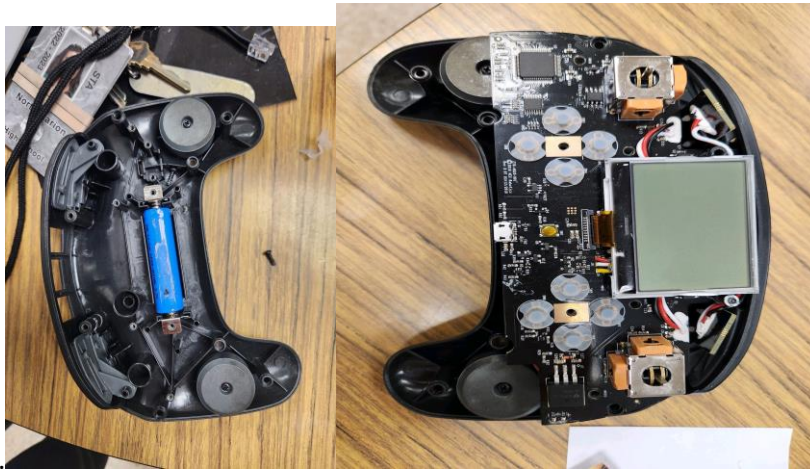


Reverse engineering challenge

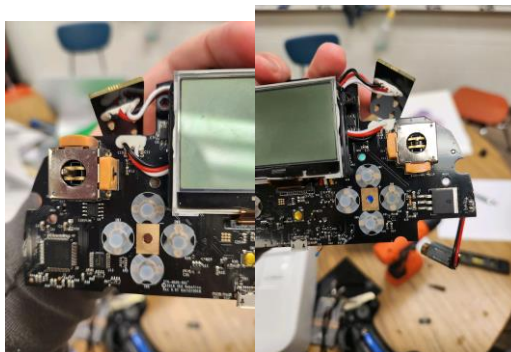
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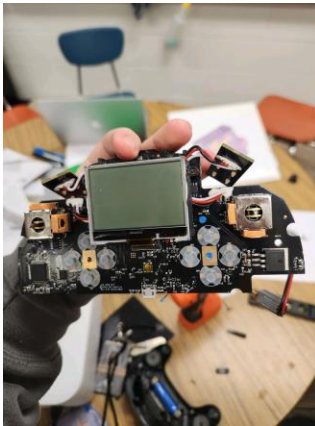
We decided to use one of our broken vex controllers. We started by removing the case. Underneath the case is the circuit board. This contained all the necessary pieces of the controller. These pieces are the joysticks, buttons, screen, controller charging port, vibrator, hard disk, ram, processor, Army magnetic spectrum emitter, and Li-ion battery



The joysticks and buttons both do the same tasks of being used to select things from the hard disk. They allow the user to interact with the drive. The joysticks are made of separate parts as well. Those parts are the shaft, the handle, pivot, spring, actuator, retaining ring, mounting plate, and shaft guide. Each piece helps make the joystick functional. The buttons are essential for selecting objects that are on screen. The buttons contain two pieces. There is the case, and the actuator. When the case receives pressure, it makes the actuator touch the circuit board and allows the electricity to run through it, letting the input be known by the hard disk and processor.



The screen is used to visualize what you're inputting to the hard disk. This is the part that the players use to see what they are doing. The screen uses a red and white color display to make the screen show what it needs to.



The controller charging port is used to charge the battery as it dies. The Charging port for this remote is micro-USB. The port also allows transferring data. It sends the code from the computer into the controller.

The vibrator vibrates the controller when something interacts with the robot. The vibrator allows the user to sense when something hits affects the course of the brain.

The hard disk is used to store information that is created and is changed by the input of the user. This is what allows for the select menu when selecting a code for the robot to run. It also sends signals to tell it what to do.

The ram is used to transfer data from the drive to the converter to show objects on the screen. The word RAM means random access memory. The RAM takes information from deep storage and tells parts what to do.

The processor tells the different parts of the remote what to do based on how it is programmed. The processor takes the information that is given, and the information that is stored, to tell the different parts what to do. Certain things like joysticks and buttons input information into the processor.

The Army magnetic spectrum emitter is the way the controller connects to the robot. This piece provides a stable, wireless connection to the robot's controller VEXnet joystick. The connection is fast and secure.

The Li-ion battery stores electricity for the controller. This piece usually lasts 3-4 hours depending on how long you have had it.

What I learned from this is that the controllers used for Vex are very complicated. They require lots of different parts to form a greater whole.