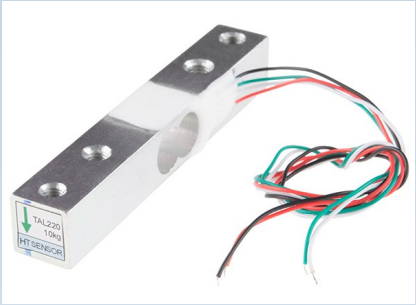
Load Cell

Antoine Hesse

Basic principle :

-Output an electrical signal equivalent to the amplitude of the force applied to it



Different types:

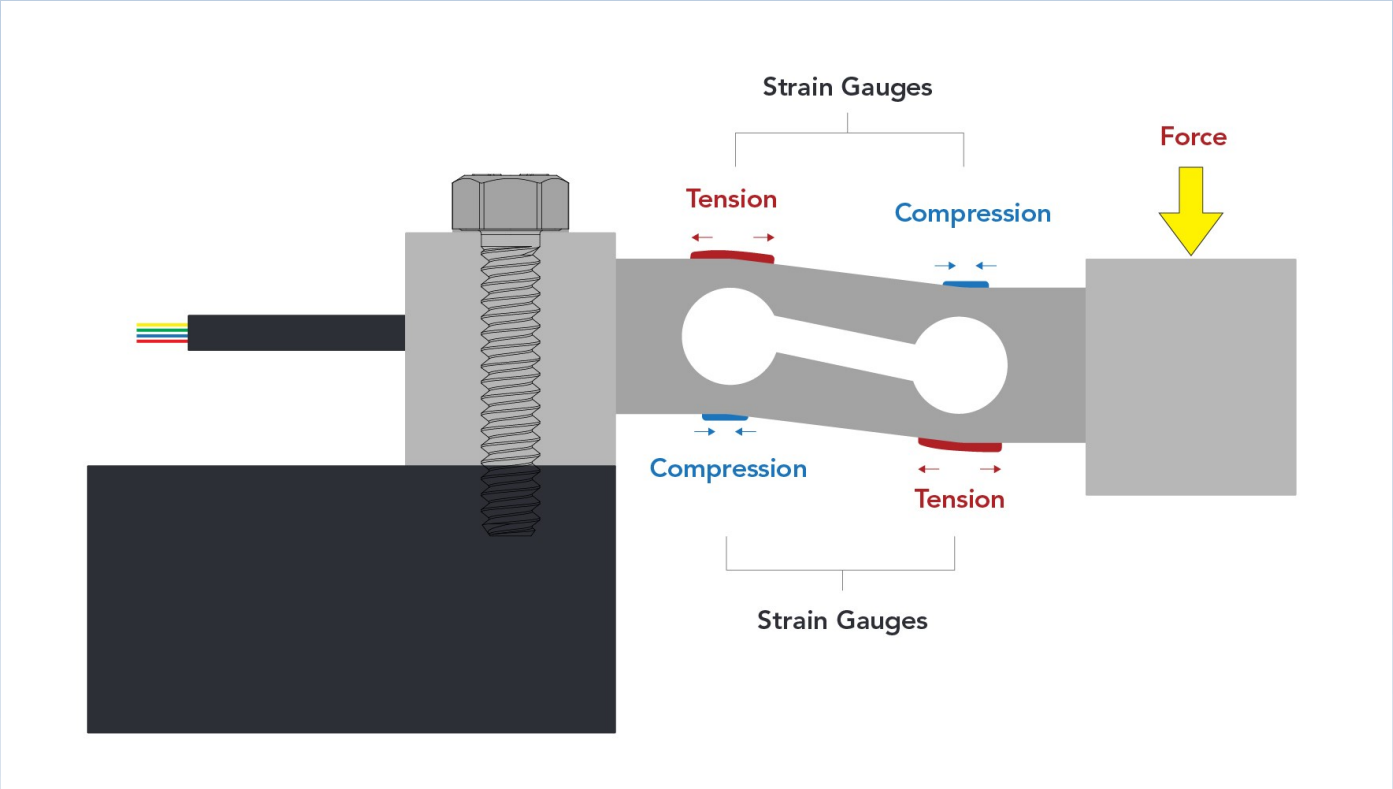
-Strain gauges (most common)

