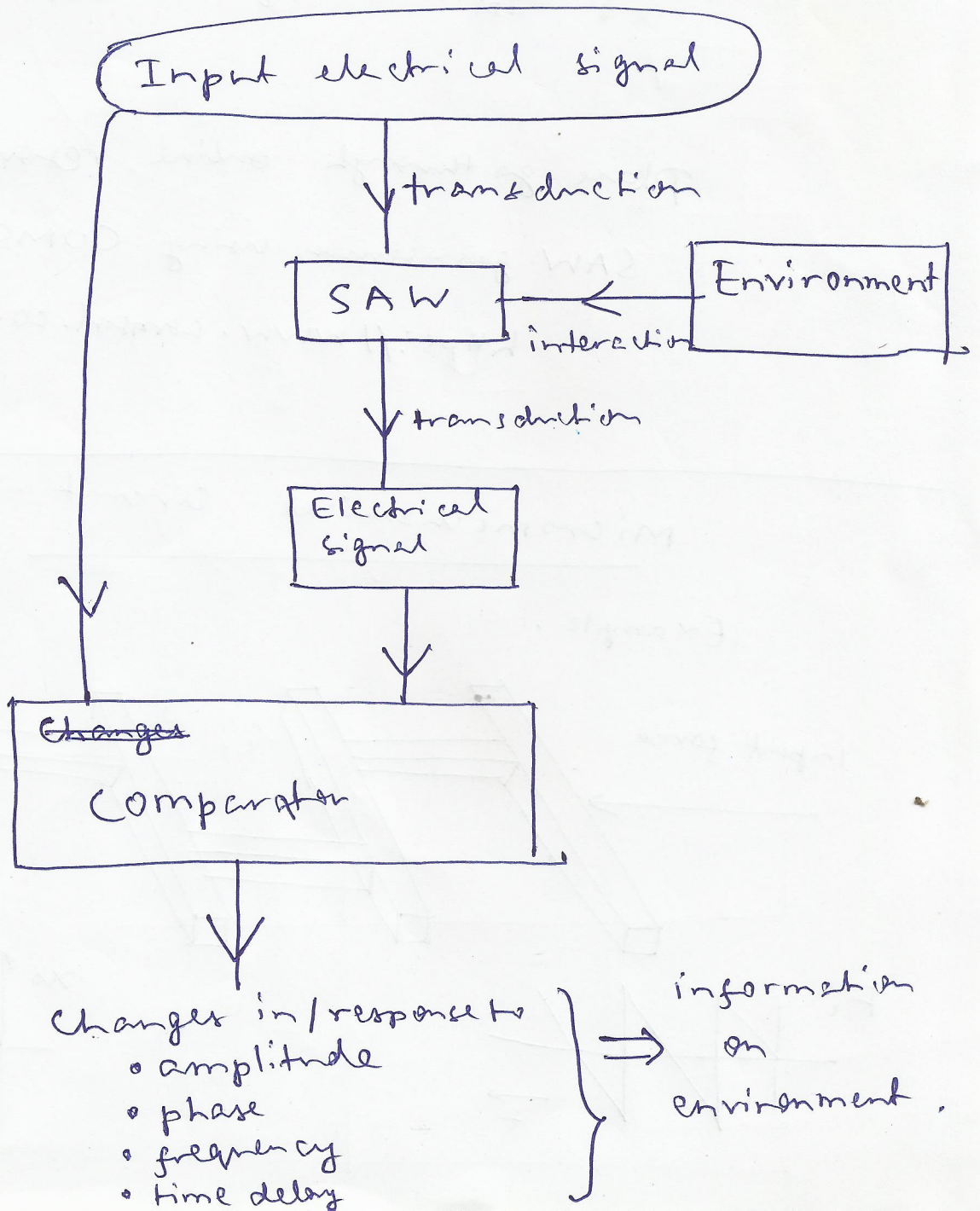


SAW sensors

Senses: P, Strain, torque, T, M, Chemical vapor, biological matter, Humidity, UV radiation, Viscosity, magnetic fields, etc.

