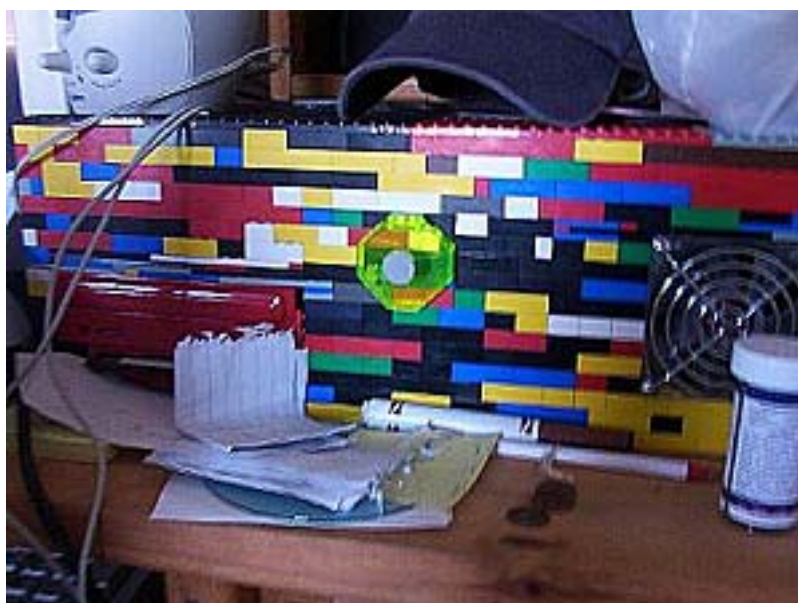


DIY Lego Case

This little project started a few weeks ago when my brother tired of his computer case. This made me very sad, as I had just got done modding a case for him. So fine, I figured as long as I didn't have to do any more painting, I would listen to his idea. He then told me that he wanted a case made out of Lego. No, not Lego stacked around a normal case, or even a standard frame and Lego built around that. He wanted nothing but Lego. I wasn't even sure that this was possible, so I consulted a few sites to look up things like EMI and grounding components. After coming to the conclusion that a Lego case would work in theory, I started this project. I apologize for no pictures of the process, as this is a post-creation article.



First off, I evaluated the Lego that my brother already had in his possession. He had two large drawers in his dresser filled with Lego. They weren't all bricks, however, as there were a lot of small / specialty pieces mixed in. I took both drawers downstairs to the basement (it is unfinished, and the concrete floors and drab environment make for a good work area), and dumped them out in one giant pile in the middle of the floor. In hindsight, I should have sorted the pieces then and there, because it took me more time to find the pieces I needed then it did to actually build and complete the project. But alas, hindsight is always 20/20, so onward with the article.



The base needed to be something that wouldn't just fall apart. The two things that concerned me most about the Lego design were structural integrity and airflow. To make the base as sturdy as possible, I used two large road plates he had lying around. Since I wasn't using any sort of brackets, I settled on a desktop-style setup. After making a few rows around the perimeter to get a good idea of the space I had to work with, I took all the components from his system and started experimenting with placement. Here are all the parts in his system, for future reference;

- MSI K7T Turbo2 motherboard with AMD Duron 1.3ghz, 384MB PC133 SDRAM
- ATI Radeon 7500
- Antec 350w dual-fan power supply
- 32x12x48 CD-RW drive
- 20GB Seagate IV 7200RPM hard drive
- Floppy drive
- Total of 3 fans (1 80mm in front, 1 80mm in back, and 1 80mm on CPU heatsink)
- 1 hard drive cooler that attaches to the hard drive
- 1 power LED, 1 hard drive activity LED
- 1 power switch (I have him setup with Windows 2000; who needs reset!)

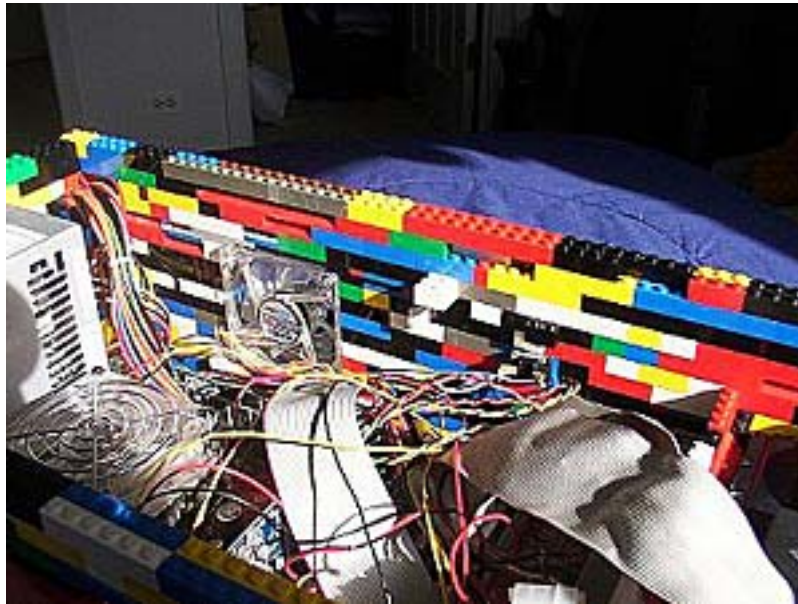
The first, and most important part of the layout is deciding where the motherboard will sit. I chose to have it all the way to the right of the case, with the power supply on its side, so the bottom fan wouldn't be trapped against the wall. The power supply and motherboard are both held in place by a few rows of Lego. This setup isn't good for portability, but then again this isn't supposed to be a LAN case either. I aligned the motherboard and power supply, outlined them with blocks, and then went to the next components.



