

Introduction

With the growing number of electronic devices and sensors in our daily life, the demand for energy is increasing, meaning a high cost of electricity and energy consumption. Therefore, green energy sources are needed to make the technology more sustainable and less impactful on the planet [1].

Triboelectric nanogenerators (TENG) are an exciting technology that can be used to harvest mechanical energy in low frequency vibrations as expressed by walking, typing, breathing and heart beating [2].

This makes TENG suitable for implementation in technologies such as health monitoring, self-power sensing platforms, robotics, and smart homes and cities [3].

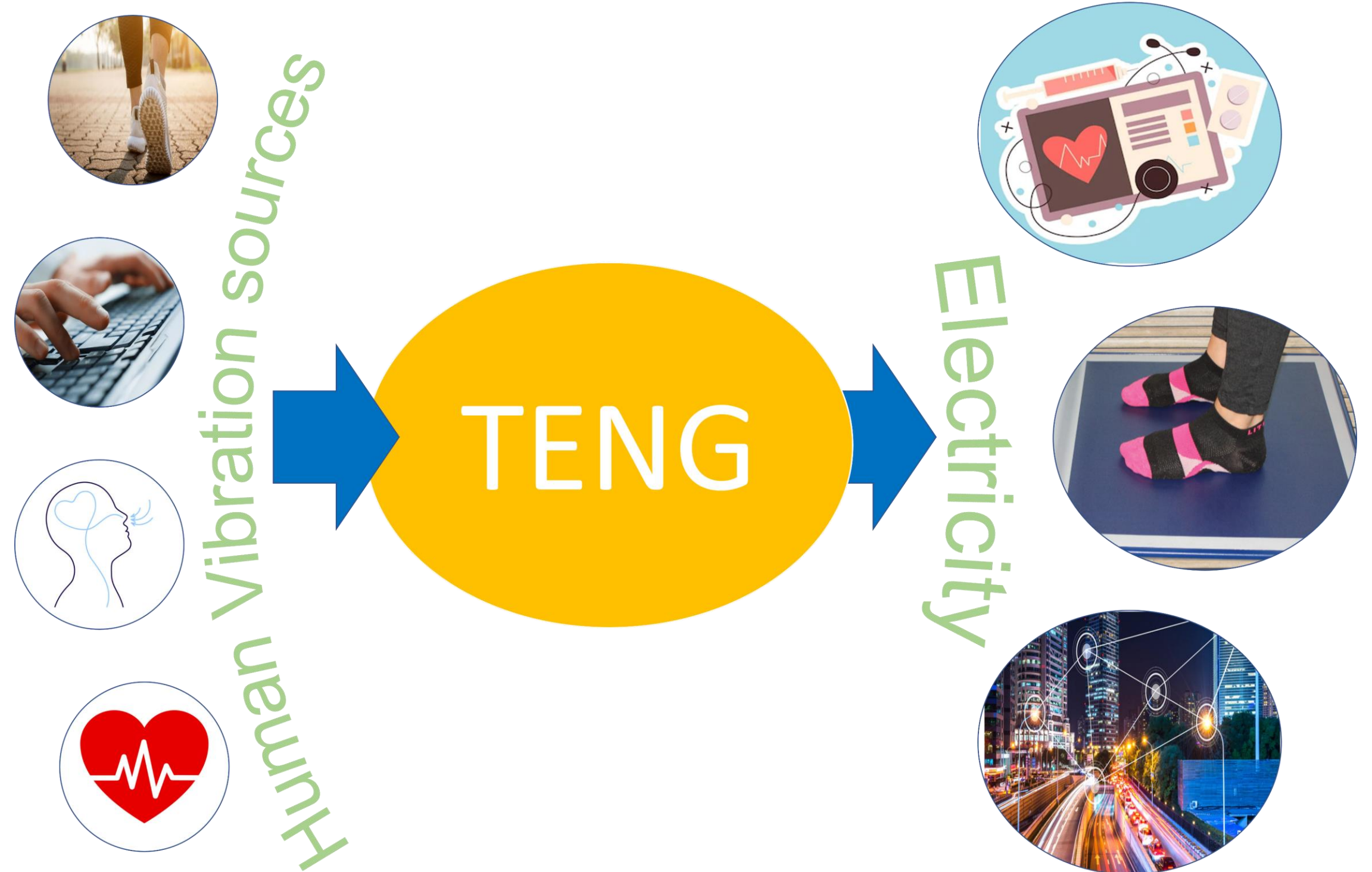


Figure 1: Diagram of TENG technology to harvest mechanical energy from human vibration sources to power systems

