



MIND

THE

STEP



Discover the power of
technology, research and design



DUTCH
DESIGN
WEEK
EINDHOVEN

17 -25 October 2015

Klokgebouw Strijp-S, Eindhoven

www.mindthestep.nl



Technology and design are inseparable.
Design cannot exist without technology
and vice versa. Good designs help us solve
problems, enrich our lives and present
new challenges...

We wish you inspiring discoveries and
exceptional encounters at Mind the Step.

Welkom / Welcome

Mind the Step

De Dutch Design Week is de week van inspiratie, ontdekking en ontmoeting. Nergens in de wijde omtrek is er zo'n concentratie van makers en creaties te vinden als in de DDW. Een mooi biotoop, waar de condities ideaal zijn om ontwerpen en ontwerpers te laten groeien en floreren. Juist daarom zijn wij gelukkig met de aanwezigheid in het centrum van de DDW, in het Klokgebouw en met u, de bezoeker van deze expositie.

In Mind the Step 2015 treft u het vervolg aan van wat in 2014 bij wijze van experiment begon: een samenwerking van verschillende TU/e faculteiten en Design United, het 3TU onderzoeksinstituut van de ontwerpopleidingen TUD, TU/e en UT. Mind the Step is voor verschillende doelgroepen, van argeloze belangstellende tot gespecialiseerd deskundige, van overheid tot opleiding. Veel bezoekers bleken vorige editie verrast door wat synergie tussen techniek, onderzoek en design teweeg kan brengen. Ook dit jaar is weer een breed scala van ontwerpen te ontdekken. Producten, systemen en diensten die niet alleen betrekking hebben op hoe we leren, bewegen, wonen, gezond blijven en voortbestaan, maar ook op hoe we eigenlijk moeten ontwerpen. Het accent ligt op de stap die we kunnen maken, de uitdaging die we willen oppakken. Op weg naar producten en diensten voor de bedrijven en de gebruikers van de nabije toekomst.

Wij wensen u een mooie ontdekkingsreis toe door Mind the Step, resulterend in veel inspiratie en bijzondere ontmoetingen.

Mr. Jo van Ham,
Vice-voorzitter College van Bestuur Technische Universiteit Eindhoven

Prof.ir. Daan van Eijk,
Wetenschappelijk directeur Design United

Dutch Design Week is the week of inspiration, discoveries and encounters. DDW offers the greatest concentration of makers and creations in the region. A rich biotope with the ideal conditions for designers and designs to grow and flourish. All the more reason we're delighted to be here, at the heart of DDW, in the Klokgebouw and with you, the visitor to this exhibition.

Mind the Step 2015 presents a continuation of what began as an experiment in 2014: a collaboration between different TU/e faculties and Design United, the 3TU research institute of the design courses TUD, TU/e and UT. Mind the Step is for different target groups, ranging from visitors with an interest in design to specialist experts, and from government to academy. In the last edition, many visitors were amazed to see what can be achieved through a synergy of technology, research and design. And this year, too, there is a myriad of designs waiting to be discovered. Products, systems and services that not only relate to how we learn, move, live, stay healthy and reproduce, but also to how we should design. The emphasis lies on the step we can make, the challenge we want to accept. As we come closer to creating products and services for the companies and users of the near future.

We wish you inspiring discoveries and exceptional encounters at Mind the Step.

Mr. Jo van Ham,
Vice-President Executive Board, Eindhoven University of Technology

Prof.ir. Daan van Eijk,
Science Director, Design United



Over / About Mind the Step

Techniek en ontwerp zijn niet los van elkaar te denken. Geen ontwerp zonder techniek en vice versa. Goede ontwerpen helpen ons problemen te overwinnen, verrijken ons leven en bieden nieuwe uitdagingen.

Techniek verwijst naar het vernuft waardoor wij in potentie een rijkere, veiliger en gelukkiger leven kunnen leiden. De technologie is de laatste eeuw in een gigantische stroomversnelling gekomen. De komst van de telefoon of de televisie valt in het niet bij de opmars van het internet en met de smartphone en de digitalisering van de samenleving zijn we in een onmetelijk bos beland waarin in principe iedereen terecht kan, geluk kan vinden, maar ook verdwalen. Een sprookjesbos en oerwoud tegelijk. Mogelijkheden zijn onbegrensd en het bepalen van koers en maken van verstandige keuzes een steeds grotere uitdaging.

