

# Texas Instrument Electronics Challenge

By Gabriela Sanchez Josue Lanza

Team 529C

Sponsor: Morales, Mario

We took apart a HP Chromebook model 14-q030nr laptop and we found very interesting things inside of it. We had multiple devices to choose from but, this one stood out the most because we were intrigued about this certain device due to the variety of function that it has.

The display panel allows people to see images, videos, or information that their working on. The display panel can also be recognized as LCD screen, it is made by two polarized glass, it works by a backlight which creates its own light while light passes through the first polarized glass electrical current from the power of the laptop causes the molecule of the LCD screens to align to various levels the light created from the combination of this event passes through the second polarized glass creating an image.



*Figure 1 Display panel*



Figure 24-cell 51Whr 7 Ah lithium-ion polymer battery

The battery that we found is a 4-cell 51Whr 7 Ah lithium-ion polymer battery, like most HP laptop it has a lithium-ion battery and unlike other batteries doesn't suffer from memory effect (when a battery loses its maximum energy capacity). This battery works like a normal battery AA, or AAA they have positive and negative charge, and they create an electrochemical reaction that makes the electrons move from one place to another. The battery allows the laptop to be power without needing to be connect through a cord to a power source and it makes the laptop mobile.

We also found a 2x2 802.11a/b/g/n WLAN Bluetooth. Bluetooth is a wireless technology that uses radio waves like wi-fi, to connect one device to another. However, unlike wi-fi Bluetooth can work between any two devices that are approximate to each other and you don't need an extra network equipment like a router. The Bluetooth lets you to connect your laptop with your phone, headphones, mouse, keyboard, also it allows you to share files, pictures, videos to other devices. It is an extraordinary technology break through that allows devices to connect to each other without the needing of conversion cord

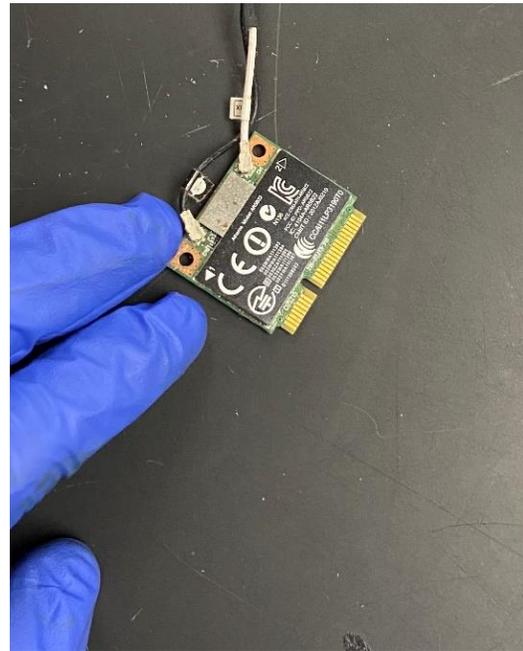


Figure 3 2x2 802.11a/b/g/n WLAN Bluetooth

Finally, we found a HP Chromebook 14-x010nr motherboard (it is also referred as mainboard, circuit board, system board) 787724-001 D10Y09M06D0. It is the backbone of the computer like a human brain. The motherboard connects all the component of the computer together and allows all component to communicate with one another. It controls all the computer circuits and allows for you to plug in processor, memory cards and other expansion flats.



Figure 4 HP Chromebook 14-x010nr motherboard 787724-001 D10Y09M06D0

The laptop system is a representation of the human body, all the component come together to form a complex machine. No component is more important than the other. They all have a specific function a losing one will the whole system down.



Figure 5 The laptop after we disassemble it



*Figure 6 Before we disassemble the laptop*