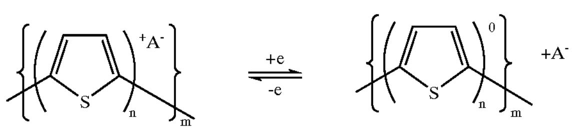
[0094] Similarly, a polymer strip with non-uniform conductivity along its length can increase the dynamic range of the sensor. By providing sections of the strip with different conductivity and therefore different operational ranges, the sensor can provide feedback over an extended range of extension in the underlying fabric.

[0095] **FIG. 7***a* is a diagrammatic representation of the sensor configured to monitor mechanical input in the form of a pressure P. The pressure P changes the conductivity of the fabric **25** by pressing its fibers closer together. This becomes the variable resistance segment of the wheatstone bridge arrangement **3**.

[0096] In a further refinement, a laminated structure shown in **FIG. 7***b* is used to monitor the pressure P. By sandwiching fabric **25** between two polymer layers **26** and **27** , the sensitivity of its conductivity to changes in pressure is increased. The conductivity of the polymer layers **26** and **27** is selected such that it is much higher than the fabric **25** so that it is the changes in resistance of the fabric which provide the threshold switch for triggering the feedback indication.

[0097] **FIG. 8** shows a form of the feedback device which provides the relevant feedback indication in the form of a colour change. The colour of some inherently conductive polymers such as polypyrroles, polythiophenes and polyanilines is highly dependent on the oxidation state of the polymer. The reduction or oxidation of the polymer can dramatically changes its UV-visible absorption characteristics. For polythiophene, the process is represented by the equation shown below:

(1)



[0098] As shown in **FIG. 8**, the polymer **28** is coated onto a support electrode **29**. One suitable electrode material is indium tin oxide. Between the electrodes **29** is a suitable electrolyte **30**, the coated electrodes **29** are connected to a voltage source **31** via the fabric strain sensor **32**. Changes in the resistance of the fabric strain sensor caused by the movement to be monitored will result in a corresponding change to the current through the circuit. This current change can be used to trigger the colour change in the polymer **28**. Hence, the colour change provides the user with an immediate and direct feedback indication of the threshold movement of interest.

[0099] The present invention has been described herein by way of example only. The various embodiments are entirely illustrative and in no way restrictive on the spirit and scope of the broad inventive concept. The findamental principles and background technology employed in various aspects of the present invention is comprehensively set out in the following references, which are incorporated herein by cross-reference:

[0100] 1. "Chemistry and Electrochemistry of Conducting Polymers: —A Handbook for Smart Materials Scientists" Wallace, G. G., Teasdale, P. R., Spinks, G., *Technomic Publ*. Co., Lancaster, 1997.

[0101] 2. Dressware:wearable hardware" D. DeRossi et al. —Materials Science and Engineering, 1999, C **7,31-35**

[0102] 3. "Conductive Textiles" R. V. Gregory et al -Synthetic Metals 1989,28, C823-C835

[0103] 4. "Characterisation and Application of polypyrrole coated Textiles"-H.Kuhn in Inherently Conducting Polymers:An Emeerging Technology. M.Aldissi (Ed).

[0104] Kluwer Publishers, 1993 p. 25

1. A feedback device for a structure, the device including:

electrically conductive fabric for establishing an electrical current path with an electrical impedance, such that mechanical input to the device causes a change to the electrical impedance;

a voltage source to cause current to flow along the current path; and

a sensor for detecting change in the electrical impedance of the current path and producing a feedback indication when mechanical input to the device occurs.

2. A feedback device according to claim 1, wherein the device is a biomechanical feedback device and the structure is a moveable biological structure.

3. A feedback device according to claim 1, wherein the structure is a piece of sporting equipment such as a racquet or a club.

4. A feedback device according to claim 2, wherein the electrically conductive fabric is an elastic fabric at least partially coated with an electrically conductive polymer material.

5. A feedback device according to claim 4, wherein the elastic fabric is formed for close fitting to the biological structure and movement therewith.

6. A feedback device according to claim 5, wherein the elastic fabric is a synthetic fabric such as that marketed under the trade mark "lycra™".

7. A feedback device according to claim 5, wherein the elastic fabric is a blend such as cotton lycra or wool lycra.

8. A feedback device according to claim 5, wherein the elastic fabric is wool or polyester.

9. A feedback device according to claim 5, wherein the electrically conductive fabric is a metallated fabric, carbon loaded fabric or other suitable fabric incorporating a flexible strain transducer element.

10. A feedback device according to claim 1, wherein the feedback indication is an audio signal.

11. A feedback device according to claim 1, wherein the indication is a vibration or other mechanical stimulus that is sensed by the user.

12. A feedback device according to claim 1, wherein the feedback indication is a change in colour of part of the sensor.

13. A feedback device according to claim 12, wherein the sensor includes a transport electrode coated with an inherently conductive polymer having a colour that is dependent on its oxidation state such that oxidation or reduction caused by current changes resulting from the mechanical input will produce a visible colour change.