

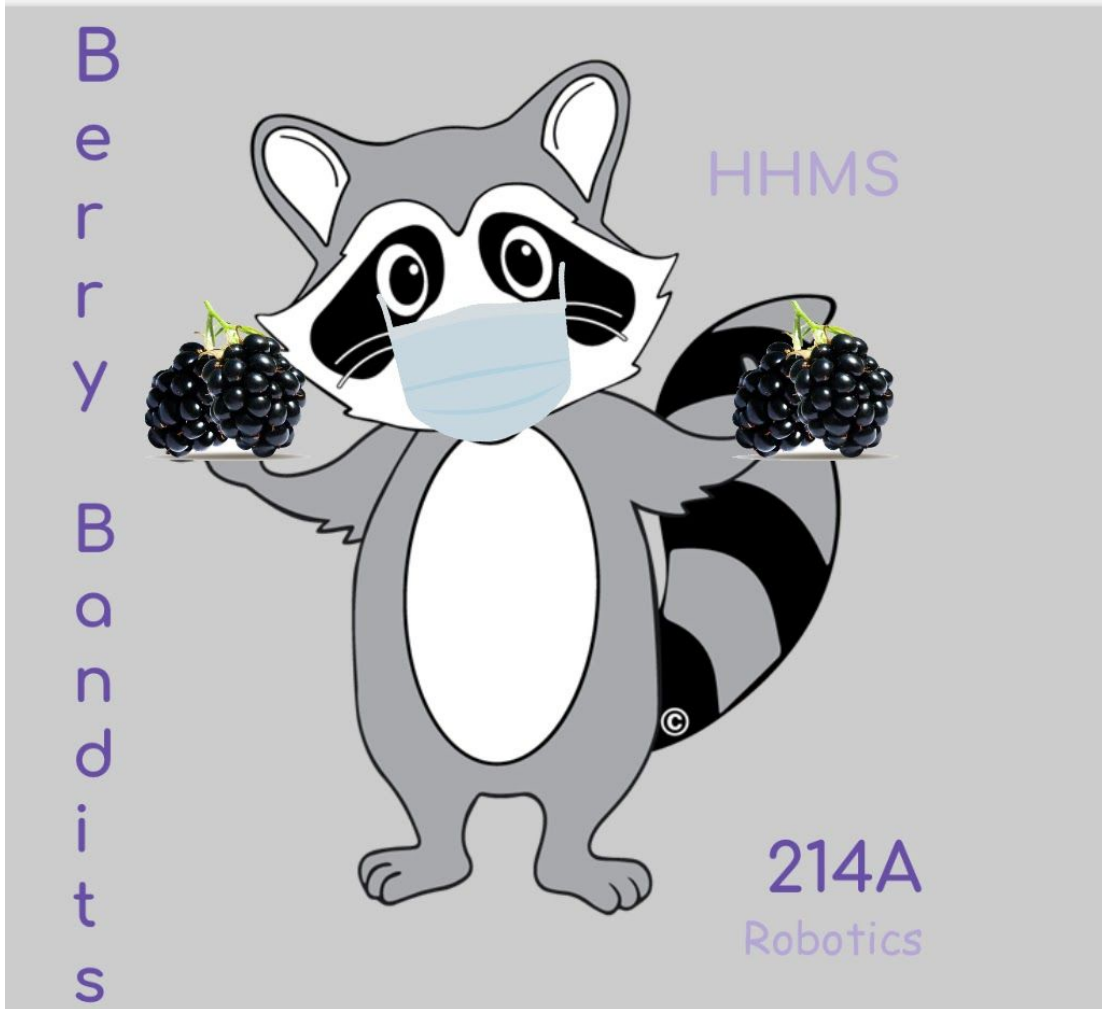
Vex IQ Team 214A Berry Bandits

Hamilton Heights Middle School

Arcadia, Indiana

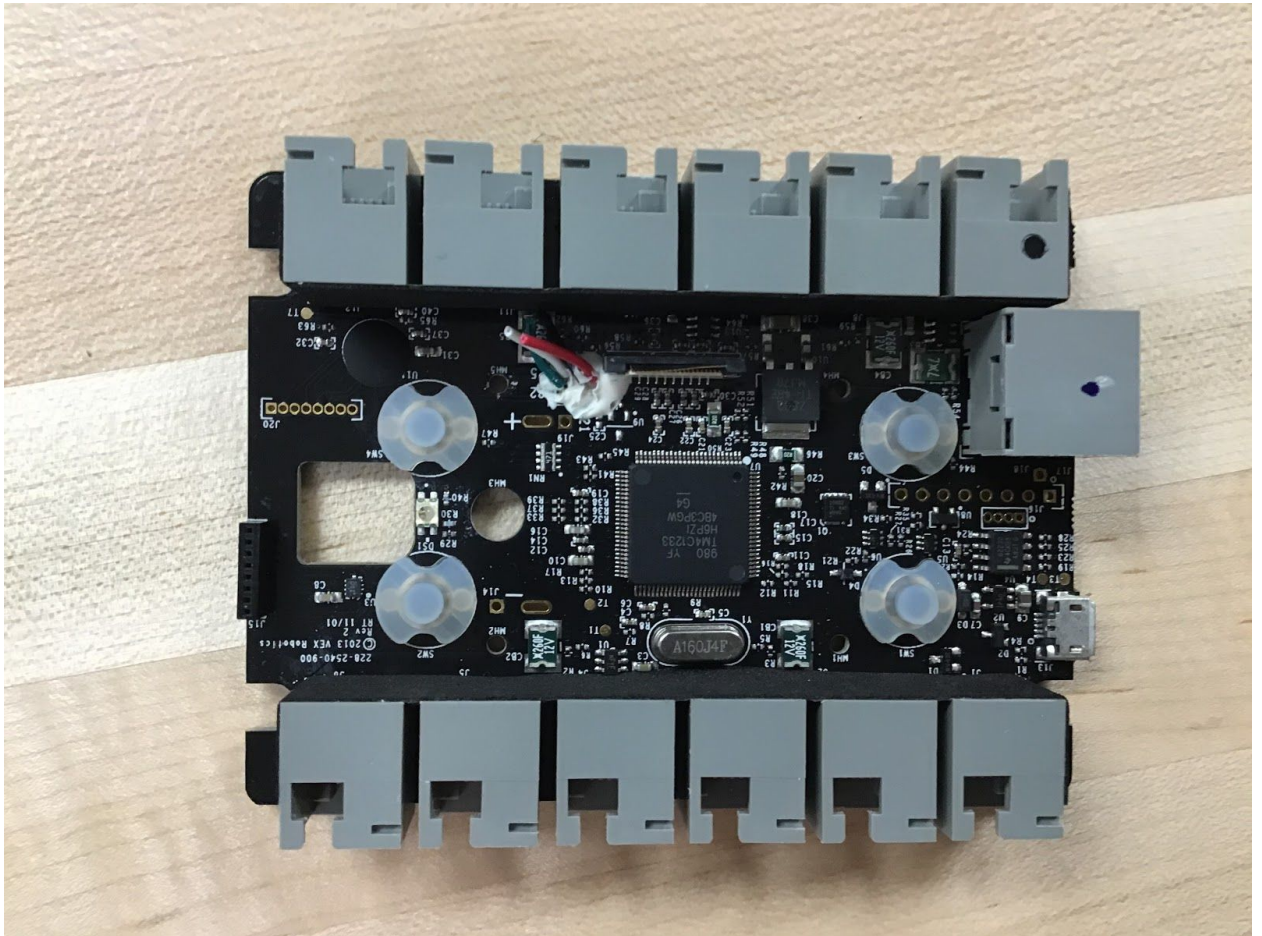
United States

Electronics Online Challenge

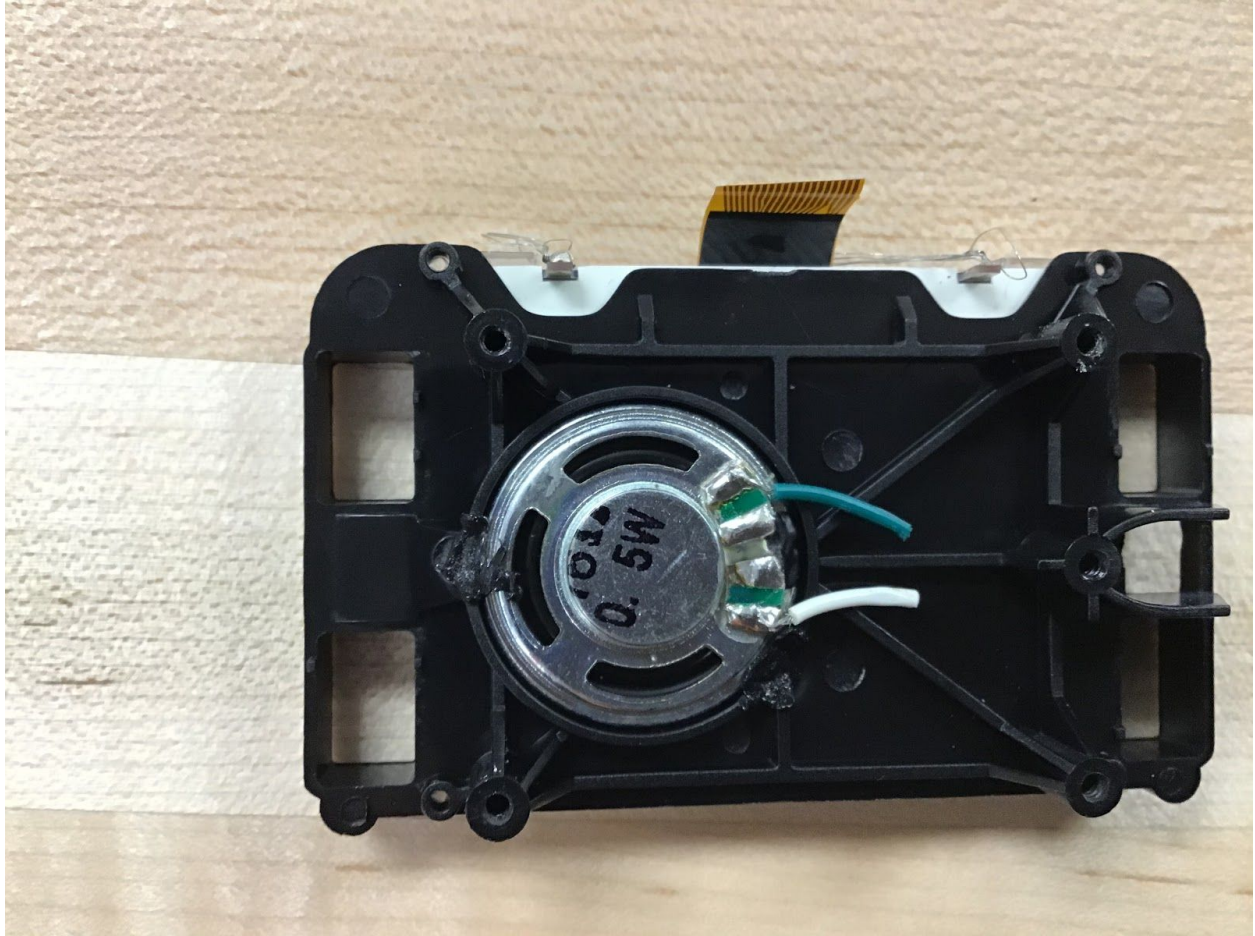


By: Addison Mann and Lauren Happel

We chose to disassemble a VEX IQ brain because we were interested in the parts inside of the brain considering we use it on nearly a daily basis. The brain includes multiple TI Chips, and a brain functions like a computer, but on a smaller and less complex scale.



Picture of opened brain



Opened brain showing behind the screen

To get to the motherboard and behind the screen, we had to remove several screens. The motherboard contained multiple TI Chips, including:



This is a picture of the ARM Cortex Processor ↑

The crystal oscillator takes the shape of a metallic oval and is located near the ARM Cortex. By using the effect of crystals, the processor applies a current to crystal vibration at a precise vibration frequency. This vibration is used as a clock signal for RAM and other components that require synchronous operation.

Other components on the motherboard include resistors, which reduce electrical currents for use in processors. Green capacitors are devices that store energy and release it all at once. There are also resettable fuses that prevent currents that are strong enough to destroy parts of the robot.

During this experience, our team learned a lot about the brain. We now know that the brain is a well made machine and a lot of thought has been put into the device and that it has been tested to make it as safe and effective for younger people. Also that this device is small and compact and easy to use.

Resources:

ARM Architecture Explanation:

<https://www.arm.com/products/silicon-ip-cpu>

TM4C Microcontrollers Overview:

<https://www.ti.com/lit/sg/spmt285d/spmt285d.pdf>

Basic Components: <https://www.sparkfun.com/>

Thank you so much for reading this and taking our team, 214A, into consideration for the electronics online challenge.