Claims

1. A personal hygiene product with a digital element comprising:

a personal hygiene product having an axial length comprising an absorbent core in a form suitable for insertion into a user's body to absorb menstrual fluid;

a conductive sensor assembly disposed within the absorbent core including one or more moisture sensors disposed on a sensor substrate, each moisture sensor being located at a select position along the axial length of said personal hygiene product, each moisture sensor including a moisture sensitive switch connected to a resistor where a resistance value of the moisture sensitive switch is less than a resistance value of the resistor, said conductive sensor assembly generating a signal indicative of saturation level of said personal hygiene product when said conductive sensor assembly is in wetting contact with the menstrual fluid;

an external digital element coupled to said conductive sensor assembly including a substrate having a communication circuit capable of wireless communication with a smart hand held electronic device, a processor, a power source and a first mating connector;

a signal transmission conduit extending from said conductive sensor assembly and interconnecting said conductive sensor assembly to said external digital element at the first mating connector.

2. The product of Claim 1 wherein said conductive sensor assembly extends substantially the entire axial length of said personal hygiene product.

3. The product of Claim 1 wherein the one or more moisture sensitive switches include an interdigitated electrode structure connected to the resistor.

4. The product of claim 1 wherein said signal transmission conduit includes a magnetic connector and said external digital element includes a mating magnetic connector such that said external digital element is magnetically connected to said signal transmission conduit.

5. The product of claim 1 wherein the resistance of the resistors is between 1kΩ and 10kΩ.

6. The product of Claim 1 wherein the communication circuit is capable of low power blue tooth wireless communication with a smart hand held device, or near field wireless communication with a smart hand held device.

7. The product of Claim 6 wherein the smart hand held device comprises a hand held personal electronic device capable of interface with a user.

8. The product of Claim 7 wherein the smart hand held device includes a receiver and a software application.

9. The product of Claim 7 wherein the smart hand held device includes a software application capable of signaling or alerting a user-based quantified data received from said conductive sensor assembly.

10. The product of Claim 7 wherein the smart hand held device includes a software application capable of direct order and purchase of additional personal hygiene products through an internet-based consumer services.

11. The product of Claim 7 wherein the smart hand held device includes a software application capable of estimating order quantity based on historical data of bodily fluid discharge.

12. The product of Claim 7 wherein the smart hand held device includes a software application capable of predicting time and rate of bodily fluid discharge.

13. The personal hygiene product with a digital element of claim 1 wherein said signal transmission conduit includes conductive ink deposited on a flexible substrate.