STORM SYSTEM: WEARABLE SHELTER FOR THE ALPHA TIME ERA

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ABSTRACT

In this environmentally and demographically complex start to a post-industrial millennium, it is urgent to reflect on the transformations that occur from the interaction between individuals, the city they inhabit, its surroundings and protection conditions. STORM SYSTEM, developed by Miguel Rios Design, responds to the question of a first individual nomad clothing protection against weather adversities.

Today's population growth forces a reorganisation of space, in a variety of contexts that individuals face on large urban surfaces, as well as an interiorisation of the impacts resulting from behavioural changes. An unbearable logistic and environmental excess is therefore propagated (and vice versa), favouring unlikely scenarios of human coexistence. Pollution and adverse weather conditions hamper natural and urban ecosystems, resulting in a greater immediate instability of individuals *per se* and the collectives they form. Thus new logistic, habitation and protection needs arise, which require the evaluation of a new living context for the human being. These needs catalyse crucial contextual design thinking regarding its ability to respond appropriately to the new global habitat. The territory and the context establish the parameters for the combined intervention of design and technology. Similar to a prosthetic exoskeleton, STORM SYSTEM not only comprises the necessary formal characteristics, but also the symbolic essence we crave today. In its relationship with the human form, STORM SYSTEM is yet another prelude to the era of the redesigned man, a kind of hybrid between the organic and technology, and consequently, with its identity necessarily altered.

Keywords: product design; technology integration; social identity; human protection; environmental changes

INTRODUCTION

DESIGN AND TECHNOLOGY WITHIN THE DESIGN PROJECT

Various models currently connect Design and Technology. So it is not difficult to identify examples of the application and achievements of these two disciplines in the objects that surround us: the Microlattice material by HRL Laboratories, a Smartphone or an item of sports clothing for high level completion.

We do not normally realise it, but we do in fact depend on this symbiosis. We almost consciously ignore the impact of technology on our daily lives, and its consequences are still being assessed. Moreover, as designers, we use available tools and solutions in favour of a better quality of the processes and solutions we envisage, within the contexts we create.

Pondering the motivation and impacts of these results originated the STORM SYSTEM project. It transposes the realm of the object, in addition to being a **statement** and a **call for action**. In other words, **the integration and interaction of technology and the actual design project will condition and restructure the appearance of the human body – the beginning of a new identity, and will elevate STORM SYSTEM to a leading role in a predictably adverse socio-environmental context.**

SCENARIO: ALPHA TIME

"The fact remains that it has no walls, no ceilings, no floors: it has nothing that makes it seem a city, except the water pipes that rise vertically where the houses should be and spread horizontally where the floors should be: a forest of pipes that end in taps, showers, spouts, overflows. Against the sky a lavabo's white stand out, or bathtub, or some other porcelain, like late fruit still hanging from the boughs. You would think the plumbers had finished their job and gone away before the brick-layers arrived; or else their hydraulic systems, indestructible, had survived a catastrophe, an earthquake, or the corrosion of termites."

in Le Città Invisibili, Italo Calvino (Calvino, 1972)

Figure 1 - Robinson industrial company, Portalegre, Portugal, 2009. Photo: J. Biscainho (© J. Biscaínho)

The context of this project can be a post-civilisation era.

Post-urban landscapes, ravaged by adverse weather conditions, are proof of technical achievements that at the height of their glory perished into oblivion, becoming inanimate nature. Forests of steel, dense and sterile, doomed to witness intentionally absent men drifting. They are primates of the unique civilisation forged at some point in time, which we call Alpha[1] Time, confining them to a blind acceptance of reality.

So, in this confrontation between our time and Alpha Time, there are mirrors that show Man a civilisational reflection of himself. The new primates are introduced to the memory of the space they inhabit, with the memory of their own condition. It is within this historic perspective that STORM SYSTEM emerges, as a design object.