In deze tentoonstelling kunt u zien hoe techniek en ontwerp in een immer voortgaande dans in elkaar grijpen. Het proces van toepassen, synthese en dan weer ontrafelen, analyse, is een continuüm, waarbij de ontwerpen die u hier aantreft illustraties en bewijsstukken zijn. Steeds duidelijker wordt dat deze ontwikkeling ons allemaal aangaat en ons aller leven raakt. Doel is het bestaan van geboorte tot dood te verrijken met ontwerpen die het verschil maken.

Aan u de uitdaging om op zoek te gaan naar de kwaliteiten die in Mind the Step opgesloten liggen en die op u te laten inwerken. We gaan er graag met u over in dialoog. Welkom op Mind the Step 2015.

Dr. Lucas Asselbergs,
Projectleider Mind the Step

Technology and design are inseparable. Design cannot exist without technology and vice versa. Good designs help us solve problems, enrich our lives and present new challenges.

Technology connects us with the inventiveness that can help us lead potentially richer, safer and happier lives. Over the course of the last century, technology has made gigantic leaps. The advent of the telephone or the television is dwarfed by the coming of the internet, while smartphones and the digitization of society have transported us to a huge forest – a place which, in principle, is open to all, where happiness awaits – and you can lose your way. Both fairy-tale forest and perilous jungle. Possibilities are endless, and steering a course and reaching well-informed decisions ever more complex.

This exhibition reveals how technology and design intersect at progressively deeper levels. The process of adapting, synthesis and separation, analysis, is a continuum of which the designs you see here are illustrations and evidence. We are increasingly aware that this development affects us all, and touches all our lives. The goal is to enrich our existence, from birth to death, with designs that make a difference.

We challenge you to explore and become immersed in the qualities that Mind the Step embodies. We're eager to hear your thoughts. Welcome to Mind the Step 2015.

Dr. Lucas Asselbergs,
Project leader Mind the Step



circular economy



Producten worden bedacht, ontworpen, gerealiseerd, gebruikt, weggedaan en vernietigd. Deze even simpele als verwoestende rechte lijn die de levensloop van producten weergeeft, leidt onherroepelijk tot de totale uitputting van de aarde. Bij het thema Circular Economy gaat het over de vraag hoe producten zo ontworpen kunnen worden dat de rechte lijn een cirkel kan worden, zodat materie zo veel mogelijk en met zo min mogelijk energie functioneel hergebruikt wordt. Gezond en profijtelijk.

Products are conceived, designed, realized, used and disposed of, destroyed. This simple yet deadly line representing a product's life cycle inevitably results in the total depletion of the earth's resources. The Circular Economy theme deals with ways of designing products so we can transform their lifespan from a straight line to a circle, and functionally re-use the greatest amount of material with the least amount of energy. Healthy and profitable.



circular economy

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SummerLabb

Hét lab van festivalland - SummerLabb? Dat zijn diverse paviljoens, allen met scharnierende panelen, die in een handomdraai kunnen worden omgetoverd in mini-paviljoens in alle soorten en maten. De paviljoens bieden een podium voor partners (bedrijven en instellingen) van SummerLabb. Welkom in de rondreizende Stad van de Toekomst!

SummerLabb

The lab for festivals - SummerLabb? Various pavilions, all with hinged panels, which can be transformed into mini-pavilions of every style and size, at the flick of a wrist. The pavilions offer a platform for SummerLabb partners (companies and institutions). Welcome to the travelling City of the Future!



circular economy

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TRASHIQUE

Een museum als catalogus voor duurzaam (her)gebruik - Trashique levert kritiek op onze consumptie-maatschappij door bezoekers juist te laten ervaren hoe nuttig afval is. Zo vind je in dit museum een hergebruik- en recyclefabriek waar oude apparaten als basis dienen voor sieraden en kunst, en plastic flessen worden verwerkt tot printbare 3D objecten.

TRASHIQUE

A museum as a catalogue for sustainable (re)use - Trashique criticizes our consumer society through letting visitors experience the usefulness of waste for themselves. In this museum you will find a reuse and recycling factory where old appliances serve as the basis for jewellery and art, and plastic bottles are processed into printable 3D objects.



circular economy

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Value Added Repair

Beter dan nieuw: repareren met 3D geprinte onderdelen - 3D printen maakt het mogelijk om kapotte producten te repareren met onderdelen die naar eigen wens aangepast en op afroep geproduceerd kunnen worden. Producten kunnen langer mee, zonder dat een kostbare voorraad reserveonderdelen nodig is. Een computerbestand met basisgeometrische gegevens voor elk onderdeel volstaat.

