



INTERACTIVE ELECTRONIC TEXTILE DEVELOPMENT: *A Review of Technologies*

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ABSTRACT

Electronics may soon be integrated into textiles in our near environment. These "Interactive Electronic Textiles" (IETs) will benefit many traditional textile applications. Firms that understand how to incorporate emerging IET technologies into their new product strategies will establish and sustain financial and competitive advantages. Currently, product development practitioners and academic researchers are investigating multiple technologies for their potential in IET development. This research explored the emerging area of IETs by examining the potential supporting technologies including their strengths and limitations.

KEYWORDS: Electronic textiles, smart fabrics, smart clothes, wearable computing, interactive textiles

INTRODUCTION

The electronics that facilitate our daily pursuits and interactions may soon be integrated into the textiles in all areas of our near environment. These "Interactive Electronic Textiles" (IETs) may find niches in many traditional textile applications. Opportunities exist for IETs in fashion and industrial apparel, residential and commercial interior, military, medical and industrial textile markets. IETs are being developed for communication, entertainment, health and safety. IET technologies may one day integrate multiple electronic devices directly into textile and apparel products using shared resources increasing the mobility, comfort, and convenience of such devices (Heerden, Mama, & Eves, 1999). For example, communication devices may be integrated

into products such as the garments in Figures 1 and 2 (Softswitch, 2001; Philips,



Figure 1: Integrated Textile Keypad (Softswitch, 2001)

2001). Integrated compact disk players, MP3 players, electronic game panels, digital cameras and video devices, and interactive club apparel that changes colors with the beat of the music are all being developed (Heerden et. al., 1999). Textile keypads on