

Super Human Wardrobe – An Innovative & State of the Art Concept for Smart Clothing

¹Yamini Jhanji

¹Assistant Professor, TIT & S Bhiwani
E-mail: yjhanji@gmail.com

Abstract—Smart clothing also referred to as high tech garments have been gaining prominence in recent times among fashion conscious and tech savvy consumers. End users no longer adorn apparels and accessories as a mere means of self-adornment and display of social stature but are entranced and fascinated by the clothing that can act as health monitoring device, play music, change colors, can light up and even get connected to smart phone and can give directions during driving. Accordingly, the textile world has been taken by stride by some brain storming innovations and smart technologies which could earlier be perceived as a work of fiction and fairy tale. Super human wardrobe is one such forte of smart clothing that are designed taking inspiration from superheroes. Superheroes have enhanced senses, the ability to camouflage themselves, fly to air at great speed or project energy bolts. However, the super human is bruce without his costume and all his toys, making them distinctive and unique. Super human wardrobes are being designed focusing on comfort, dexterity, protection to wearer in addition to some larger than life unique innovations which make this clothing distinct from the staple, conventional apparels and accessories. The superhero's wardrobe is form-fitting, shape-shifting and enhanced with communications technology. The garments are indestructible with an armour like protection. Technology laced and integrated super modern aimed at reproducing some superhuman abilities is a perfect amalgamation of fashion and technology.

1. INTRODUCTION

Super human wardrobe aims at enhancing intellectual and psychological well-being. Designing of these smart categories of clothing take inspiration from larger than life fictitious characters, sportswear and military wear. Superheroes have enhanced senses, the ability to camouflage themselves, fly in air at great speed or project energy bolts. However, superheroes seem to be bruce and ineffective with their distinct, trademark wardrobe and complimentary accessories. The superhero's wardrobe is form-fitting, shape-shifting and enhanced with communications technology. The garments are indestructible very much like soft and hard armours used for bullet protection. Those attributes though can now be produced by technology, integrated into garments and this allows fashion to reproduce some superhuman abilities. Thus, it can be rightly stated this new innovative class of smart textiles is a perfect blend of technology integrated with aesthetic and fashionable appeal. The power

and superhuman talents of such larger than life characters and personalities inspire designers, such as Golce & Gabbana and their Spring/Summer 2007 collection that featured strong silhouettes and tough materials and polished-metal pieces, for their design creations. Furthermore, technologists are also following the league by designing innovative sportswear and swimwear designs.

2. SUPER MODERN WARDROBE FOR PROTECTION & WELL BEING

The stature of super modern wardrobe is not merely confined to aesthetic appeal however; they can serve as protective shell and associated with general well-being of individuals.

One such example is a jacket that protects women from assailants. It creates a powerful but non-lethal 80,000-volt shock. The wearer is protected by the inner layer of the jacket while the assailant experiences a painful shock, disorientation, and loss of balance.

Protective clothing has been extensively used against various hazardous, external elements. In the past metallic fibers, polymeric materials and padded surfaces clothing was restricted to fortified fashion rather than comfortable clothing which impaired the mobility of the wearer. Protective clothing has experienced several innovations focusing primarily on wearer's comfort and dexterity. Lightweight, resilient synthetic fibres like Kevlar in conjunction with spectra and UHMPE are preferred choice for bullet-resistant vests, and Twaron, fiber currently used in automobile, sport, and aerospace, are the future.

The biomimicry becomes established as an area of innovation and creativeness as it offers a wider understanding of nature's shielding processes so as to create protective class of garments and accessories.

Nanoscale is yet another innovative technology for design and development of protective textiles against bullets, punches and knife slashes. Nanoparticles of such metals as iron can be controlled with magnets to create garments. The magnet changes the textile's properties and makes it from a soft-textured material to rigid matter and protects the wearer. If the

magnetic field, which is controlled by the wearer, is reduced, the garment returns to its labile shape almost instantly. The project is still in its experimental phase and substantial brainstorming is demanded if this class of garments need to be commercialized. Smart garment industry is highly profitable proposition in the B2B world. Projects like Google and Levi's Project Jacquard, are proactively involved in the designing of commuter jackets which serve as GPS and can connect phone with jacket cuffs, proving that the future of fashion lies in the smart garments.

3. SUPER MODERN WARDROBE SIMULATING LARGER THAN LIFE HEROISM OF SUPERHEROES

The fantasy to possess heroic and supernatural powers of our iconic superheroes have paved the way for incorporation of such technologies in garments which make it possible for the wearer to even soar through the sky Superman-style by using Atair Aerospace's flexible wingsuit.

The futuristic aircraft is designed with advanced aerospace composite materials which promises of being extra light weight and resilient which can simply be worn as backpack. The high-tech garment permits skydivers to fly to a target miles away from the drop point. AeroSuits are considered as a big landmark owing to the flying ability exhibited by the former. The future belongs to these technologies whereby it is proposed to develop engine even further, so that it becomes more powerful and allow the wearer to lift off like a rocket, resembling a superhero taking flight.