BACKGROUND AND CONTEXT

The author heads Miguel Rios Design | MR¯D, whose core business is design, and fosters regular partnerships with a variety of artistic, commercial and entrepreneurial sectors. These partnerships are highly important for technology-based projects and are supported by strong collaboration with several specialised technological centres, such as CITEVE – Technological Centre for the Textile and Clothing Industries of Portugal; CeNTI – Centre for Nanotechnology and Smart Materials; or FCT | UNL - Faculty of Science and Technology of the Universidade Nova de Lisboa. Miguel Rios therefore encourages a philosophy of rigour and simplicity in processes and methodologies, which manifests as an increase in levels of creativity, combined with the logic of the objects and their functions.

Accordingly, the author defines his work through collaborations, as well as the constant search for new concepts and technical innovation. Of equal importance is the creation of projects that transcend a first, more disruptive phase on a technical and conceptual level, to give way to innovative solutions that are more in tune with the market reality.

Miguel Rios is motivated by the desire to understand phenomena resulting from the transformation we are collectively and individually facing, and the urgency of responding to these new challenges. He has positioned himself at the crossroads of design practice and the contextual analysis of civilisation's modus operandi. In his work, the interaction of design and technology provides a response to the new challenges of urban contemporaneity.

His portfolio includes several projects in which new technologies are an integral part of the product, both in terms of materials used and in terms of incorporating technological devices into clothing, thus creating new properties and functions.

[1] Alpha Time is a scenario envisaged by the author. It is defined as temporal ambiguity.

LITERATURE, THEORY AND STATE OF THE ART

"We are now faced with the fact, my friends, that tomorrow is today. We are confronted with the fierce urgency of now."

Martin Luther King Jr, "Beyond Vietnam" (Address delivered to the Clergy and Laymen Concerned about Vietnam, at Riverside Church, 4 April 1967, New York) *in* "An Inconvenient Truth", 31 May 2006

In a general but essential way, Miguel Rios references the work of two artists in defining the preliminary phase of the STORM SYSTEM project. They have been influential in terms of their ideals, the results they have achieved and the doors they have opened for new developments. They are: Stelarc, a cybernetic, electronic performance and body art artist (together with Brazilian artist Eduardo Kac), whose work focuses on extending the capabilities of the human body; and Lucy Orta, a designer and visual artist who links architecture to fashion design, social awareness and activism.

Figure 2 - Stelarc Remote Gestures / Obsolete Desires: Event for Scanning Robot – Edge Biennale London – 1992. Photo: M. Burton (© Stelarc)

Regarding the transformation of the human body and its relationship with technology, Stelarc questions this very body. He views it as a not particularly efficient or resistant structure, which in itself is not an appropriate biological form. This artist does not view the body as a subject, but rather as an object whose architecture can be modified to adapt and expand its knowledge of the world. Just as Stelarc's work is a vital reference for this project, in which Miguel Rios also perceives it as a statement for his thought process, Donna Haraway is equally influential as she claims that "at the center of my ironic faith, my blasphemy, is the image of the cyborg" (Haraway 1991).

Likewise, it is important to mention the work of Lucy Orta. In her Refuge Wear project, and since 1992, Orta has systematically anticipated issues pertaining to the environment, emerging urban problems and natural disasters. Her work aims to capture the attention of an audience that participates in social work, and to create an ethical framework for social development and assistance, by exploring the boundaries between the body, clothing, architecture and the environment (Orta 1996).

Figure 3 – Refuge Wear Intervention London East End - 1998. Photo: Lucy Orta, (© Lucy Orta)

It is clear that these kinds of practices embody the collective conscience that is repeatedly generated by these issues, with which the author identifies. This type of conceptual and project-based approaches is critical for establishing a context of action as a catalyst for change. The crisis we face today is also a context in which a vast field of new opportunities can be identified. Al Gore, politician and environmental activist, made a strong appeal regarding these issues, specifically in the film An Inconvenient Truth (2006): "The voluminous evidence now strongly suggests that unless we act boldly and quickly to deal with the underlying causes of global warming, our world will undergo a string of terrible catastrophes, including more and stronger storms like Hurricane Katrina, in both Atlantic and Pacific."

