Texas Instruments Online Challenge: Taking Apart A Motor

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INTRODUCTION

For the Texas Instruments Online Challenge, our team chose to take apart a VEX IQ motor. A VEX IQ motor is a motor used for advanced control and feedback throughout the robot brain. A VEX IQ motor was chosen to be taken apart because a motor was the most important part that bring movement to the robot. Another reason is because we wanted to find out what made these simple, everyday mechanisms work.

Summary

In the motor we took apart, we found:

- Four 4 1/2 centimeter long nails
- A gear that has a 2 cm diameter with a short extension
- A gear that has a 2 cm diameter with a long extension
- A gear with gears
- A brush motor
- A Texas Instruments data chip
- A case/motor housing
- A 5 ½ centimeter by 2 ½ centimeter rectangle with a giant hole
- A lid
- An inshield

Only the data chip was a Texas Instruments component.

Research

Based on our research:

- The four 4 1/2 centimeter long nails held the top together while the brush motor powers it all.
- The data chip along with the connector receives communication and instruction from other parts.
- The inshield houses the gear with gears of different sizes..
- The gears help transfer the movement and the power.
- The motor housing houses all the parts.
- The 5 ½ centimeter by 2 ½ centimeter rectangle with many holes can have other VEX IQ parts plugged in so that the motor can be attached
- A brain is needed to provide energy and instruction to the motor
- The gear works by locking it's teeth into other gear's teeth.

Conclusion

In this experiment, we have learned about the major parts that make up a VEX IQ motor. Another thing we have learned is how everything connects to each other and work as a whole motor. All of the parts work together to make this motor. The motor is basically a box with a bunch of components hiding inside. The user of the motor does not know what is inside.