2024 VRC Reverse Engineering Online Challenge

Disassembling a PC

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Introduction

We are 1104D from Brampton Robotics and we chose to disassemble a desktop PC; a complex and versatile device, integral to various aspects of modern life, including work, education, and entertainment. Our team prides ourselves on collaboration and passion. Having passion for engineering means that we work on our robot for countless hours. We decided to take this PC apart to try and fix it, and also learn more about the inner components of a functioning computer system.

Identifiable Parts Found

Motherboard: It's the backbone of the PC, hosting the CPU, RAM, and other components. It provides the electrical connections through which the other components communicate. The quality and capabilities of a motherboard determine the PC's potential for upgrades and performance.

CPU (Central Processing Unit): Often referred to as the "brain" of the computer, the CPU handles most of the processing tasks. Its speed, measured in GHz, and the number of cores significantly affect the computer's overall performance.

RAM (Random Access Memory): This is the short-term memory of a computer. It stores data that is actively being used or processed by the CPU. More RAM allows for smoother multitasking and faster data retrieval.

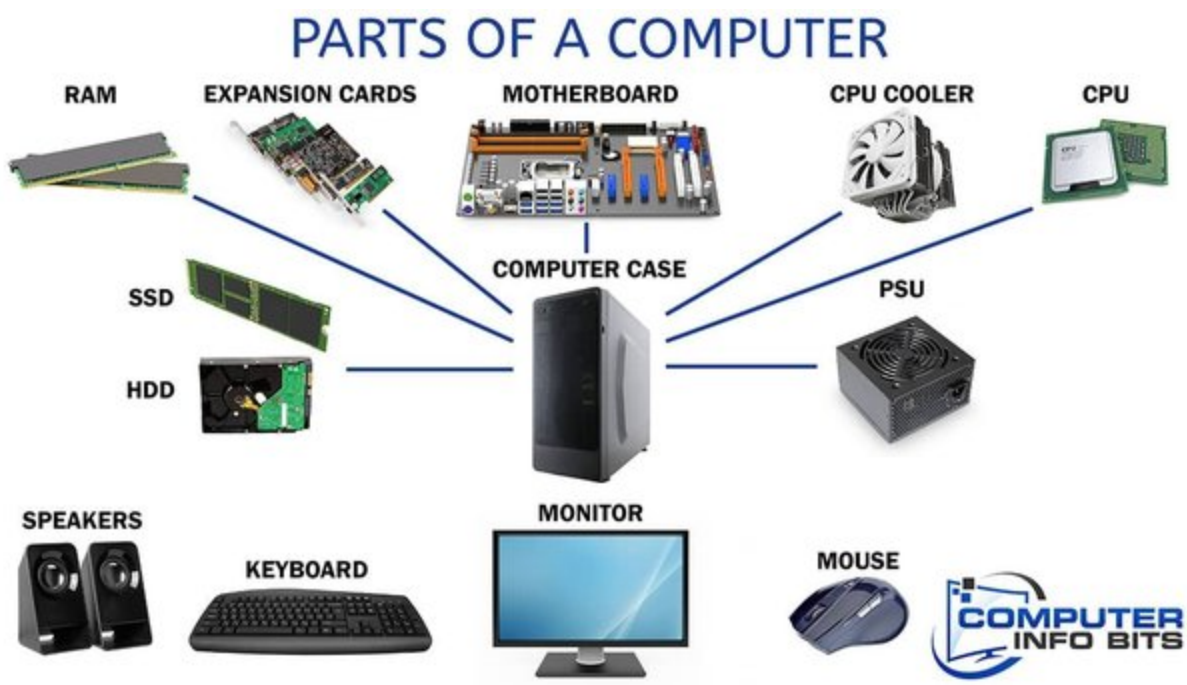
Storage Drives (HDD/SSD): These are the long-term memory of the computer, storing all data, applications, and the operating system. HDDs are traditional mechanical drives, while SSDs are faster, newer technology using flash memory.

