

# Reverse Engineering Challenge Submission

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**What and why?:** Our reverse engineering project involved the meticulous dismantling of a Logitech keyboard. Through this exercise, we sought to gain a comprehensive understanding of how the keyboard's circuitry processes input signals generated by the actuation of individual keys. By examining the intricate workings of this device, we aimed to deepen our knowledge of the fundamental principles that govern the functioning of modern digital systems.

**Sequence of events:** We removed 15 screws that were 0.5 inches in size from the back of the keyboard. Next, we removed the front panel that contained the keys from the back panel that contained the key sensors. After that, we removed the plastic sensor covers from the sensor panel. Then, we removed three screws that were 0.375 inches in size from the brain of the keyboard to detach the sensor panel from the brain. After that, we removed the brain from the on/off switch and battery compartment. Finally, we took out all the remaining components from the battery compartment.

**Identifiable parts and their roles:** Upon inspecting the device, we discovered four significant components. The first is the keyboard's brain, which connects to a PC and transmits signals indicating which keys are in use. The second is the sensor board, consisting of two plastic sheets with metal wiring in between, which triggers sensors connected to a metal sheet and the brain. The third is the battery compartment, equipped with contact springs on both ends of the compartment area, which allows the keyboard to be wireless and battery-operated. Finally, the front panel features the actual keys used for typing on the keyboard.

**Lesson through Exploration:** By dismantling the keyboard, we gained insight into how pressing the keys triggers a signal to travel through the keyboard, ultimately appearing on the computer screen. The stabilizer plastic sheet presses against the sensor panel, creating a signal that is sent to a connector at the end of the panel and the beginning of the circuit board. The circuit board then processes and transmits the signal to the computer.



