(6)3%. The characterization of the open-circuit voltage (VOC) is shown in FIG. 3b and the short-circuit current (ISC) is shown in FIG. 3c. In this case, a 12.5 wt% PEDOT:PSS solution shows the best performance of the six tested concentrations. Relevantly, FIG. 3 generally shows characterization of a PEDOT:PSS coated smart textile (i.e. functionalised fabric) under 6 different doped PEDOT:PSS concentrations: (1) 100% + double coating, (2)100%, (3)25%, (4)12.5%, (5)6%, (6)3% for which there is (a) a schematic diagram of a smart textile, (b) output voltage and (c) output current.

[054] While the sensory textile may comprise a single arch, in cases shown in FIGs. 2, 5, 7 and 10 the sensory textile forms two or more arches 208, the two or more arches 208 being attached to the substrate 204 between respective pairs of locations 206 of said at least two spaced apart locations - the two or more locations may also include locations between adjacent regions at which the sensory textile is spaced from the substrate (i.e. arches) such as at location 206a as shown in FIG. 5. In some embodiments, the sensory textile comprises two, or at least two, sensory textile portions attached to the substrate in a non-contacting arrangement - see, for example, FIG. 7a. Some embodiments may be configured to be worn on a finger, the spaced apart locations being on opposite sides of a knuckle of the finger. This enables flexion or bending, and the degree of flexion or bending, of the knuckle to be identified. Where two or more arches are provided on a single finger, the flexion or bending at multiple knuckles may be measured.

[055] **Energy Harvesting Using the Smart Textile**

[056] As discussed above, a smart textile based triboelectric nanogenerator (TENG) is as shown in FIG. 2a. The PEDOT:PSS functionalized textile works both as a triboelectric positive layer and electrode. The Polytetrafluoroethylene (PTFE) thin film is used to generate negative charges. Thus, current can flow between the textile and PTFE thin film.

[057] The textile can be attached at various locations on the human body - e.g. on the human palm - and the PTFE thin film may be fixed on a table, both the textile and film having a consistent size - e.g. 4cm x 4cm. A clapping or hand tapping frequency of 2Hz or 3Hz may then be measured. For illustration purposes, the output voltage collected from this tapping motion with a 100 MΩ probe is depicted in FIG. 4a. Relevantly, FIG. 4 shows the maximum output voltage for FIG. 4(a) hand tapping, FIG. 4(c) foot stepping, and output power under different loading resistance for FIG. 4(b) hand tapping, and FIG. 4(d) foot stepping. FIG. 4 also shows the charging curve for FIG. 4(e) hand tapping, and FIG. 4(f) foot stepping.

[058] The power curve under different loads of this textile based TENG is depicted in FIG. 4b for hand tapping motion. As shown, an average of 460V peak-to-peak voltage can be