In line with this thought, we can observe that in the last century our modus vivendi has undergone various changes due to scientific and technological progress. This progress has provided human beings with more comfort and better living conditions. However, man believed that everything Earth supplied was endless and this led to irresponsible behaviour. Deforestation, water, soil and air pollution, and the depletion of natural resources are destroying the planet, resulting in further environmental changes. These are real indications that the scenario envisaged by the author for this project (Alpha Time) is more than an idea, it is a serious possibility.

METHODOLOGY

The overall creative conception of STORM SYSTEM is based on knowledge of the aforementioned contexts, supplemented by research into current debates and exhibitions about this topic. It employed the following methodology:

Phase 1: Collecting information on the object of study

a) Situation:

Gathering various projects, statements and studies that reflect the state of the art, in addition to indicators that define the reality of cities, in general, and extreme situations that cause deprivation – more or less long periods of social or natural catastrophe.

b) Object of study:

In light of our object of study – people in situations of social and climatic deprivation, analysis focused on information that supported or explored the real life experience and needs of this group, such as journal articles, books, websites and publications.

This research shaped the project's initial specifications, based on:

- Studying current situations, and the future international repercussions of political, social and environmental discourse.
- Understanding reality and awareness of ongoing actions.
- Gathering specific needs in real-life threshold situations – temperature, lighting, communication.
- Perceiving a need to make a discussion of these issues public.

Phase 2: Design

Conceptual and formal research, based on the information and specifications gathered in the previous phase.

- Conceptual and formal research.
- Preliminary studies and sketches (macro and micro design).
- Research into materials, suppliers, manufacturers.
- Technical advice and follow-up of component development by chosen external entities.
- Identification of the most promising solutions in terms of formal, technical (materials and production), and technology components.
- Production of prototypes-proof.
- Validation.

Figure 4 – Preliminary studies for STORM SYSTEM / macro design (© MR¯D)

Phase 3: Systematisation and details

- Review of compliance with project objectives.
- Concept testing with direct and indirect stakeholders.
- Decision on materials and development of technical drawings for production.
- Production of four final prototypes with every project component (design/technology).
- Validation.

Phase 4: Presentation

- Project presentation:

Public multimedia presentation of the adopted methodology, end product, and conclusions derived from the process. Portuguese media and relevant bodies are invited to attend the event for a public discussion of the themes addressed within the project.

- STORM SYSTEM website:

Creation of a bilingual website, with a strong communication component. It will illustrate the entire process and results of the project and the presentation / dissemination event. This site will be activated in tandem with the presentation event.

PARTNERSHIPS

To supplement the development of the STORM SYSTEM creative and technical project, firm partnerships were established with one engineering company – IBEROMOLDES, and two technological centres - CITEVE and CeNTI, according to the author's brief and guidelines. The technicality of the project made these partnerships essential, since the inherent constraints of each step of the construction process was basically an investigation of the potential and limitations of the intervening technologies.

Various specifications were considered for STORM SYSTEM:

- Structures (fabrics, trilaminates, spacer fabrics, meshes, plastics).
- Electronic components (conductive strips, conductive wires, LEDs, circuit boards, batteries, buttons).
- Composition (polyamide, polyester, PVC)
- Elasticity and thickness.
- Functional technologies (application of waterproof and breathable membranes, water- and dirt-repellent coatings).
- Printing technologies (transfer, Plastisol, rubber).
- Cutting technologies (blade, laser).
- Bonding technologies (traditional sewing, use of waterproofing tapes, fusion bonding, adhesive bonding).
- Shapes and fittings.
- Incorporation of electronic components, developed by CeNTI, into the prototypes.

For both these partners, the development of the project was based on gathering data on the state of the art, the technical properties of the materials, the technological specifications and requirements for printing and manufacturing, and the inherent performance of this kind of product and its functions.

Technologies belonging to CITEVE's Dyeing and Confection Workshop and CeNTI's Workshops were used to develop this project. Other relevant services, such as embroidery and printing, were outsourced.

The methodology employed to develop the project was divided into two parts:

- Product development (formal appearance of the object, with use of textiles).
- Development and incorporation of electronic systems.

