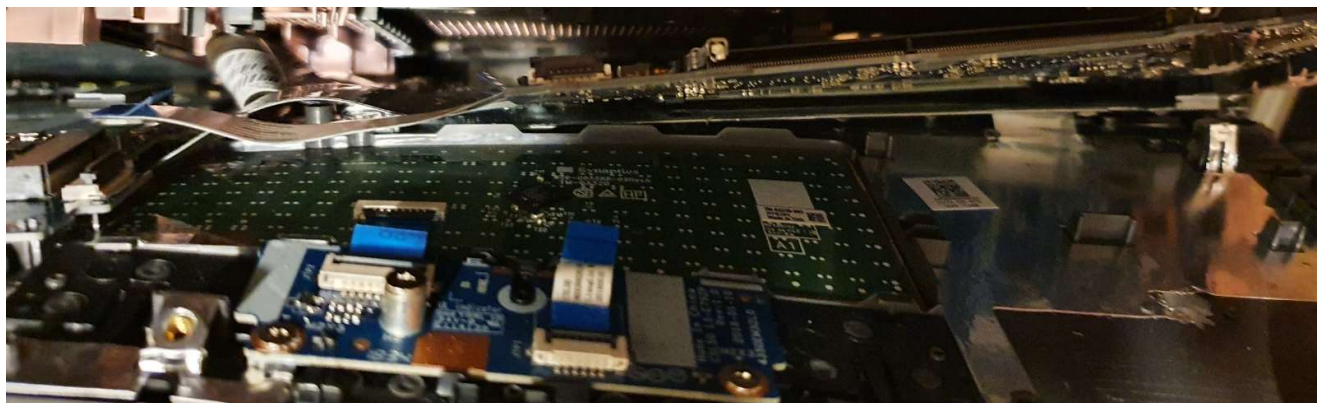
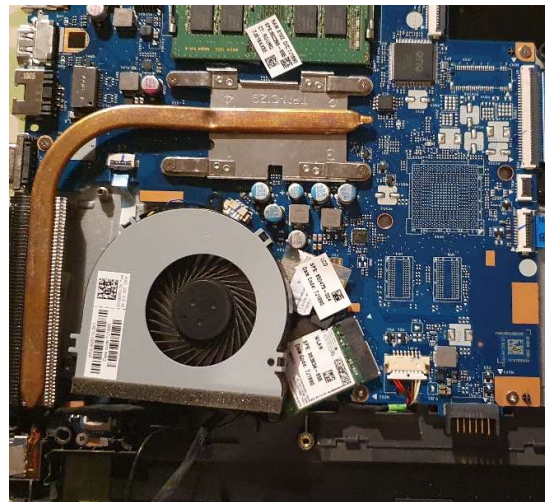
Deconstructing the Laptop:

Pranay

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When I decided to do this online challenge, I had two choices to explore: a phone, and a laptop. I eventually decided on the laptop, as I have always wondered how certain components, such as the touch pad, worked. When taking the laptop apart, my first step was to separate it from the plastic casing, which exposed most of the components. I then split the laptop into several sections, such as the hard drive area, touch pad, screen and keyboard, using a screwdriver to disconnect most of the parts from the casing completely. While due to time constraints, I was not able to take apart the whole laptop, I looked at the components of what I did take apart in depth, as shown below.

A flat-end screwdriver was used to separate the electronics from the casing



- Hard drive
- Plastic strips
- Memory units
- Wires



From left to right: A piece of casing with aluminium foil on it; the processor fan; a piece of green foam from under the hard drive

- Processor fan
- Connectors
- USB and SD card ports
- Aluminium foil
- Green foam
- Mother board
- Plastic casing
- Metal plates



Left: The hard disk



Above right: plastic strips containing wires, connected to the circuit board with connectors
Above left: the motherboard



Left: Hard drive with memory units (black) showing, above a metal plate it was connected to.

Each of these components has its own function within this complex system, from keeping the laptop safe to optimising performance to enabling greater customisation. For example, the plastic protect the fragile wires contained inside. The plastic strips are also sometimes not connected to anything, which can be seen in the picture above. This is so that if wanted, the user can add extra components. They also have to be connected to connectors to make sure that they can transmit the signal to the circuit board. There is also aluminium foil on the casing, to make sure that any heat is reflected back, to ensure the plastic casing does not melt. The processor fan also helps with this, as it cools the components down to prevent overheating.

Two other areas that I looked at in depth were the hard drive and touchpad. One of the things I noticed was how much care had been taken in keeping the hard drive functioning, as it was placed in a position where it was unable to move and break, and there were also several individual memory units, so that if one broke, the hard drive would still function. Looking at how the touch pad worked was also quite interesting. It used the more common method of moving the mouse, called capacitance. It worked with an array of sensors, which detected the charge of your fingers whenever you touched the pad. Whenever you moved your finger, the pad detected this, and translated this to the screen, similar to co-ordinates.

When taking apart the laptop, I learnt several things. Foremost, I learnt about the importance of going into depth, and how it is better than just a quick overview of everything, and I think that doing this has offered me a much better understanding of the components. I also learnt a lot about the components of a laptop, such as how the processor fan is used to make sure that the hard drive and casing do not get damaged, or how some wires are useless unless you wish to add extra components. Overall, I feel that this project has been very beneficial to my understanding of how different electronic components work in tandem for the laptop to run smoothly.