[18th, October, 2023]

Dear Editor:

I wish to submit a manuscript entitled "SENSING MECHANISM AND APPLICATION OF WEARABLE STRAIN SENSOR: A MINI-REVIEW" for publication in *FACTA UNIVERSITATIS Series: Mechanical Engineering.*

The burgeoning field of flexible and wearable devices, designed for seamless integration with the human body, has sparked substantial research interest across diverse applications. However, the majority of existing strain sensors, rooted in metals or semiconductors, face limitations when applied in wearable technology due to their inadequate sensitivity and stretchability. For sensors intended for attachment to the skin or joints, essential qualities encompass high stretchability, flexibility, durability, low power consumption, and biocompatibility.

Our study offers an extensive exploration into the potential of flexible strain sensors, primarily founded on advanced nanomaterials such as carbon nanotubes (CNTs), graphene, and metal nanowires (NWs). These nanomaterials exhibit exceptional flexibility, electrical conductivity, and mechanical properties, rendering them suitable for seamless integration within clothing or direct attachment to the skin, enabling real-time monitoring of a wide array of activities.

Yet, the primary challenge lies in achieving a delicate balance between high stretchability and sensitivity. This paper elucidates the fundamental principles underpinning strain sensors, facilitating the conversion of mechanical deformations into electrical signals. Furthermore, the focus of this work centers on straightforward, adaptable, and stretchable resistive and capacitive sensors, while delving into the pivotal factors involved in material selection and fabrication methods. A key emphasis is placed on the indispensable role played by compatible polymers in enhancing the performance of strain sensors.

With meticulous attention to detail, our study meticulously reviews the intricacies of fabrication processes, underlying mechanisms, sensor performance, and potential applications within the realm of stretchable strain sensors. An in-depth analysis scrutinizes vital aspects, including sensitivity, stretchability, linearity, response time, and durability, providing comprehensive insights into the current state and promising prospects of stretchable strain sensors, particularly in their role within wearable technology and human-machine interfaces.

This manuscript has not been published or presented elsewhere in part or in entirety and is not under consideration by another journal. We have read and understood your journal's policies, and we believe that neither the manuscript nor the study violates any of these.

Thank you for your consideration. I look forward to hearing from you.

Sincerely,

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