The methodology used to specify and develop the textile element comprised the following core activities:

- Technical specifications of the project - identification and technical definition of requirements, specification of materials and technologies to be used (research into raw materials, state of the art of most appropriate materials), production of solutions, their analysis and validation, and acquisition of materials to produce prototypes.
- Technical development - production of prototypes, their analysis and validation, reengineering (adjustments and optimisation) and production of the four final prototypes.
- Tests / evaluation - study of preservation and cleaning requirements to define the information for the label.

The methodology employed to specify and develop the electronic part comprised the following core activities:

- Idealisation of electrical circuits - Radio Frequency (RF) communication circuits, circuit control devices (two-button control board, which forms the touch pad), circuit monitor for the heating strips, and LED operation circuit.
- Research and requisition of electronic material - listing and ordering all material needed for the various circuits.
- Production of PCBs (Printed Circuit Board) - CAD drawing, PCB of the RF transmitter circuit, PCB with RF receiver circuits, monitoring heating strips, and operation of the LEDs.
- Assembly and testing of electrical circuits - assembly of all PCBs, and electrical interconnection between them and peripheral equipment, functional testing of the system.
- Incorporation of the heating and conductive strips - incorporation of the heating strips in the 3D structure, incorporation of the conductive strips in the 3D structure, and incorporation of peripheral equipment in the 3D structure.
- RF communication - guaranteeing that operating the control buttons affects peripheral equipment as intended.
- Heating strip - guaranteeing temperature control of the heating strip by using the automatic ON/OFF system of the heating, guaranteeing the strip remains within a comfortable temperature range, and creating a protection system to guarantee the temperature of the strip never exceeds a specified value.

STORM SYSTEM: CRITIQUE AND ACHIEVEMENTS

To give continuity to his vision, specifically with regards to the relationship between design and technology as a response to the new challenges of contemporary urban living, Miguel Rios introduces STORM SYSTEM.This product is a conceptual response to the emerging needs of contemporary city living, or a potential post-metropolis or post-civilisation scenario (which the author calls Alpha time) if this kind of political and social situation ever occurs.

STORM SYSTEM, a smart raincoat that is waterproof, wind repellent, and oil and dirt repellent, with integrated heating and lighting technologies, is intended to exceed its immediate clothing function as a first level protection device. It is a body protection device, whose physicality visually and formally reconfigures the shape of its user. This effect is created by a "capsule" that envelops and transforms the body, augmenting its protective nature, particularly in extreme weather conditions.

Figure 5 – Capsule concept for STORM SYSTEM. Interaction between human body and protection. 2010 (© MR¯D)

STORM SYSTEM is a solution that encompasses protection, mediation and visibility, as well as an integrated thermal component, all of which were formal stipulations of the project. This item of protection comprises two key elements (interior-vest and exterior-raincoat), which are currently interdependent but may also exist separately in the future. STORM SYSTEM responds to the development paradigm, proposing a new concept of shelter. Similar to a prosthetic exoskeleton, STORM SYSTEM not only comprises the necessary formal characteristics, but also the symbolic essence we crave today. In this context, exoskeleton is a device that extends an individual's organic resistance and which performs the vital functions of protection and mediation. Accordingly, STORM SYSTEM is a test concept integrated into the front end of an industrial production cycle.

In anticipation of an unprecedented technological and civilisational upheaval, STORM SYSTEM, and its relationship with the human form, is a potential prelude of an era of a redesigned man, a hybrid between the organic and technology (Capucci 1994). This man, a possible cyborg with prosthetically enhanced capabilities and limitations, is conceptualised as attuned to the requirements of a modus vivendi of a future that has already arrived.

To synthesise the underlying thought process, this project can be defined by four interrelated approaches: Manifesto, Design, Technology and Identity.