Value Added Repair

Better than new: repairs with 3D printed spare parts - 3D printing makes it possible to repair broken products with spare parts that can be customized and produced on demand. Products can be used for longer, without the necessity for expensive stocks of spare parts. A computer file with basic geometric data for each part is sufficient.



city



De stad is onmiskenbaar de plek waar steeds meer mensen willen leven. De toeloop naar steden is wereldwijd niet te stuiten, terwijl het platteland ontvolkt. Wat heeft de stad te bieden en hoe creëren we een wereld die veilig is, genoeg werk en ‘brandstof’ biedt, ons helpt onze dromen te realiseren?

There's no doubt that growing numbers of people long to live in the city. All over the world, people are flocking to cities, depopulating rural areas. What does the city have to offer and how do we create a world that's safe, and provides enough work and ‘fuel’? A world that helps us to realize our dreams?



City

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Fondazione Graphitech, GISIG, Fraunhofer IGD, VicomTech,
EPSILON Inter., Technoport

C-Space

Verandert onze normale omgeving in een creatieve belevenis - De C-Space app, tool en game transformeren onze omgeving tot een interactieve, creatieve belevenis. C-Space creëert 4D-reconstructies van de 3D-wereld om ons heen. Een smart routing systeem maakt van eenvoudige stadswandelingen de meest persoonlijke ontdekkingsreizen ooit. Een gebruiksvriendelijk en betaalbaar instrument, ideaal voor de creatieve industrie, denk aan architectuur, reclame en (cultureel) toerisme.

C-Space

Transforms our normal environment into a creative experience - The C-Space app, tool and game transform our environment into an interactive, creative experience. C-Space creates 4D-reconstructions of the 3D-world around us. A smart routing system turns a simple city walk into the most personal journey of discovery ever. This simple to use and affordable tool is ideal for creative industries, such as architecture, advertising and (cultural) tourism.



city

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Gamification in Architecture

Eten, drinken, slapen... ontwerpen als een game designer - Het gebruik van gamificatie in de architectuur transformeert hedendaagse ontwerpmethoden naar verschillende innovatieve concepten. Stuk voor stuk gericht op wat gebruikers van gebouwen écht willen en allemaal met hun unieke, ruimtelijke ervaringen. Sleutel tot succes? De belangrijkste game principes ontrafelen en... denken als een game designer.

Gamification in Architecture

Eating, drinking, sleeping... designing like a game designer - The use of gamification in architecture transforms contemporary design methods into various innovative concepts. Each and every one focused on what building users really want and all with a unique, spatial experience of their own. Key to success? Solve the most important game principles and... think like a game designer.



city

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Grounding Altitudes

Een nieuw transportsysteem op hoog niveau - Shenzhen (China), een belangrijke, snelgroeiende economische en geografische brug naar de rest van de wereld kampt met ernstig ruimtegebrek. Door verkeersverbindingen op hogere niveaus te creëren wordt de belasting op de begane grond verminderd. De straatniveaus op hoogte tussen de wolkenkrabbers geven ruim baan aan fietsen en elektrische auto's en dragen zo bij aan het milieu.

Grounding Altitudes

A new high-level transport system - Shenzhen (China), an important fast growing economic and geographical bridge to the rest of the world is faced with a tremendous lack of space. By creating streets at higher levels congestion at conventional street levels is relieved. There is space for bikes and electrical cars on the high level roads and this also alleviates the burden on the environment.





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Coach: Carl Megens

Quasar

Any day, any place, any music - Het online muziekplatform Quasar maakt afspeellijsten op Spotify aan op basis van iemands locatie, activiteiten en luistergeschiedenis. Van dat ene nummer tijdens je weekendje weg tot de soundtrack van je middelbare schooltijd: via Quasar (her)beleef je alle muziek waarnaar je ooit hebt geluisterd.

Quasar

Any day, any place, any music - The online music platform Quasar creates playlists on Spotify based on a person's location, activities and listening history. From that one song during your weekend break to the soundtrack from your time in high school: through Quasar you (re) - experience all the music you have ever listened to.