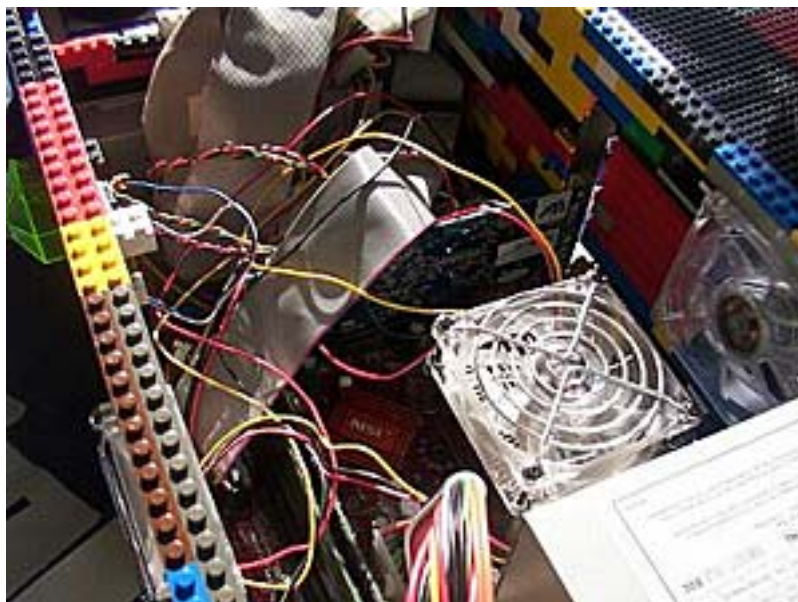
I was originally going to put the CD-RW drive on the bottom and the floppy drive on top of that, but there wasn't enough clearance between the motherboard and left side wall, so I put the floppy drive on the bottom. Both drives' faceplates were painted red and glossed in my previous mod, which ended up matching the happy Lego theme nicely. Using the same method that I used with the mobo and outlining the floppy drive with Lego bricks, I then placed the CD-RW drive on top of it, and it ended up being centered nicely with one side resting against the case wall. The CD-RW was trickier to stabilize with Lego, since it was raised off the ground, and was actually hanging over part of the motherboard. A combination of having the front tightly wedged in the wall and the back IDE cables sandwiched tightly kept the drive in check. Above the CD-RW drive, I put the hard drive, and you can see what I did to keep the hard drive aligned in picture 9 (at the end of this article). In went the RAM and graphics card, and I was on to building up the walls!



This part took me a good 5-7 hours, since I had to sort through the massive pile of Lego for suitable pieces. All walls were 2 Lego units wide, which made for a lot of Lego being used and a lot of time spent finding them. A word of warning if you try this; you will need a LOT of Lego.



I piled and piled and piled on the Lego, and when I got to things like the faceplates for the floppy and CD-RW drives, I just found the pieces that fit best, and had them wedged tightly to prevent any sliding. When the walls were about 3/4 the way built, I ran into a problem. I had totally forgotten about the second most important thing; airflow! I analyzed the situation to see what would work. After some thought and trial-and-error, I decided to have almost a wind tunnel go through the system, with a fan in the front sucking air directly over the RAM and CPU, and a fan on the other side of the case taking air right out. A fan on the top was a no-no, since this case was going to be sitting under a part of my brother's desk with little clearance. Tearing down portions of the wall, I put the fans in, and as you can see from the pictures, it was a success! The fans don't even jiggle or vibrate, which is nice on the ears.



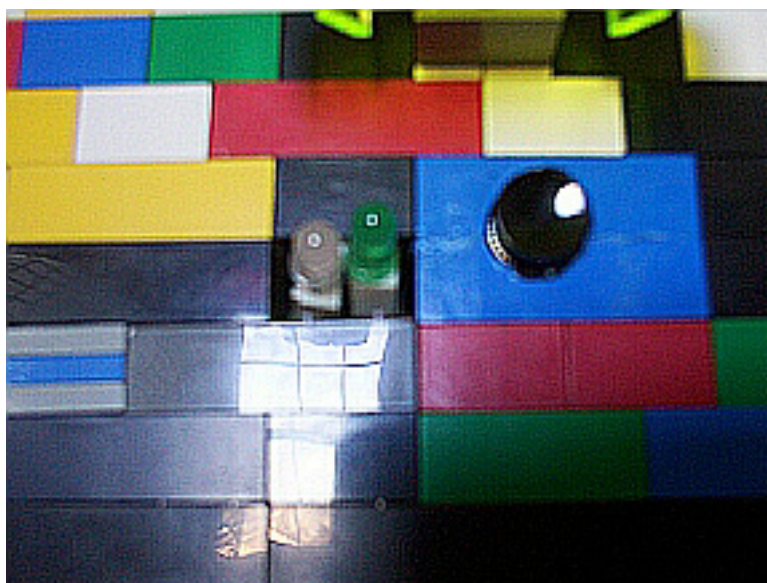
Resuming my wall-building, I came across problem #2; what to do about the back of the computer and all the ports. I settled on the method you can see in the pictures, with a Lego support that covered the printer and COM ports on the motherboard (he doesn't have a printer anyways). This worked well, and everything in the back is now structurally sound.

