OVERVIEW/HYPOTHESIS
The main goal I had for this project was to learn both hardware and software aspects of computers and other electronics by self-teaching. I was curious to see if it was possible to build my own computer without any previous knowledge and by mainly utilizing the internet as my teacher. I was at first quite intimidated and unsure if it was manageable but nevertheless began the journey.

RESEARCH
Inspired to explore the field of technology by my AP Computer Science A class and robotics, I began my research at the beginning of quarantine in March, 2020. Initially, I used YouTube to familiarize myself with the terms. The main channel I used was Linus Tech Tips which has hundreds of videos about various different types of personal computers (PC).

Once I knew all of the parts I needed and what their purposes were, I began to search for high quality, affordable electronics. There are hundreds of different options for every part and each has their own benefit so it can be difficult to find exactly what you are looking for.

During this process, I found PCPartPicker, Micro Center and Newegg the most helpful. There are also online forums where you can input what you need in a PC as well as your price range and you are often able to find exactly what you’re looking for.

PROCEDURE
I then began the process of building my PC. I made sure to use an anti-static mat as well as grounding myself before touching the hardware to prevent any damage to the computer.

Ensuring I had help to avoid major mistakes, I asked a friend who had already built his own PCs to help me out.

We took to building and the process as a whole took around four hours to complete. A problem I ran into was that two of my parts didn’t arrive so I went to Micro Center to pick up alternates. The major problem I had was my room has no three prong outlets which means they are not grounded. This posed a serious fire hazard so I used a 25-foot extension cord to reach an outlet outside of my room.

RESULTS/CONCLUSION
There are many complications that interfered with continued research:

- **Time**
  Much of this work requires a significant amount of time to complete. So, managing schoolwork made it difficult to be consistent with working on the projects.
- **Materials**
  I was fortunately able to secure all of the parts needed to build my computer in a little under a month. However, there is currently a graphics card shortage so it would be difficult for anyone currently looking into it.
- **Financing**
  With my part time job, I was able to save money and spend extra on aesthetics which gave me a final price of $1800-2000. While it is possible to spend as low as $500 on a prebuilt PC, building your own is usually a more hefty investment which requires careful planning.

My current goal is to expand my knowledge of computer aided design (CAD) for both robotics and personal projects. In order to do this throughout the summer, I invested in a 3D printer which I bought discounted for $200.

I am currently using Autodesk Fusion 360 to design small projects which I can model using the printer.

As of right now, I have only printed the test print but had to work with: bed leveling, temperature control, filament and distance between the bed and the nozzle for precise printing. I am looking forward to

NEXT STEPS

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