

Wearable Technology of Soft Switch Application and Colour Changing Materials in Textile Industry

¹S.Monika ²Dr.P.Muthukumar

¹Research scholar, ²Assistant Professor, Department of Textile Engineering, Sastra University, Thanjavur

ABSTRACT

This paper speaks about the contribution of soft switching applications in textile industry using nanotechnology. The textile provides the ultimate flexibility using the fibers, yarn and fabrics. The new technology that incorporate the software into the software fabric clothes which will tend to some new innovations. Also this paper will focus about the advanced nano technology which will have some peculiar properties such as nano composite, nano finish and nano dyeing. The nano fabrics will provide the greater influence in the field of garments and textile industry.

KEY TERMS : Keyboard, MIDI, Wi-Fi.

INTRODUCTION

In the modern world there are various changes in the textiles. Changes in the textiles industry will become normal. Therefore to survive in this field we should give some new innovations rapidly in this field. Therefore the soft switching technology was introduced. This technology enables the textile to function as an interface between the fabric and the electronic devices. The flexible fabrics are used in the hard switch, keyboards, key pads and other electronic devices which has the touch sensitivity technology inbuilt in that device.

Normally the soft switch electronic devices are the insulators and it is a bad conductor of electricity. When pressure is applied to the fabrics the resistance will decrease until the fabric achieves the metal conductivity.

EXISTING SYSTEM

In the existing system there are no applications that were updated in the textile industries. The textile clothes are only used for the wearing purpose. It will also be used only for the temporary purpose. Only using the fabric clothes as such will not help for us in this emerging trend. Therefore the textile industry is decided to produce a vital change in this world by combining

with other technologies. And it will tend to produce the new technologies. But due to some factors the implementation process will not succeed as well in this modern technology. The implementation process will create many issues in that process. To rectify that issue they were supposed to embed with some other new technologies to create a new impact in the textile industry.

PROPOSED METHODOLOGY

In this proposed system the textile industry creates a new impact on the fabric clothes. In this emerging trend mobility is the fundamental factor of the many services. So in this paper the textile industry will be embedded with nanotechnology to create some new features in the fabric clothes. This paper tried to implement the soft switching application and new color changing material using the nanotechnology. The undergoing process will be made successful and create a new impact in this modern world.

Invention of Musical Dress

In this musical dress the keypad is attached with the fabric clothes and it turns into a fabric keypad. When the fabric keypad is touched it communicates through the fabric bus to the MIDI synthesizer which will generate the musical notes and it will be converted to the audio and sent to the speaker.



FIG 1: MUSICAL DRESS

This fabric musical dress will allow the wearer to not only play the individual notes but also to manipulate and compose more rhythmic music. Also these musical fabrics were inbuilt with the MP3 player which will include the ear piece to listen the music. The main intention of the textile industry is to change the passive element to the interactive elements to meet the rapid change in demands.



FIG 2: MUSICAL DRESS WITH MP3 PLAYER

Implementation of Smart shirt technology

In the smart shirt technology the sensor can be inbuilt in the fabric cloths which touch the desired location of the body. The data bus is integrated into the structure and transmits the information through the sensor to the multifunction processor which is known as smart shirt controller.

The controller process the signal and transmit them through the wireless medium via any communication protocol such as Bluetooth devices, GPRS, Wi-Fi etc., to the desired location like hospitals, police station and battle field.

The conductive network within the fabric will be designed to work in the concrete environment which has the soft switch and micro computers. The wearable electronic sensor will also incorporate fabric switches, fabric stretch sensor, fabric wiring, high sensitive fabric antennas and electroluminescent display.

The smart shirt technology seems to be the greatest thing for the medical monitoring system. The global positioning systems were compromise the wearer policy. This is used to gain the better understanding of the relationship between the vital signs and their behavioral patterns. Such medical monitoring system will create a new invention in telemedicine which plays a vital change in the economical development.

