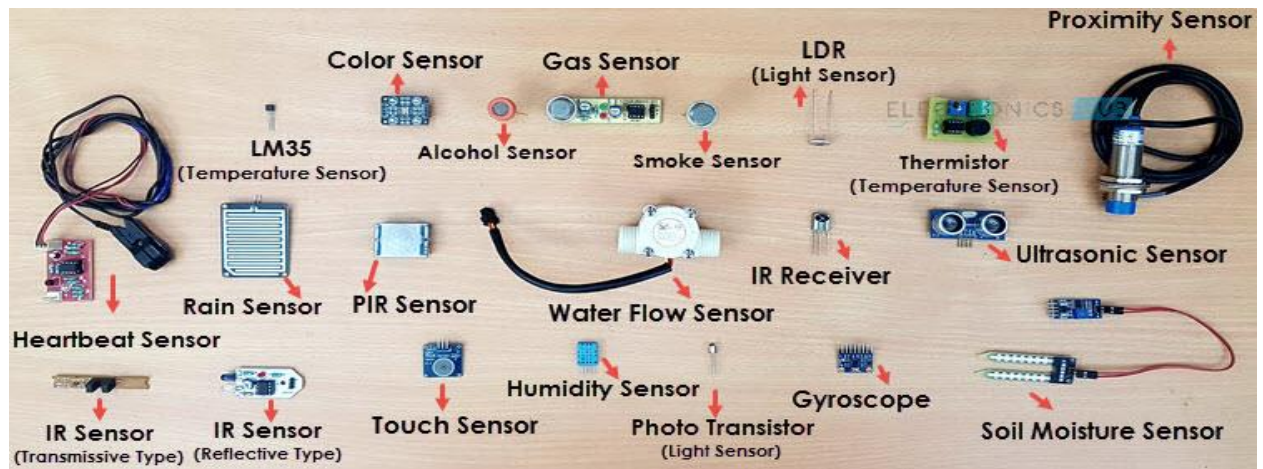


## 1.1 Different Types of Sensors:

There are various types of sensors used in different applications, each designed to detect specific physical properties. Here are some common types of sensors:

1. **Temperature Sensors:** Measure the amount of heat energy or even coldness that is generated by an object or system, allowing us to sense or detect any physical change to that temperature. Common examples include thermocouples and thermistors.
2. **Proximity Sensors:** Detect the presence or absence of an object or any physical movement in its vicinity without any physical contact. They are used in smartphones, cars, and industrial applications.
3. **Accelerometers:** Measure the acceleration force in  $\text{m/s}^2$  or g that is acting on an object. They are used in smartphones for orientation detection, in vehicles for dynamic control systems, and in various consumer electronics.
4. **Light Sensors:** Detect the amount of light that is present in the environment. Photocells and photodiodes are examples, used in devices like automatic lighting systems and smartphone brightness adjustment.
5. **Pressure Sensors:** Measure the force applied by a liquid or gas on a surface. They are used in weather instrumentation, aircraft, automobiles, and any system where pressure monitoring is crucial.
6. **Humidity Sensors:** Measure the amount of water vapor in the air. They are commonly used in weather stations, HVAC systems, and any environment where humidity control is necessary.
7. **Infrared Sensors:** Detect infrared radiation emitted from objects. They are widely used in night-vision devices, thermometers, and proximity sensors.
8. **Ultrasonic Sensors:** Use sound waves to detect the distance to an object. These sensors are commonly used in automotive parking sensors and robotic obstacle detection systems.
9. **Gas Sensors:** Detect the presence of gases in the atmosphere. They are used in safety systems like smoke and carbon monoxide detectors.
10. **Magnetic Sensors:** Detect changes in a magnetic field. They are used in compass modules, speed sensing, and various industrial applications.

Each type of sensor serves a unique purpose and is selected based on the specific needs of the application it is used for.



**Fig: Different types of sensors**