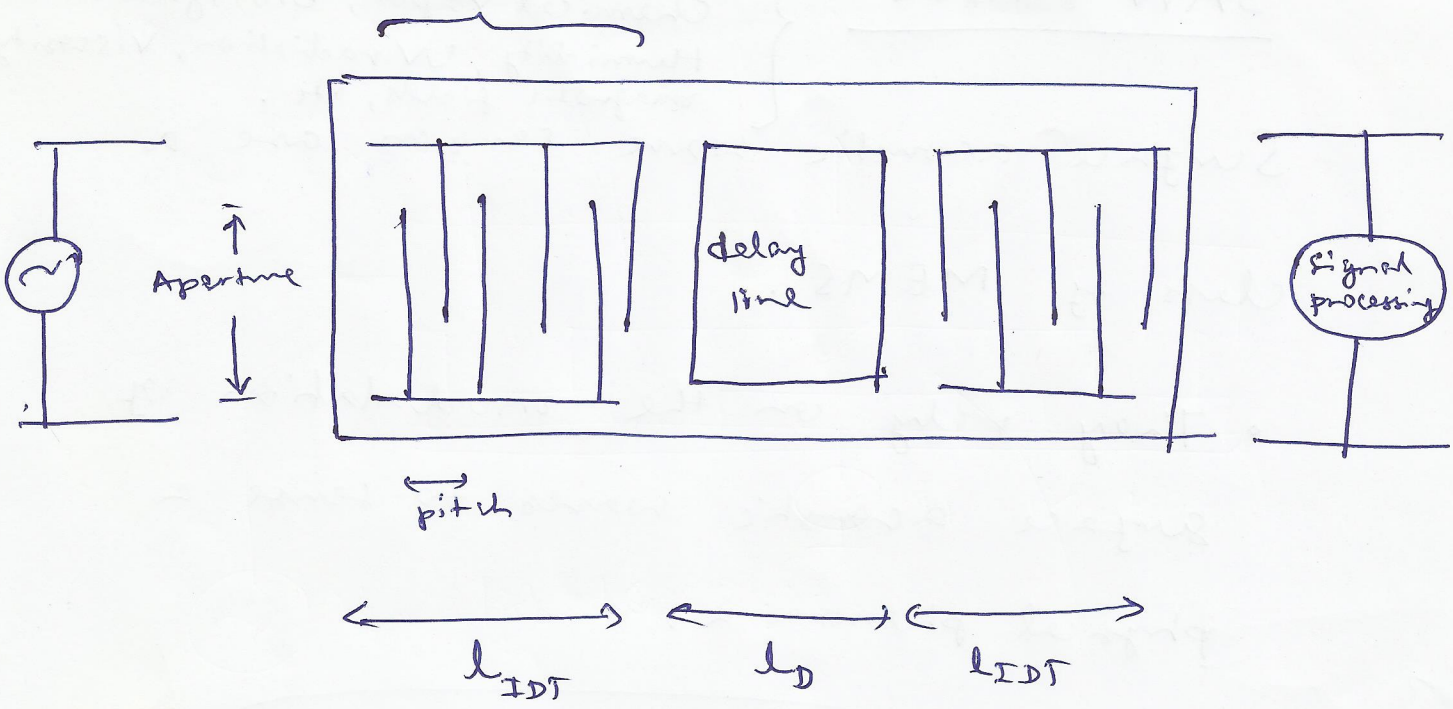
Surface acoustic wave sensors are a class of MEMS.

- They rely on the modulation of surface acoustic waves to sense a physical phenomena.