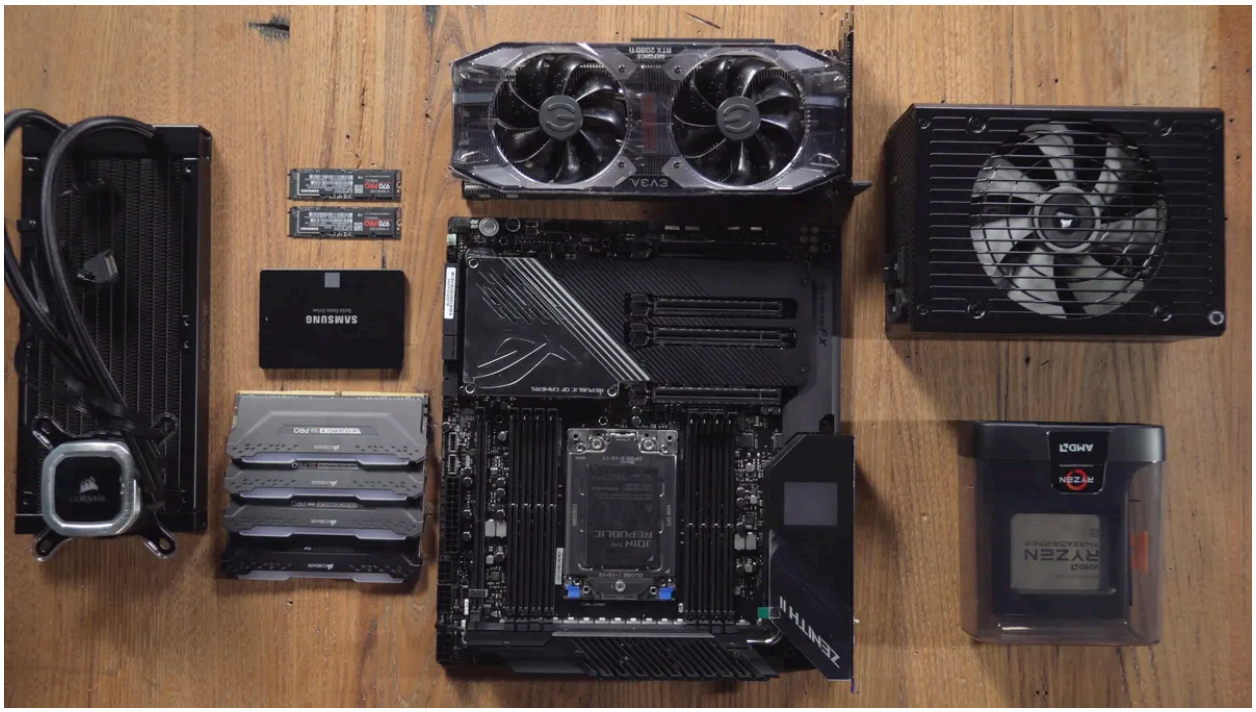
Power Supply Unit (PSU): The PSU converts electrical power from the outlet into a usable form for the computer. Its capacity, measured in watts, must match the power demands of the system.

Cooling Systems: These include fans and heat sinks. They are essential for maintaining an optimal operating temperature, preventing overheating which can lead to hardware damage or reduced performance.

Graphic Card (GPU): This component is critical for rendering images, video, and animations. It's especially important for gaming, video editing, and other graphics-intensive tasks.