-Hydraulic (very high load)

-Capacitive (cheap)

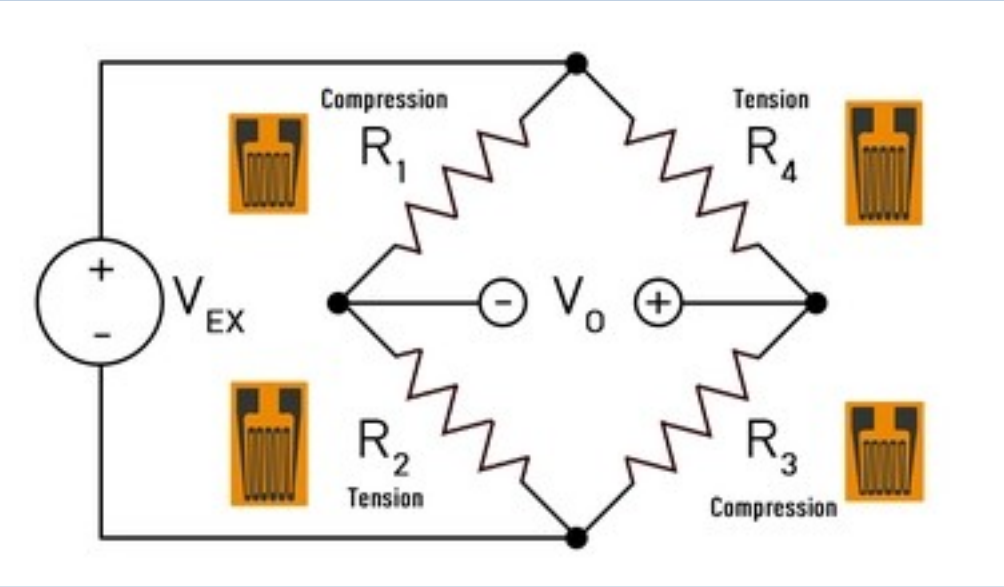
-Pneumatic

Working principle



[1]

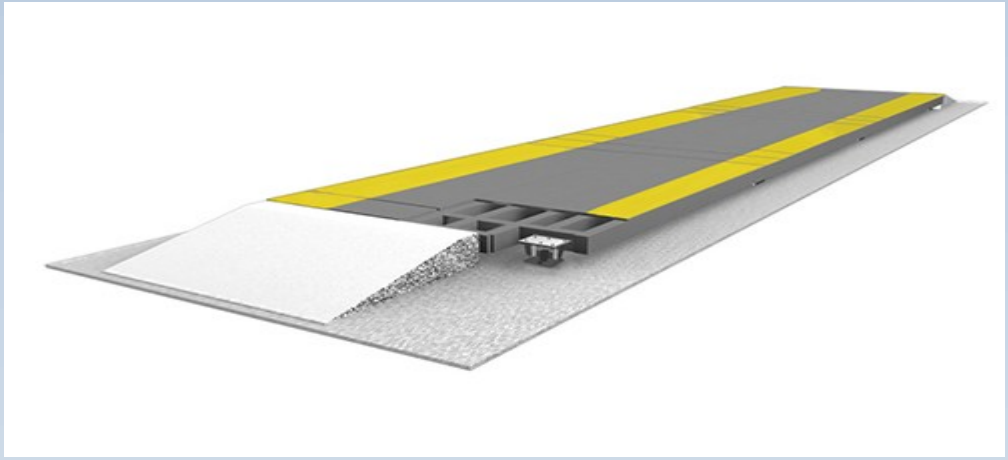
Wheatstone bridge



[2]

$$\frac{V_0}{V_{EX}} = \frac{R_3}{R_3+R_4} - \frac{R_2}{R_1+R_2}$$

Use case:



Use case for robotics:

-Handling of fragile/slippery object

-Get the weight of the handled object

References:

[1]:https://www.anyload.com/how-does-a-load-cell-work/

[2]:https://www.800loadcel.com/load-cell-and-strain-gauge-basics.html