

Supporting cleantech Environment

The world's current population stands at more than seven billion and still growing. Earth's total resources, however, are only good for two billion people at current levels of demand. The way we are living uses two to three times more of the Earth's natural resources than what can be considered sustainable. And we are also polluting our planet. This is why it's so important to reduce both the depletion of our natural resources and the extent to which industry pollutes our precious environment.

McKEN is working to support the cleantech industry in its drive to monitor and improve the quality of our air, water, waste and soil—providing the industry with a number of cutting-edge technologies.

These technologies include innovative sensors and integrated systems. We're working on this in a number of different ways, including by developing electrochemical and optical sensing technologies, surface engineering approaches, and MEMS-based sensors—alone and in combination with ultra-low-power communication. Often integration is the key to a working solution.

In water quality monitoring, our projects have integrated state-of-the-art sensors into wireless sensor networks. We're also developing new, disposable, screen-printed sensors to detect pH, ions, heavy metals, bacteria, and other elements. We've created more robust MEMS-based sensors based on ion-sensitive field-effect transistors (ISFET) to be used—for example—in pH sensing. And we've proved we can develop tools for the online monitoring of oxidants such as chlorine or oxygen dissolved in water, and also of toxins. Our more recent cell-based sensing microsystems and nonporous layers can be used to measure pH, O₂, and CO₂. All our solutions put special emphasis on the self-calibration, self-cleaning, and stability of our sensors.

In air quality and gas monitoring, we're developing CO₂ sensors for demand-controlled ventilation, and integrated air quality sensors for energy-efficient environment control.

In soil monitoring, we're pursuing an ultra-low-power wireless sensor network that supports drip irrigation with controlled soil humidity in vineyards.

Many times, in the city that the garbage bins or dustbins placed at public places are overloaded. It creates unhygienic conditions for people. To avoid all such situations we are going to implement a project called IoT Based Smart Garbage and Waste Collection bins.