Another thing that I had to think about for this case was the switch. The switch itself is a momentary switch (momentary on/always off). If you have ever looked at the switches that come on standard cases, they are little worthless switches that wouldn't help me with this case. So after some research to see what type of switches would work, I took a trip to Home Depot, and settled on a switch that looks similar to the one below. It ended up being about \$4, which I thought was kind of steep, but oh well. Next, I butchered an extra switch I had lying around, because it has that little end on it that connects to the pins on the motherboard.



Now all I had to do was connect the bare wire leads to the switch. It doesn't matter which wire goes to which part of the switch. A digest version of how the switch works (to my understanding) is the switch acts as a barrier between the two pins on the motherboard. When you press the button, it connects the wires, which lets the power between the two motherboard pins. When you release the button, it closes the circuit again. If you hold the button for five seconds (leaving the circuit open), it shuts the computer down, which is why on/off switches won't work. After I got the button wired (and tested to make sure it worked), I took a 2x4 Lego brick down to my workshop, and used the biggest drill bit I had in the center of the Lego.

There wasn't much room on the top or bottom of the Lego, and the button was slightly bigger than the hole, so it started to buckle the minute I screwed it into the Lego. After some thinking, I put some Krazy Glue on the Lego left, right, above, and below the button Lego, and put that all in a vice. It held fine, and the switch works great. To tie back in the Lego theme, I attached the cool piece you can see in the pictures that swings up to reveal the LEDs and power switch. The clearish-piece actually diffuses the LED light a bit, creating a nifty little glow effect.



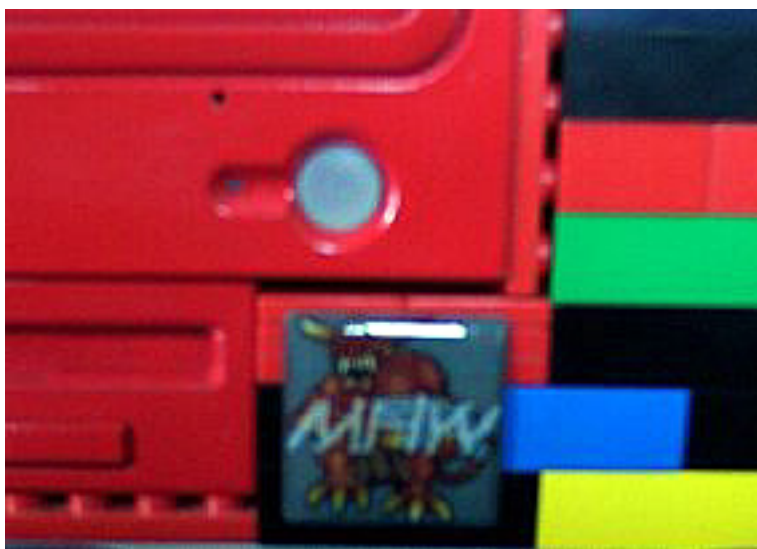
Build build build, and finally the walls were done!!! The final challenge of the case; scrounge up enough thin pieces to make a solid roof. This is another part I wish I had sorted the Lego for, but after I found all the pieces I needed, it was just a matter of piecing them together to fit the roof dimensions. There are actually

two layers of thin Lego, to make sure you can push on it a bit without it caving in. Sealing the roof and turning it on, we waited....

AND IT WORKED!!! The Lego case was a success. Carefully bringing it up two stories from the basement to his room, we set it on his desk and slid it into the spot we had cleared....

WHAT A FIT! Maybe half an inch separated the roof of the case from the desk overhang. There was also just barely enough room to slide in the case next to the monitor. Things were looking good, and we plugged everything in again, and booted it up. The 80mm fans are clear, with two red LEDs in the center that blink at different intervals and patterns. The final touch...

The Monster-Hardware case badge of course! I placed it next to the floppy drive, and the Lego case was officially complete. The CPU runs at a nice 36C, thanks to the AX-7 heatsink and my excellent airflow design. Hopefully he won't want a new case anytime soon!



If you have any questions, comments, ideas, whatever, feel free to [e-mail me](#). I apologize in advance for the pictures, I used the family digital camera, which is an old Kodak that takes bad closeups. Thanks go out to Jim for posting this article! (and for the case badge that is the solo case badge on the Lego case :))

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