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Non-invasive device for the detection of lung cancer using exhaled breath

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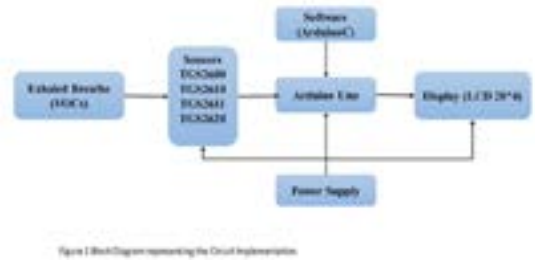
Statement of the Problem: The traditional way of diagnosing lung cancer are invasive, expensive and time consuming procedure. Lung cancer is one of the most popular type of cancer. It is a world threatening disease as symptoms usually don't appear until on a late stage of a patient life. The need for a rapid method of detection is highly needed in the world of oncology. This paper has focused on a non-invasive, cost effective and instant method of detection. The design of this detection device is based on analyzing some of the biomarkers that can be found in a human breath, known as volatile organic compounds (VOCs). This detection tool is comprised of face mask, microcontroller, TGS sensors and a display unit. Twenty-four subjects were selected from different categories (male/female and smokers/non-smoker). Twelve of them were normal while others were patients with lung cancer. There is a high relation between the high concentration of these VOCs and the presence of lung cancer in any human body.

This study has proved that biomarkers can detect the presence of lung cancer, and that the higher the concentration of the VOCs the higher the probability of lung cancer presence.



Recent Publications

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Biography

Ghadeer Majed is biomedical engineer graduate from Sudan from University of Medical Science and technology (UMST) with Honor degree first class in july-2018 and she was the first in this specialization and starting her career from sep-2018 as teacher assistance in the University Medical Science and technology (UMST). She take A+ in the graduation project "A Non-Invasive Device for Detecting the Lung Cancer Using the Exhaled Breath". She is a highly motivated and has the ability to adapting herself in different environments and has good knowledge in programming language. Her goal is to become a fully qualified biomedical engineer and continue developing her skills and gain working experience.

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