(inter digitated transducer)
 @ piezoelectric substrate

IDT

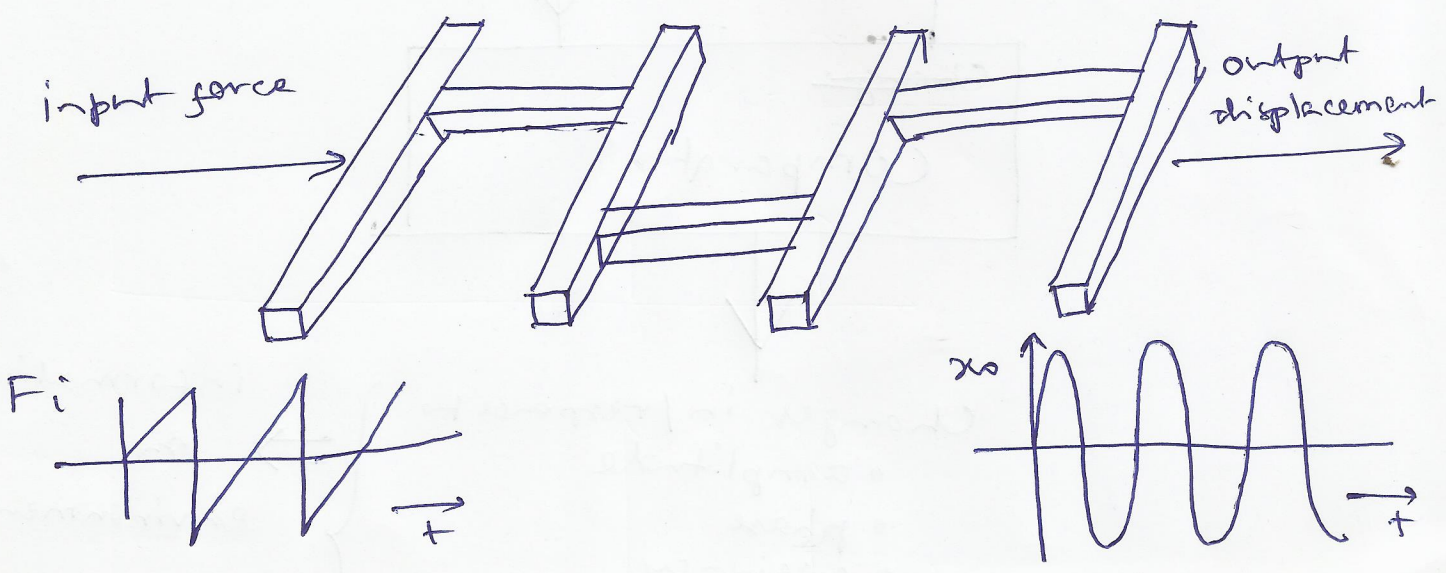


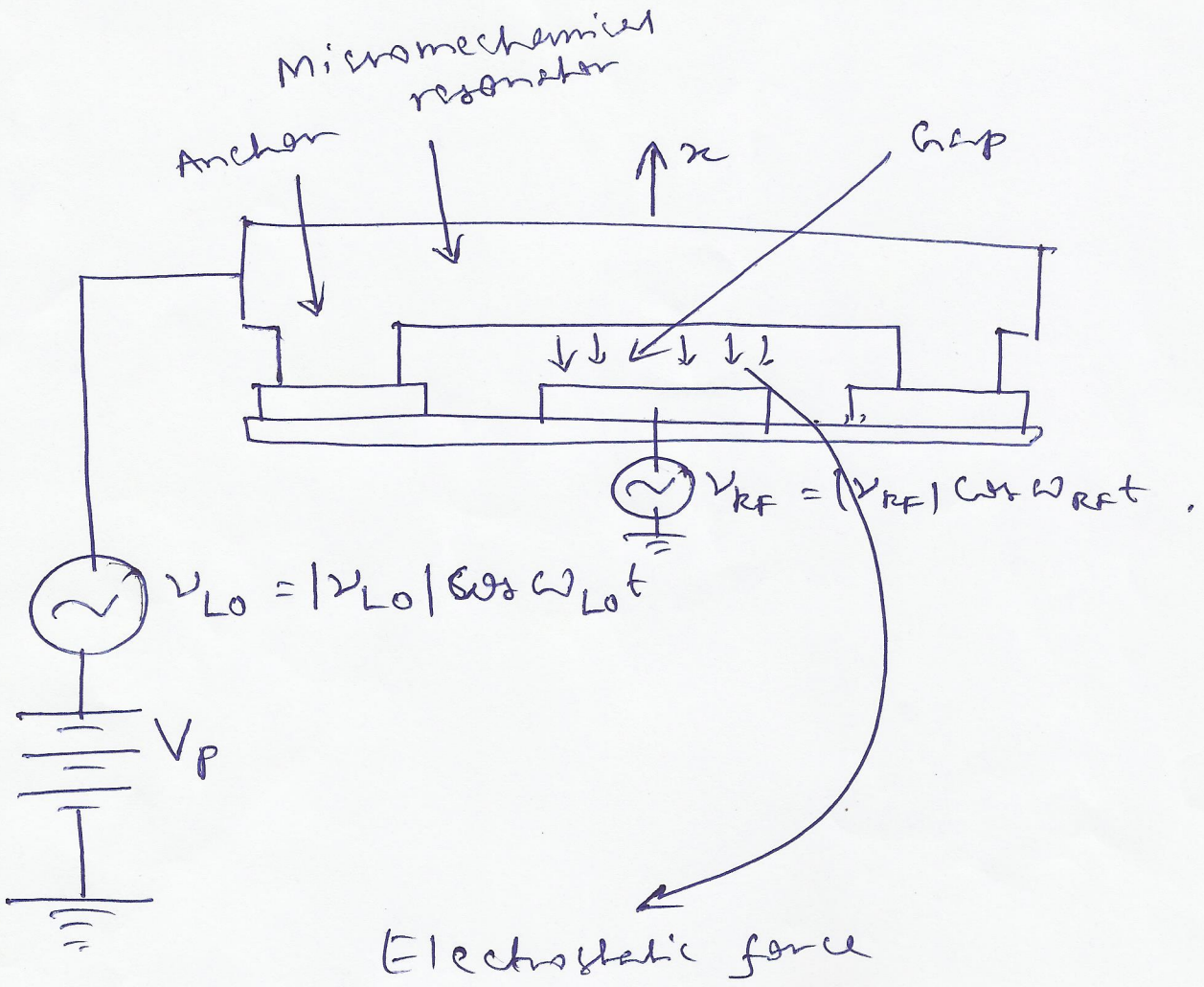
Please go through online resources on
 SAW gas-sensor using COMSOL™.

<https://www.comsol.co.in/saw-gas-sensor-2129>.

Micromechanical circuit.

Example.





$$F_i = -\frac{\partial U}{\partial x} = -\frac{\partial}{\partial x} \left(\frac{1}{2} C_{gap} V_{gap}^2 \right)$$

$$= -\frac{1}{2} (V_P + V_{LO} + V_{RF})^2 \frac{\partial C_{gap}}{\partial x}$$