MANIFESTO

STORM SYSTEM is a "call for action", an awareness of behaviour concerning environmental issues, and the consequent modification of our identity through the use and implementation of technology. We live in turbulent weather conditions times. We might not know the immediate causes or the main actors. However, the media send us almost daily warning signals regarding the position of various governmental and non-governmental actors in relation to this issue. So, in light of the current environmental and political conditions, Miguel Rios believes that the future demands the design of a protection system with opposing characteristics (aggression vs. protection), a STORM SYSTEM. **This is not intended as an apocalyptic or Messianic project. The author views it as a call for action and an immediate response to a reality that we may yet have time to prevent.**

According to a new understanding of the human body, in adverse weather conditions, STORM SYSTEM is a statement with a certain degree of aggression and discomfort towards the formal, technological and visual transformations imposed on it. It thus contaminates the canonical body. It is also a metaphor for the emerging individualism of our culture; a symptom of the mediation of technology, where any association with the surroundings is mediated by other devices.

But, in contrast to this renewed concept of individual cocoon, the STORM SYSTEM's visual code communicates the physical presence of its user to others, in an attempt to reach them via this visual language mechanism.

DESIGN

Working from the author's background (reasoned logic, project methodology, R&D resources, and design policy), STORM SYSTEM materialises a concept and communicates the metaphor through shape and by the integration of technology. **It is a conceptual product for an urban environment, pioneering commercial apparel for the cities of today.**

STORM's external component was designed to have a mimetic relationship with the human body. It fulfils its primary function as a shelter for the body in adverse weather conditions by employing smart materials, such as: laminated textiles (PES, PU, PA); Mazzuchelli acetate; PVC; ABS; PU foam.

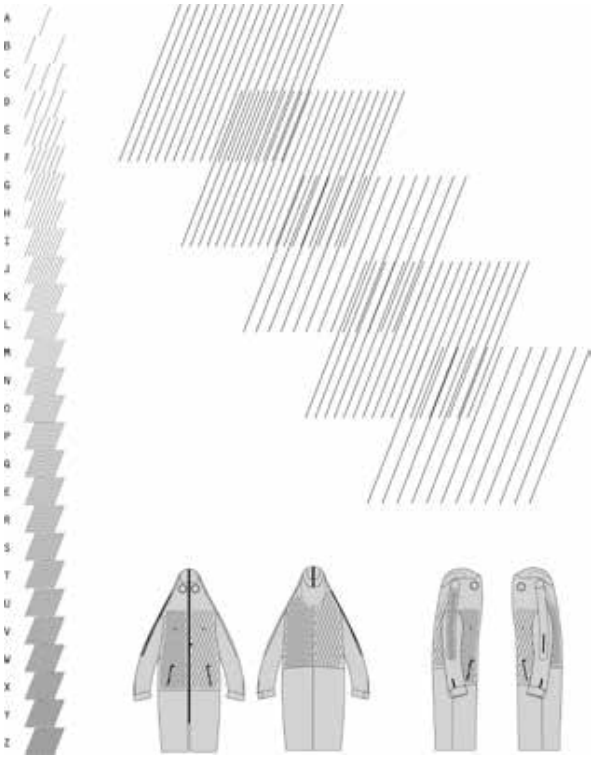

Figure 6 – Rainfall Intensity Code (© MR¯D)

Likewise, the premises of an organic shape and body mimicry, in which the user's body is communicated via

STORM SYSTEM's visual code , warrant a new typology of visual system[2] throughout the surface of the piece. This code, the Rainfall Intensity Code (see fig. 6), accentuates the user in low contrast environments through the use of reflectors (at night) and high visibility (day time) effects. The author feels that it also responds to the expression and communication mediums present in Alpha Time – conceptually a "bio-techno-primitive" time.

Alongside these characteristics, mediation is also achieved through the incorporation of visors, respirators and simple auditory devices. These permit STORM SYSTEM's capsule shape, without compromising its comfort and the performance.

The **exterior piece** can be defined by the following aspects:

- From the perspective of urban imagery, this piece transports us to scenarios of weather-ravaged cities.
- The incorporation of technology into STORM SYSTEM makes it a visual protection, as well as waterproof.
- In a city with a more complex organisation, this project is also an attempt to renovate visual codes, by implementing the Rainfall Intensity Code and pictograms devised for this project - high visibility and reflectors.

