RECF Team Educational Video

Hello, we are team 918A and we would like to discuss and give examples of gears, and gear ratios. Gears very simple to learn, but they can be extremely helpful in your career with robotics. They can help transfer energy, or provide more power or speed to an object. Here are some examples of how this simple machine is used in our daily lives. An example would be a can opener! The turning of a handle, will result in the turning of a blade! Clocks are a great example. With gear ratios, the three individual hands of the clock can be moved at different speeds, providing an accurate telling of the time. A more practical example would be car transmission. The gear you are powering, or that is connected to the motor, is called the input gear, and the gear that is the result of the input gear, or connected to the input gear, is the output gear. Have you ever wondered how you can tell what the gear ratio is on a certain part of your robot? If so, to find the ratio for a simple gear train, is the number of teeth on the output gear divided by the number of teeth on the input gear.

Now for something more complicated. Compound Gear Ratios! The good thing about compound gears is that in contrast to a basic gear train is that you don’t need a huge gear to reach a large ratio. You can stack multiple gear trains on to each other to reach the same ratio in a smaller amount of space. Basically using more gears connected to each other instead of just one input gear, or one output gear. To find the ratio for a gear train, you would multiply the ratio of each simple gear train.

Overall the gearing may be complicated at times, but it is definitely worth doing if you really want your robot to be much faster, or have your robot to reach much torque. Knowing gears, and how they work will definitely benefit your robot the way that you want it to.