TENG design & output characteristics

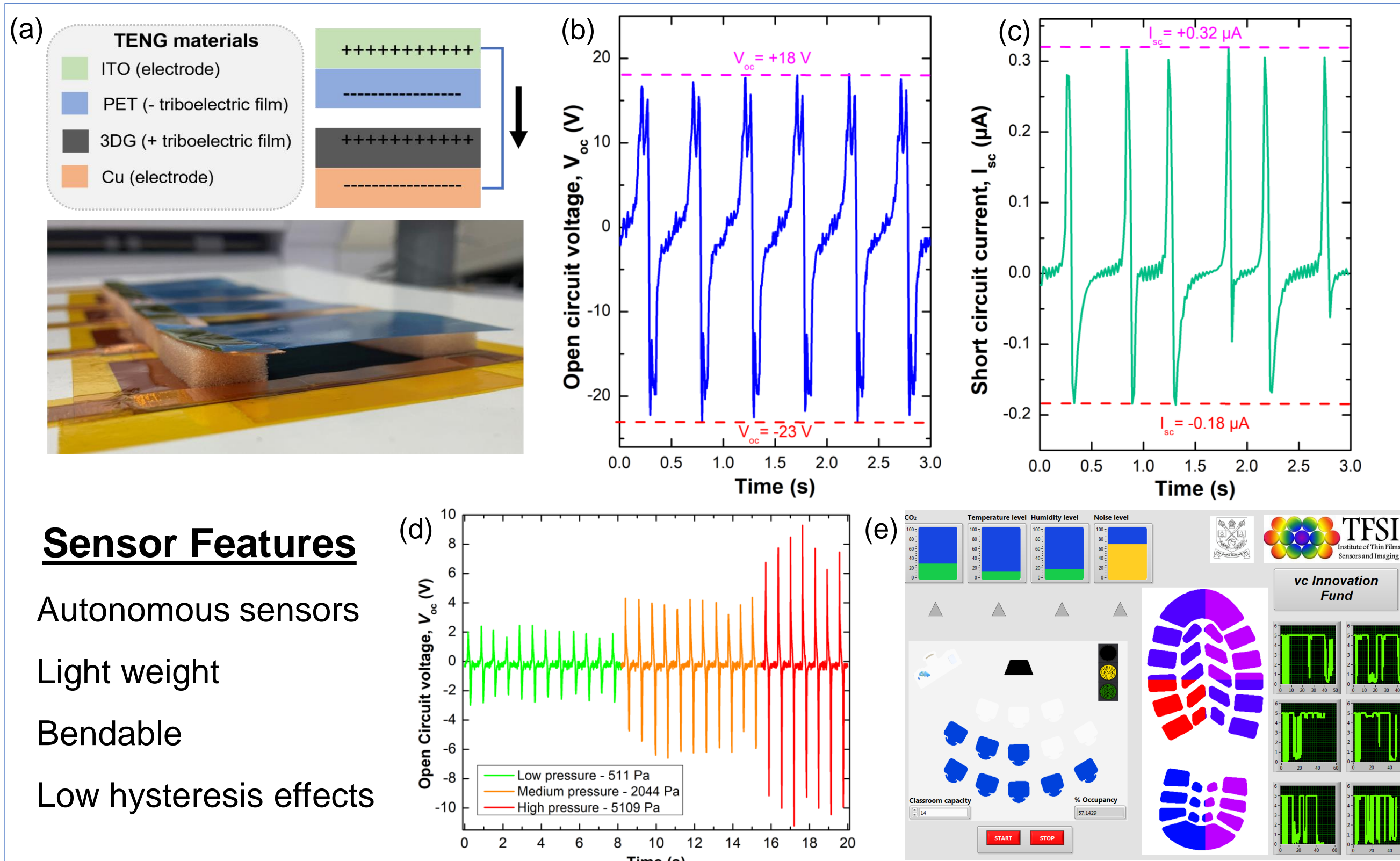
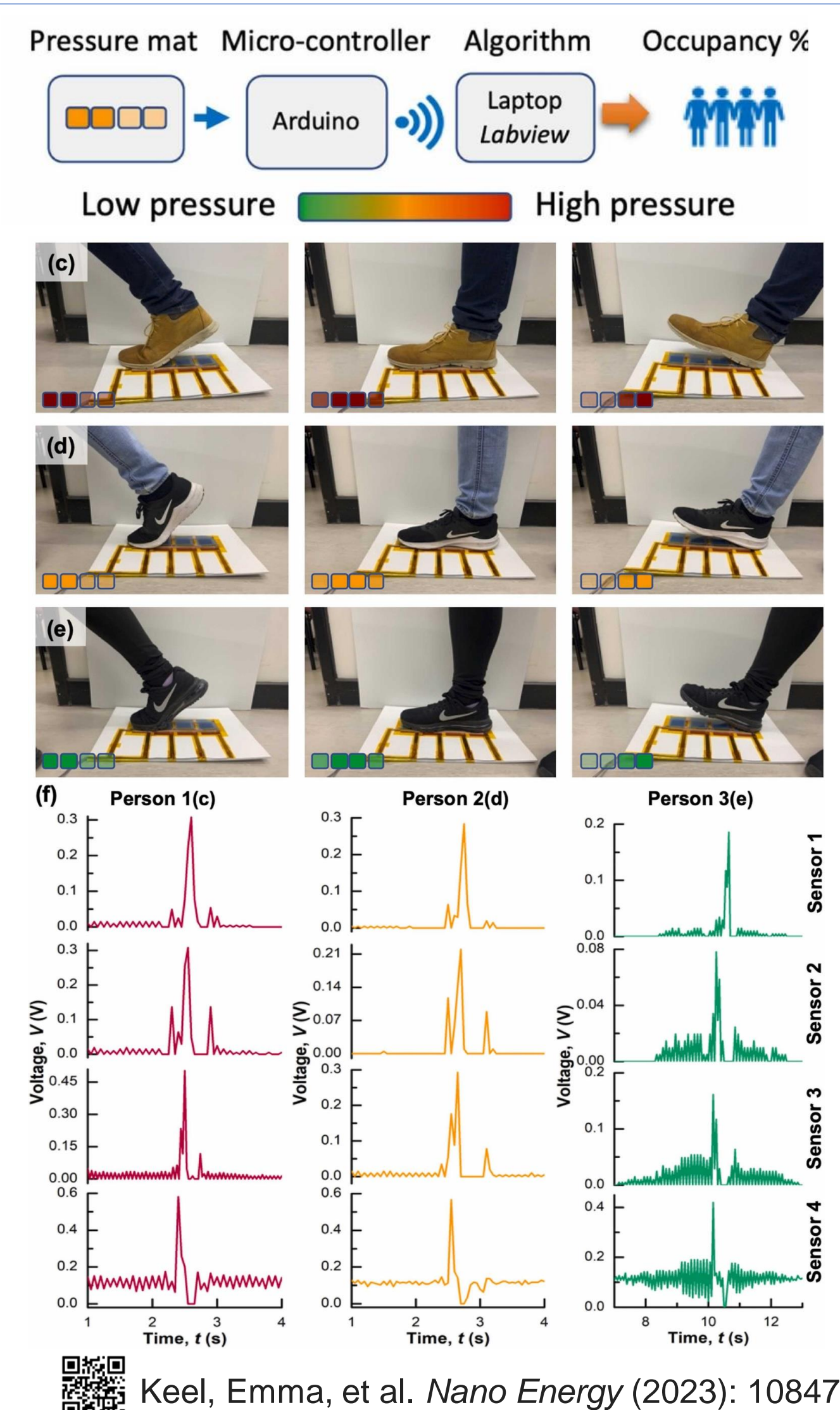


