

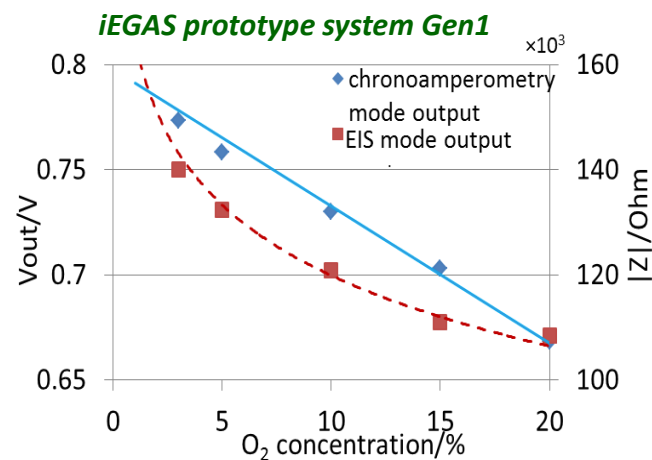
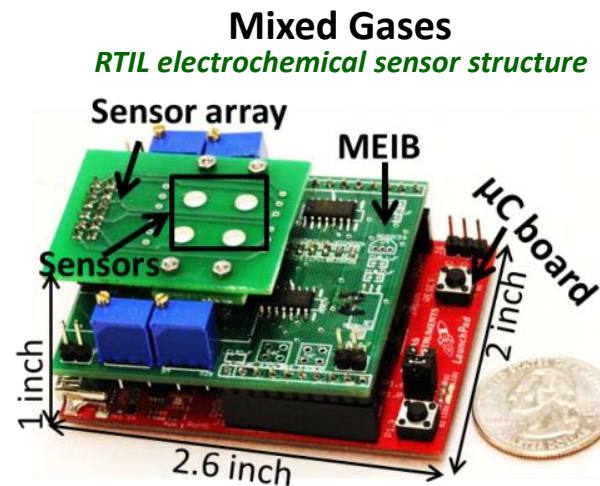
Wearable Autonomous Gas Sensor Array Microsystem for Real-Time Health Monitoring

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Goal: Develop a portable multi-gas monitoring device for individuals to constantly examine the surrounding environment. The device needs to (1) allow real-time data collection, (2) operate autonomously and continuously and (3) be cost-effective.

Results

- A 2x2 electrochemical gas sensor array was built featuring room temperature ionic-liquid (RTIL) interfaces
- Sensor array response was characterized for responses to CH_4 , SO_2 , N_2 and O_2
- A custom multi-mode electrochemical instrumentation board (MEIB) was tested in both chronoamperometry mode and EIS mode for an example O_2 target
- *intelligent electrochemical gas analysis system* (iEGAS) prototype was built to provide a platform for further miniaturization to develop a wearable multi-gas safety monitoring system



O_2 calibration curves for sensor array with the MEIB