Even though there are no garments so far developed to enhance human power and make us stronger, so-called 'smart' garments are an important part of the superhero suit. A T-shirt that can 'see' and 'smell' on behalf of wearer and enhance the senses is no longer a work of fiction and is being engineered and experimented with. This application can be crucial for chemical industry, allowing the workers to find leaking gases, toxins and prevent harmful situations of happening. 'Smart' object will be of great help to blind people as well by warning them of approaching objects.

Fashion designers are becoming the creator of fictional superheroes. However, their garments will be worn by real people in real situations. The most recent superhuman designs were the EMEL + ARIS, who make beautifully tailored Smart Coats that use FIR heat energy absorbed by the skin. Accessory industry is no far off and has been following smart ways of developing innovative accessories. High-end luxury 3D printed jewellery made by Banneya is designed taking inspiration from wonder woman's style.

Limitations in clothing faced by consumers in present times will become a thing of the past. Forthcoming fashions integrated with technology will change the future dramatically. Fashion is believed to become more aligned with humanistic values and personal achievements as

more and more innovative technologies are exploited for design and development of fashion merchandise. Wearable technology is an indispensable part of the future of fashion as it will provide wearers with the opportunity to monitor their well-being and health related issues, physiological parameters and personal happiness.



Figure 1. Designing super modern apparels taking inspiration from superheroes

4. SUPER MODERN WARDROBE INCORPORATING MODULAR & CAMOUFLAGE FEATURES

Modular system of designing apparels is also an emerging area in super modern attires. The system relies on separate units as skirt, trouser, shirts, jumper, jackets and coats that can be arranged and assembled according to needs of an individual. Separates give individual the versatility and satisfaction of dressing once for the entire day. A five piece system of interchangeable wool jersey constituting low back halter, a covered upper torso –top, a long skirt, a short skirt and culottes was designed using modular technology and was very much in trend in late fifties emphasising the fact that the roots of these technologies lie in our rich past.

Designers often play with colours to come up with an array of product mix and range in sync with occasion and season. This design element can further be used as additional protection against physical and psychological hazards. The concept is particularly apt for warfare conditions where army personnels need to be vigilant of any unprecedented enemy attack. The millitary wear is designed so as to ensure that the clothing very closely resembles the surrounding environment like green forest, sand dunes etc , providing camouflage so as to deceive the enemies of their proximity. Natural tones like greens, black , brown are generally used. Many designers use a colour palette inspired by different types of buildings- the white of stucco (plaster used for coating wall surfaces), the reddish brown of brick, the grey of concrete and so on and so forth.

The word camouflage refers to deceptive concealment and found its practical utility in hunting. The hunters clad themselves in skin, feathers or foliage to disguise their presence until they were close enough to fling a spear or shoot at arrow to their pray. Pattern camouflage emerged during the first world war commonly referred as disruptive pattern camouflage which uses the art of printing and painting to disguise soldiers and equipment. Camouflage pattern exits

for both woodland and built up areas, mountains as well as snowy terrain, desert and even under water, colour ways can vary depending on the time of year as well the time of day. The technology is extensively used for designing of super modern wardrobe borrowing the concept from hunters and military wear.

5. SUPER MODERN WARDROBE WITH ENHANCED MOBILITY & SERVING AS HABITAT

The prime requirement of smart clothing is level of comfort and mobility for the wearer. Designers of super modern clothing are responding to the travel needs of men and women with garments that promote comfort and manoeuvrability. Travel pillow jacket with an inflatable cushion collar, an eye mask and ear plugs, which the American luggage label Samsonite introduced as part of its Blacklabel ‘Travel Wear’ collection. Philips-Levi’s introduced the ‘storage jacket’ in its spring/summer collection 2001 ICD+ inspired by couriers.

The jacket folds away into a bag that is worn over the shoulder, like a courier bag with the pockets on the outside so that the components can still be accessed.

Another technique adopted to facilitate bodily movement within space and society is that of pleating.

Refuge Wear pieces are transformable; they can separate to create two parts – a jacket and transport bag – or they have zipper systems that create mobile forms – from a sleeping bag to trousers.

The supporting aluminum structures are lightweight and telescopic so that the architecture can effectively ‘pop up’.

The transformation from shelter to clothing is fundamental to the notions of freedom of movement and freedom of choice, and the creation of new relationships and new cultural exchange – ‘Homo Mobilis’.



Figure 3- Mobile cocoons & habitat inspired smart clothing.

References

- [1] Bolton, A., *The Supermodern Wardrobe*, V& A Publications, June 2002, pp. 20-28.
- [2] Seymour, S., *Fashionable Technology*, 2002, 15-32
- [3] Seymour, S., *Functional Aesthetics*, 2008, 22-35



Figure 2- Super modern wardrobe using modular & camo flauge technology.