The heart beat rate, the respiration rate and the blood pressure will be measured by the commercial off the self sensor which will be plug in to the smart shirt. The data will be wirelessly transmitted to the personal computer and it will be maintained in the database server. The demonstration will be successfully realized by the wearable motherboard concept and it will be successfully implemented by the garments.

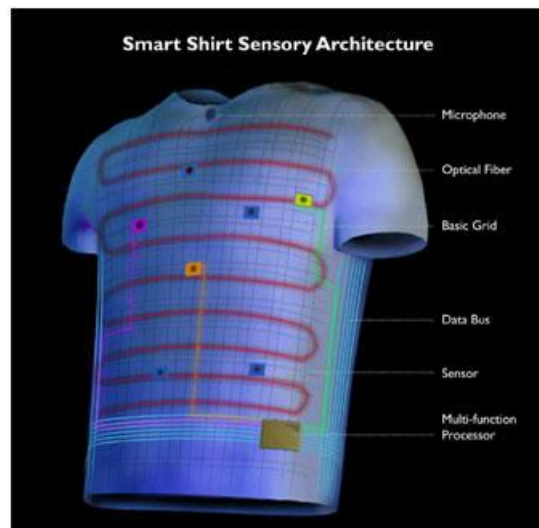


FIG 3: SMART SHIRT ARCHITECTURE

The sensors are integrated into the structures and the data buses that are flexible in nature are transmit the information through the multi function processor known as smart shirt controller. When the processor turns on the controller transmit the signals wirelessly to the desired location. This will transfer the information to the hospitals and other prescribed location. This will helps the patient to feel more secure and it will create the full potential in the smart shirt technology.

The color changing fabric cloths are made up of chromic materials they are also called as chameleon fibers, because these kinds of fibers can change their color of the fabrics according to the external conditions. The materials which are exposed to the ultra violet light will give the fluorescent color in the fabrics.

In the military uniform the micro electro mechanical systems (MEMS) sensor were attached this will sense the position of the soilders. When the soilders bend towards the horizontal position suddenly it will change it colour according to the colour according to the colour of the environment. This will helps the military soilders to hide from the enemies.

CONCLUSION

This paper provides the furnishing solution for the textile industry in the emerging world. The general platform for the sensor that monitor the smart shirt technology which opens the opportunities for the i-textile that can sense, feel, think and respond based on the condition of the user. Using that smart shirt technology this paper gives many medical remedial and it solve many issues in the field of textile industries. Also it gives the new solution of the military usages and prevents themselves from the enemies.

REFERENCES

- [1] T. Harper, “The Economic Impact of Nanotechnologies”, AsiaFutureTex Conference (collaborative effort between Cientifica Ltd. and the Textile and Fashion Federation of Singapore), Singapore, 20th October 2005.
- [2] Smith, William. “Metallized Fabrics-Techniques and Applications.” Journal of Coated Fabrics. Vol. 17. April 1988. Industrial Textile Associates. Greer, SC 29651.
- [3] SOFT switch, <http://www.softswitch.co.uk> (Accessed April 2003).
- [4]] S. Jayaraman, *J. Textile Inst.* 81 (2) (1990)p. 185.
- [5] S. Park and S. Jayaraman, *Atlanta Med.* 74 (4) (2001) p. 24.
- [6] “Musical Jacket Project,” www.media.mit.edu (accessed April 2003).
- [7] Kuhn, Hans and Andrew Child. “Electrically Conducting Textiles.” Handbook of Conducting Polymers. Ed. Terje Skotheim, and Ronald Elsenbaumer, and John Reynolds. 2nd ed. 1998.
- [8] Seyam, Abdelfattah. “Electrifying Opportunities.” *Textile World.* 30-33. February, 2003.
- [9] The Georgia Tech Wearable Motherboard: The Intelligent Garment for the 21st Century, <http://www.smartshirt.gatech.edu> (accessed April 2003).
- [10] C. Gopalsamy, S. Park, R. Rajamanickam, and S. Jayaraman, *J. Virtual Reality* 4 (1999) p. 152.