Figure 2: (a) Photograph and diagram of triboelectric sensor, (b) V_{oc} and (c) I_{sc} vs time, (d) Variation of pressure from sensor, (e) LabView system, shows results of sensors when pressure is applied.

References

1. Qiu, Chunkai, et al.. "Nano Energy 70 (2020): 104456.
2. Keel, Emma, et al. Nano Energy (2023): 108475.
3. García Nuñez, Carlos, et al. npj Flexible Electronics 3.1 (2019)

Self-powered TENG pressure mat

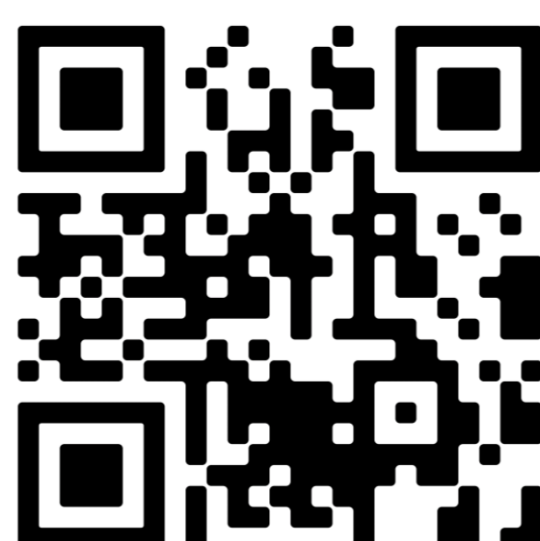


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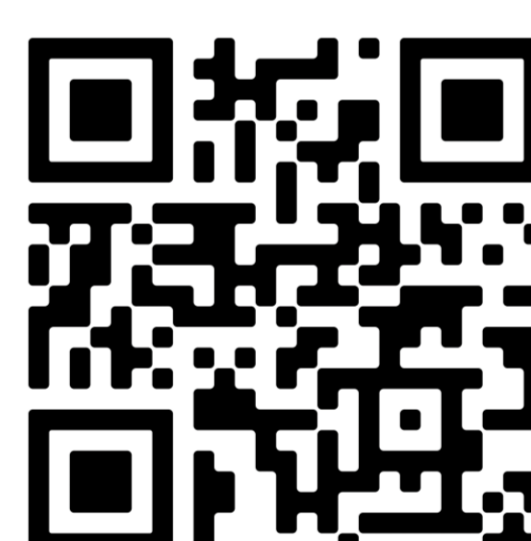
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