Consider various forms of energy… heat, motion, light, chemical, electrical are some of them. There exist devices that convert energy from one form of energy into another. Your toaster converts electrical energy into heat energy. Internal combustion car engines convert the chemical energy stored in gasoline into mechanical energy for motion. A light bulb converts electrical energy into both heat energy and light energy. There are many other familiar examples. Devices that convert energy from one form of energy into another are called *transducers*. Yes, your toaster is a transducer.

You're at the yoke of your private airplane. There are certain airspeeds that should be very important to you. The recommended speed at which you should take off, a recommended speed at which you should land, the maximum speed you can fly and make use of full deflection of your controls… and others. But how do you know what your airspeed is? You monitor the airspeed indicator, of course. This clever device reacts to characteristics of the air surrounding the plane, and displays the airspeed on an instrument in the cockpit for the pilot to use. This type of a device is a *sensor*. In general, a sensor reacts to some type of stimulus and converts/displays this information into a gauge or electric signal that makes for easy interpretation. Your bathroom scale is a sensor, as is your oven temperature readout and your smoke detectors.

In general, a sensor is a type of transducer that converts a specific type of energy into a more convenient type for measurement purposes.

A magnetic sensor on the wheel of your car can generate a pulse for every rotation of a wheel. The timing of these pulses can be characterized to show you the speed your car is rolling, displayed on the speedometer.

Riding a rollercoaster, you can physically sense how the loops and dips and curves affect the force keeping you in your seat (hopefully). But how can you quantify how this force changes? A sensor, or in this instance a specific type of sensor called an *accelerometer*.

** work in progress… much more to come**