The **interior component** is envisaged as an exploration of the aforementioned concept of exoskeleton, which is supplemented by protection of a more physiological nature. Besides transforming the volume of the body through its technical add-ons (devices that foster its technological functions), this piece is a link between the body and the exterior protective component.

The characteristics of this component are divided into:

- Protection of the user via a heating system (vital for heating the torso), which can be regulated via a touch pad to preserve optimal body temperature.
- Protection of the user from light physical collision, focused on areas of the body with greater sensitivity, through the strategic incorporation of three-dimensional technical materials.
- Mediation, through a lighting system that extends the field of vision via frontal LEDs (link to the exterior).

All materials used were tested and certified by their producers. Several performing and shape tests were made to prototypes. Also, a specific series of tests were performed to verify the different production processes (cutting, sewing and finishing).

[2] The inherent concept of this visual code was created by Detanico Lain, a team of Brazilian visual artists, for the STORM SYSTEM project.

Figure 7 – Interior Component (© MR¯D)

TECHNOLOGY

Working closely with Portuguese and international partners, the materialisation of the concept brings added comfort and protection to the user on a wearable level (lighting, heating, and sensors | control | touch pad).

The integration of electronics in the wearable piece has been analysed in order to enhance functionality and minimise constraints in terms of ergonomics and freedom of movement. Another factor that was considered was the cleaning, preservation and maintenance of the piece. Parameters such as weight, size, flexibility and likelihood of contact with water were important premises when it came to choosing the electronic components it would incorporate.

Once the location and most practical position of each component had been studied and established a schematic draft, to scale, was prepared of the proposed layout for the front and back.

Technically, to construct an efficient lighting and heating system for a raincoat that uses LEDs for lighting and strips for heating the back area, batteries were the option as a source of energy and these were commanded and controlled by two electronic systems.

The features presented for the three systems were:

- Lighting system (with incorporation of LEDs).
- Heating system (incorporation of heating strips).
- Control and sensor systems (incorporation of temperature sensors, radio-frequency circuits for controls, and energy control circuits of the heating strips and LEDs).

Certain requirements were specified for development, to enable such development of specific project activities: assumptions for heating and lighting time, area of illumination, sizing of the modules and their location were defined.

These were the premises:

- Heating strips located in the upper back area.
- A duration of four hours for the system, when active.
- Definition of four temperature ranges: 32-35ºC, 34-37ºC, 36-39ºC e 38-41ºC, to experience optimal temperature according to environmental conditions.
- LED light projection: 3 metre span for a distance of 3 metres; 5 metre span for a distance of 5 metres.
- Small-sized electronic systems.
- Removable electronic systems for washing and maintenance.

The system comprises heating strips, LEDs, receiver circuit, transmitter circuit, batteries and circuit box.

The heating strips were developed so as to heat the user's back. The areas to be heated were therefore defined, along with the maximum temperature they could reach and the materials into which they are incorporated. Once this was done a thermal simulation study was performed to calculate the spacing of the heating coils to achieve as uniform a temperature as possible.

Sensors are incorporated into the heating strips to constantly measure the temperature. An electric signal is triggered if they exceed the established limits to prevent users from experiencing discomfort.

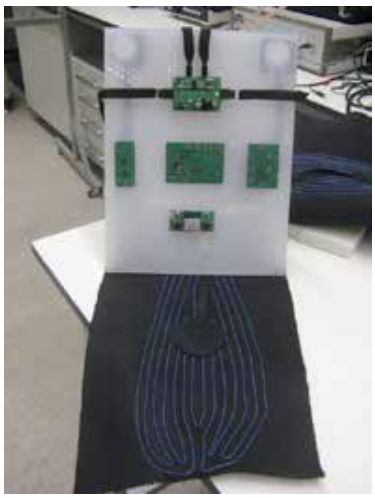

Figure 8 – Electronic components mock up – preliminary studies. Elements of the system – receiver circuit; transmitter circuit; heating strip; temperature sensor, textile bands (© CeNTI)

LEDs have been used for lighting in the STORM SYSTEM, but they had to be adapted before being integrated into it. The LEDs used have a copper dissipator to prevent the textile structure from overheating, with consequent degradation of the fabric. They are connected to the control circuit by means of a conductive textile strip, which provides better integration and flexibility of the energy transmission system.

