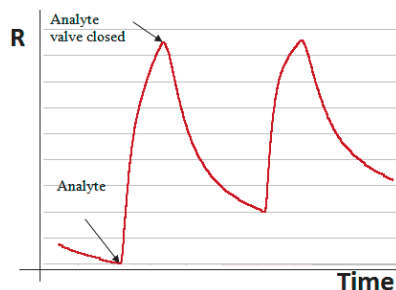
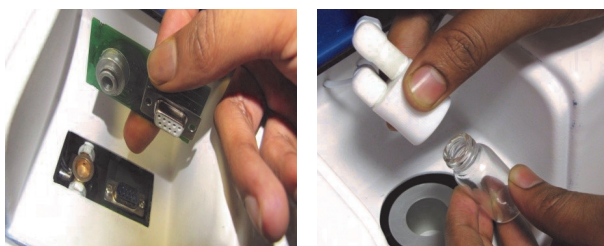


## NanoSniff's first-of-its-kind MEMS Research Platform

### OmniCant: To perform Experiments with MEMS Cantilevers

- A Piezoresistive MEMS Cantilever based Experimentation Platform for Vapour Phase Analysis of Volatile Organic Compounds and Gases
- It comprises an Analyte Chamber, a Detection Chamber, Mass Flow Controllers along with multi-channel real-time graphical display, data logging and PC software



### OmniCant: Working

- A Vial in the **Analyte Chamber** houses the target compound to be detected (as a liquid)
- This target solution is heated to generate its vapours
- There is a **Detection Chamber** where the **MEMS Cantilever** is housed.
- The surface of the Cantilever is **functionalized** with a compound having affinity for the target compound
- The vapours of the target compound are carried to the Detection Chamber using **Mass Flow Controllers** and a **Carrier Gas** (Nitrogen- as it is inert)
- Here, the MEMS Cantilever is **exposed** to the target vapours
- Due to the affinity between the target vapours and surface functionalized cantilever, physical adsorption/chemical binding takes place on the surface of the cantilever. This causes a change in **surface stress** leading to a **deflection** of the Cantilever. This nano-mechanical deflection leads to a **strain** in embedded **piezoresistor**, which in turn causes a change in the resistance of the Cantilever.
- Once the flow of target vapours is stopped, the cantilever goes back to its original state and its resistance returns to the original value
- This interaction between the Cantilever and the target vapours is seen real-time on the display as a plot of **Resistance v/s Time**