

What Is Inside A Raspberry Pi?

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The Challengers

Hopkinton Middle School, MA, USA, Earth, Solar System, The Milky Way, The Local Cluster, The Universe

We have decided to look at what is inside a raspberry pi because it is easy to take off the lid and see all the parts. It is also easy to take pictures of and it is interesting how such a small thing can do what it can do.

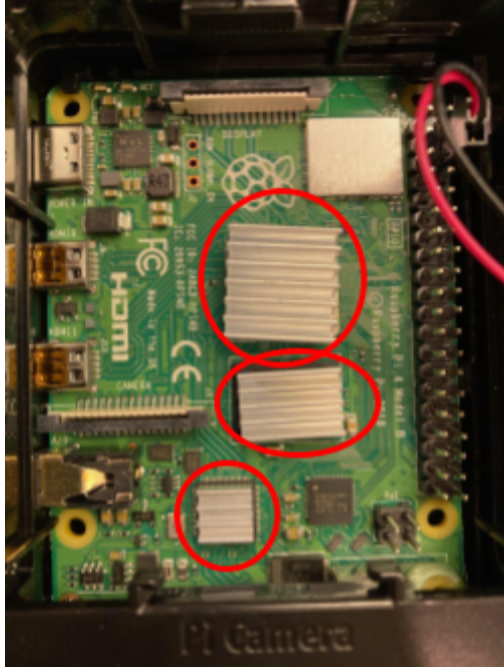


The Raspberry Pi we will be Looking at

Inside this raspberry pi is:

1. A motherboard
2. A CPU (central processing unit)
3. A GPU/graphics card (graphics processing unit)
4. A RAM unit (random access memory)
5. A micro SD card for memory
6. A PSU (power supply unit)
7. A fan

1. The motherboard is the piece of hardware that the CPU, GPU, RAM unit and other components attach to. It has small pathways that electric signals follow to get to the different components.
2. The CPU is the brain of the computer. It processes all of the information and controls where it goes.
3. The GPU controls all the graphics. It works with the CPU to make all the visuals on your computer from the movement of your mouse to the videos you watch.
4. The RAM unit has all the information you are using at the moment. If the device loses power, the RAM will be cleared. The CPU, GPU, and RAM all need to be cooled down using small metal radiation fins and/or a fan.



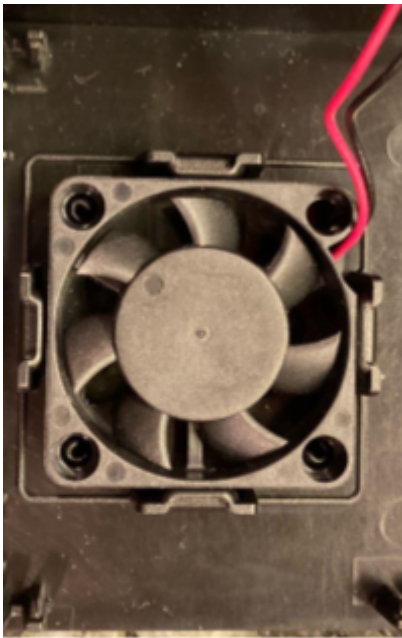
The CPU GPU and RAM with metal radiation fins on the motherboard

5. The computer will need a form of permanent storage. On this raspberry pi there is a micro SD card inserted into the back of the computer.



The micro SD card with 32 megabytes

6. The PSU is responsible for taking the electricity from a socket on the wall and giving the right amount of energy to the computer at all times so it can carry out all of its functions.
7. The last piece is the fan. This piece of hardware cools down the entire computer so it doesn't overheat. When a computer overheats it destroys the components causing it to lose memory and shorten the lifespan of the computer.



The fan

Lessons learned

By taking apart the computer and researching the roles of the parts, we learned that the inner workings of a computer is not much different than a real human team. Each part has its own vital role in helping the computer function. If the PSU did not function, none of the other parts would either. If there was no CPU, the other parts wouldn't know what

to do, and so on. We also learned that no matter how much you know, there is always more you don't know. When I started this project I thought it would be easy, but then I opened the lid of the computer and realized that there was so much I just don't know.

Credits:

<https://computerinfobits.com/parts-of-computer-and-their-functions/>

<https://www.intel.com/content/www/us/en/products/docs/processors/what-is-a-gpu.html>