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(54) Title: METHOD FOR A REFINED SCENT PROFILE DETECTION AND ANALYSIS OF A GAS MIXTURE

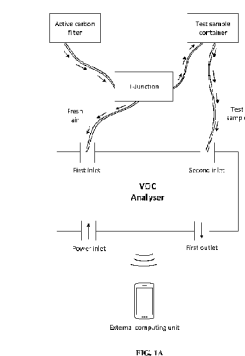


FIG. 1A

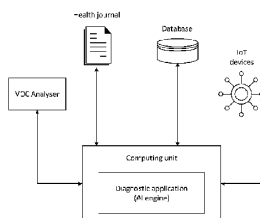


FIG. 1B

(57) Abstract: This invention relates to an advanced method for detecting and analyzing scent profiles using an intelligent gas sensor array system. The method involves acquiring an initial data set from a sensor array exposed to a gas mixture, followed by performing a coarse analysis to determine a superset of scent profiles, which includes various subset scent profiles within the gas mixture. Based on this preliminary analysis, a set of refinement parameters is established, leading to the adjustment of operational parameters of the sensor array. These parameters include sampling rate, duration of sensing, sensor selection, heating profile, and energy feed to selected sensors, which are tailored to enhance the specificity and accuracy of the subsequent analysis. The method further includes acquiring an expanded data set under these optimized conditions, allowing for a refined analysis of the gas mixture. This refined analysis is specifically designed to accurately identify the presence of target scent profiles, utilizing the enhanced sensitivity and specificity provided by the adjusted sensor array settings.

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