## Reverse Engineering a Wii

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For this reverse engineering online competition, the idea of using a Nintendo Wii game console was sparked from previous successful attempts to fix this older device. Interestingly



enough the Wii's most common malfunction is the disk drive, which is also luckily one of the easiest components to replace. To start things off every Wii is a box-shaped console with a frontal interface containing the basic power, disk ejection, and restart buttons. Additionally, it

had the place where

disks were inserted into the console. However, it also came with a unique button panel for linking the Wii controllers. These were a very iconic part of the Wii console. They came with a side controller which could be used to move around in many different games and an additional two buttons. The main controller has an infrared sensor that detects infrared light coming out of the sensor bar. The sensor is plugged into the Wii and thus allowing the Wii to know the position of the



controller. This was a very unique feature of the Wii. The controller consisted of a directional-pad (the cross of buttons on the top), a central button, three small menu buttons for navigating the console, then comes a small speaker, two more input buttons, next four small indicator lights, and lastly a trigger on the backside of the controller. There is also the ability to put in an sd card and connect GameCube controllers under two tabs on top of the console.



Something to note is that all Nintendo products use special tri-finned screws to protect the console from getting taken

The first piece you take off is the front plate with the start button. Then comes the plastic cover and

apart.



heat shield. Once this comes off then comes the

disk drive which uses a laser system to read and play the disks. The drive is also connected to the motherboard through two cables which you have to be careful not to rip when taking the drive off. You then have to remove the metal cover and cooling fan separating the motherboard



and the drive. This will then open up the motherboard. From there we can look at the components. At the top, we can see the metal heat sink which absorbs heat from the CPU and GPU. I didn't take this off because there is a thermal paste that helps transfer heat and some of it might break off if I took off the heat sink. Finally getting into the meat there is the BlueTooth module at the bottom left, the Wi-Fi module at the bottom left, and lastly, many of the small chips in the center of the board are stock voltage regulators. The most interesting thing that I learned was that the Wii took the least amount of watts out of any other commercial console with a total of 17.3 watts.