The transmission circuit consists of a radio frequency transmitter that sends data via wireless communication to the receiver circuit, indicating the functions of switching the strips and/or LEDs on and off.

The receiver circuit consists of a radio frequency receiver that operates on several electronic power systems that switch the power supply to the associated circuits on or off. When a radio signal is received it is decoded in a decoder circuit that subsequently switches the power on or off, to either the heating strips or the LEDs. For the heating strips there is, after it, a current limiting circuit that stops a higher current than that prescribed from circulating in the strips. This prevents short-circuits.

A box to protect the electronic circuit has been developed by IBEROMOLDES using rapid prototyping methods.

In this field, a new range of tests were performed to make sure all the electronic devices were working correctly and that they could perform on a textile object and close to the human body.

IDENTITY

It was G. H. Mead who proposed that the ‘self’ of individuals is defined, in terms of sociology, by the exercise of difference, by interaction with and recognition of the other (Mead, [1913] 1982). A. Giddens sees personal identity as an imperative object, fruit of a modernity that glorifies the values of individualism but which simultaneously removes from it the safety of enduring group entities (Giddens, 1982).

In the wake of the discourses of these two thinkers, we expect that users of the STORM SYSTEM will adopt a new identity in the eyes of others, because they will not know them, but they will be recognisable from the other elements of their conceptually abstract community. This new identity, which is reflected in this project, thus arises from the reflections of the author about the Alpha time. This means that users will as much ward off any potential enemies by the aggressive image they portray through the STORM SYSTEM as they will draw near to their peers.

This project focuses on understanding design and technology as extensions of Man on a number of levels. Of particular importance are the symbolic aspect and the way in which any accessory created for the human body can (re)build our identity. **The visual result of STORM SYSTEM, in terms of physical appearance, corresponds to a modification of individual identity as we know it.**

Figure 9 – STORM SYSTEM (© MR¯D)

Does technology have the ability to shield and transform the appearance and identity of humans in the new Alfa era? In this sphere of development, the author feels that it does. For the development of this project, the interaction and integration between design and technology gave birth to a wearable object , but it goes beyond common sense's understanding (symbol and signifier) of the the human figure. When wearing STORM SYSTEM, the user acquires a new identity and becomes anonymous among its peers.

CONCLUSIONS AND DISCUSSION

As a product, the STORM SYSTEM is highly complex in terms of both the shape and the materials and technologies it uses. To achieve a good result (development of a physical piece incorporating the features planned in the conception phase of the idea for the product), it was necessary to carry out a detailed study of each step, which required research and development, funded by considerable (private) investment.

Conceptually, as already mentioned, this does not set out to be an apocalyptic or Messianic project. The author sees it as a wake-up call and an immediate response to a situation that we may yet have time to prevent. **The author sees himself as a Problem Finder, not as a Problem Solver.**

The STORM SYSTEM intends to be made public as a **manifesto**, calling for discussion and serving as a platform for interaction between **design** and **technology** – resulting, in the end, in an arguable change of **identity**.

As we had initially hoped, the arrival of technology in the modern world in general, and in design in particular, has profoundly changed the planning approach to and type of all kinds of objects. In recent years we are witnessing the progress made since that arrival in a garment object | wearable object; progress that has influenced the materials that are used, the assets that these objects acquire at various levels (quality, production / fabric, functions and features, and many more besides) and the way we perceive, use, name and contextualise them.

While on the one hand there are significant gains, nonetheless, in an extreme scenario we will be at serious risk of a change of identity, consequence of the technology integration. Taking protection as a primordial objective, and emphasising this as a defensive behaviour, which is itself a prime need, then it is essential to protect the body and the main senses and condition them in an almost obligatory fashion. In this way the expression of identity is regulated, but rather than changing it there is a serious possibility of nullification. **The solution makes us anonymous.**

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