

Test of Moisture Sensor Activation Speed

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Abstract : Nocturnal enuresis or bed-wetting is intermittent incontinence during sleep of children after age 5 that may precipitate wide range of behavioural and developmental problems. One of the non-pharmacological treatment methods is the use of a bed-wetting alarm system. In order to improve comfort conditions of nocturnal enuresis alarm system, modular moisture sensor should be replaced by a textile sensor. In this study behaviour and moisture detection speed of woven and sewn sensors were compared by analysing change in electrical resistance after solution (salt water) was dripped on sensor samples. Material of samples has different structure and yarn location, which affects solution detection rate. Sensor system circuit was designed and two sensor tests were performed: system activation test and false alarm test to determine the sensitivity of the system and activation threshold. Sewn sensor had better result in system's activation test - faster reaction, but woven sensor had better result in system's false alarm test - it was less sensitive to perspiration simulation. After experiments it was found that the optimum switching threshold is 3V in case of 5V input voltage, which provides protection against false alarms, for example - during intensive sweating.

Keywords : conductive yarns, moisture textile sensor, industry, material

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