What's the Guts of a Vex IQ Controller?

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The Why and The What

For the reverse engineering challenge, we are reverse engineering a Vex IQ controller. We are doing this so that we can understand what makes up an everyday controller. Another reason we are doing this is because you usually only see the outside of a controller, not the inside where the big components of a one are housed. Now here are our findings while reverse engineering a Vex IQ controller!

The Guts

1.A Complete Vex IQ Controller
2. 2 Microswitches
3. 4 Rotary Potentiometers
4. 2 Joysticks
5. 1 Power Button
6. 1 Motherboard
7. 1 Radio Transmitter
8. 1 Radio Receiver
9. 1 Primary Microcontroller
10. 1 Voltage Regulator Chip
11. 1 Oscillator
12. 5 Membrane Switches
13. 1 Battery Cover Plate
14. 1 Trigger Plate
15. 1 Front and Back Cover Plate
16. 2 Light Bulbs

Their Uses

Microswitch: A small switch that needs little pressure to activate, its the role in the system is that they make the buttons work.

Rotary Potentiometer: A Voltage Compactor, it gives power to all of the components.

Joystick: Function is to control the device by tilting it, this is how you control the movement of the robot.

Power button: Turns things off and on, this device is able to turn the vex iq brain off and on.

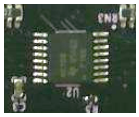
Motherboard: Is a plate that holds components of an electronic system on it, it keeps all of the electronic parts of the controller organized on it.

Radio transmitter: Sends radio signals to the robot brain, so we can control the robot.

Radio receiver: Gathers radio signals from the brain, so we can program the controller.

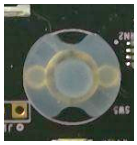
Primary microcontroller: Is the memory of the controller, so it “remembers” a program.

Voltage regulator chip: It keeps the voltage at an acceptable level for the components of a device, it does this to the controller too.



Oscillator: Converts current, it gives different components the power they need to work.

Membrane Switch: They are buttons, membrane switches are able to control parts of the robot.

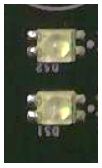


Battery Cover Plate: Covers a battery, for the controller, this helps by protecting and keeping the battery still.

Trigger Plate: Has buttons that push down on membrane switches, this protects the top of the controller.

Front and Back Cover Plate: Protects the front and back of the inner workings of the controller. This protects the front and back of a controller.

Light Bulb: It produces light, it indicates if the controller is on or connected to the controller.



What We Learned

At first, we didn't think that controllers would be that complex. But, once we started this project, we learned what all the parts in a controller were for, how they were used, and how the controller works.

Giving credit where credit's due

Thank you to https://www.techspot.com for helping us with our research!