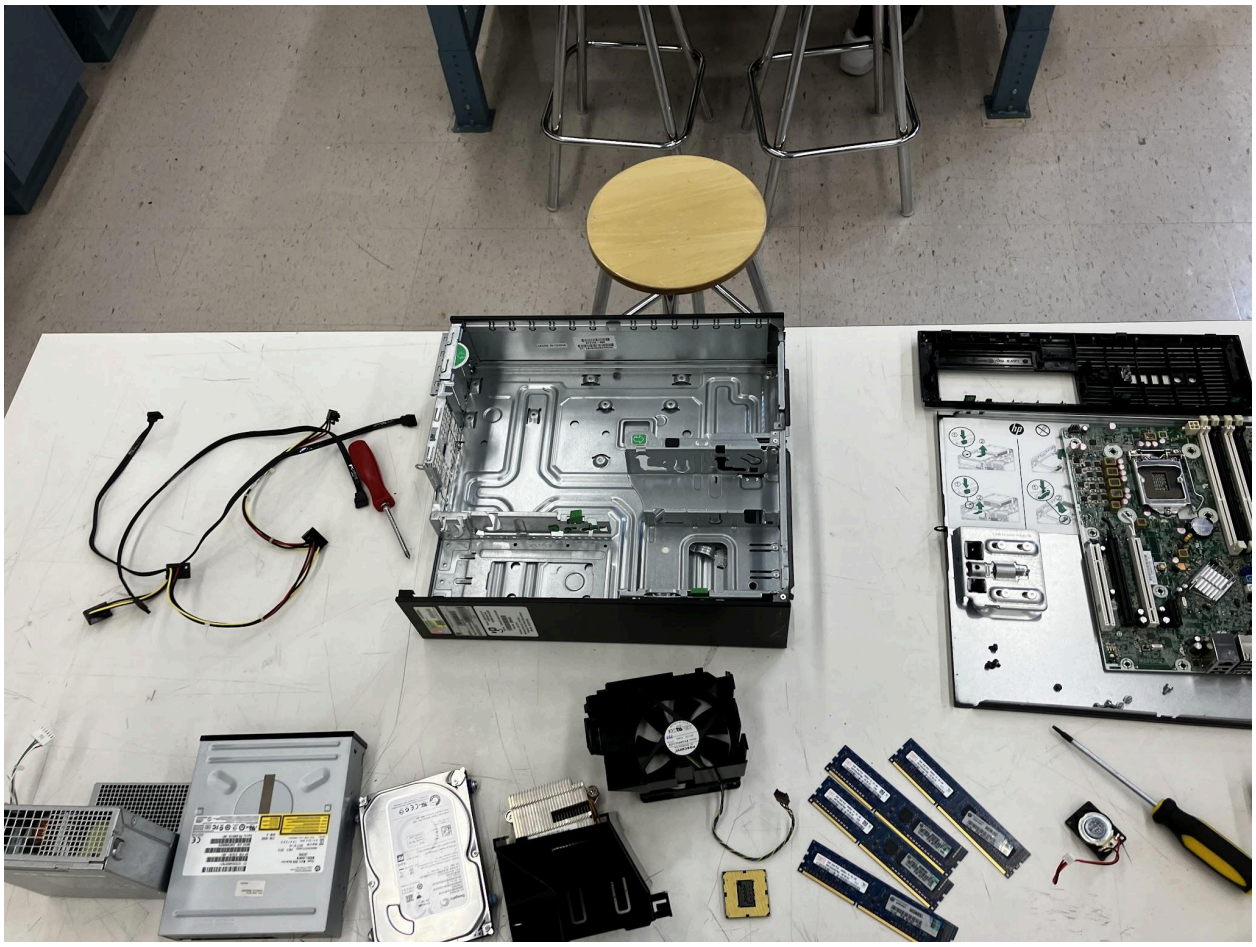
Network Card: This component, either integrated into the motherboard or added separately, allows the PC to connect to a network for internet access or local network communication.


PARTS OF A COMPUTER
RAM
EXPANSION CARDS
MOTHERBOARD
CPU COOLER
CPU
COMPUTER CASE
SSD
HDD
PSU
SPEAKERS
KEYBOARD
MONITOR
MOUSE
COMPUTER INFO BITS



Lessons Learned

The assembly and functioning of a PC are intricate, emphasizing the importance of each component's role. Proper installation and compatibility among components are crucial for optimal performance. The evolution of technology has led to advancements in component efficiency and capabilities, highlighting the importance of staying updated with new hardware innovations. This exploration offers a deeper appreciation for the engineering and design that go into creating a functional PC, showcasing the importance of each component in the overall system and the intricate balance required for efficient operation.



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