Willem Horsten really believes in his personalized online music platform Quasar

'I want to bring back the stories surrounding music'

Thanks to Spotify, millions of people all over the world are listening to the latest music. Heard it? Done. Next. In other cases, songs gather digital dust in a mobile playlist. Quasar works differently. The online music platform developed by Willem Horsten revives that golden era when we perused each other's album collections and CD shelves. Nostalgia in digital form.

'I have a smartphone; I'm a genuine music lover. I've been listening to the latest music using Spotify for years. And yet I felt something was missing. Music is often approached rather clinically, but it nevertheless includes many human components. Wouldn't it be wonderful to listen to music that transports you back to certain moments in time? On your own or together with friends?'

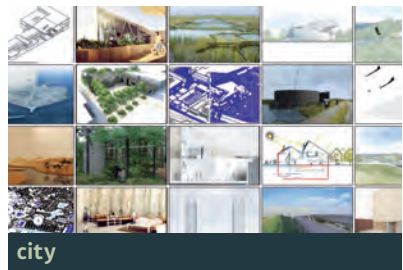
Backpacking holiday music

Having just graduated from Eindhoven University of Technology as an industrial designer, Willem Horsten did not have to think long about a topic for his Master's thesis. The result was Quasar, an online music platform that makes playlists from Spotify based on a person's location, activities and listening history. 'Just imagine, you're travelling by train at the weekend to see your parents and you're listening to music on your mobile via Spotify. Quasar tracks where you are, how you're travelling and what you're listening to, and makes a playlist of your journey. Two weeks later, you can listen to the same

playlist, but also to the music you were listening to on the third day of your backpacking holiday in Ireland, for example. The great thing about this is that you can share these lists with friends through media such as Facebook and, in doing so, also enable them to re-experience your walk, through the music you were listening to that day. Quasar also recycles music from even longer ago, from your high school days or from when you were a kid for instance.'

Datascaping

Quasar is based on a comprehensive theoretical frame of reference created using data scaping technology. Willem: 'With data scaping, you collect data, in collaboration with a data community, in order to improve it step by step. Originally, I asked just a few friends if they would help me to look and think about it, but soon a lot more people had joined us. Eventually we had a group of around 40 people involved with setting up and developing the design.' Willem admits that working with a community could sometimes be quite a challenge. 'Some people came up



Studio by Juliette Bekkering, Bernard Colenbrander, Barbara Kuit Architecture, Building and Planning, Eindhoven University of Technology

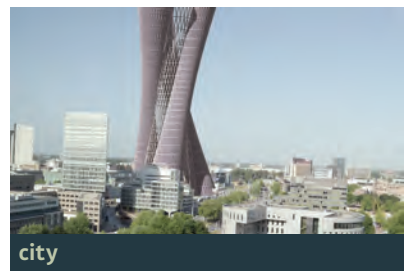
Info: k.dimitrova@student.tue.nl | Contributing students: Alice Janssen, Bas Jansen, Emma Lubbers, Ferdi Tran, Gang Zhao, Hui Yan, Joeri Sowka, Jos de Jong, Kornelia Dimitrova, Maarten Klont, Mark Kanters, Mengxiao Wang.

Texel autonoom eiland

De stofwisseling van Texel in kaart gebracht - Een jaar lang onderzoeken 18 studenten van de TU Eindhoven de 'stofwisseling' van Texel. Idee is te komen tot een metabolische atlas met stofstromen van het eiland - denk aan energie, afval, water, mobiliteit, zorg en landbouw - om eilanders een basis te bieden voor een zelfvoorzienende, duurzame (fictieve) toekomst.

Texel autonomous island

Texel's metabolism mapped out - For an entire year, 18 Eindhoven University of Technology students have studied Texel's 'metabolism'. The idea is to create a metabolic atlas with the island's substance flows - including energy, waste, water, mobility, health care and agriculture - to provide the islanders with a basis for a self-sufficient, sustainable (fictitious) future.



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The Twist

Een innovatief, multifunctioneel, duurzaam, architectonisch en constructief hoogstandje - In het architectuur- en constructief design - project 'High Rise Building Design' werken studenten aan het ontwerp van een wolvenkrabber in hartje Eindhoven. The Twist voldoet aan alle functionele, duurzame en - niet onbelangrijk- constructieve eisen met betrekking tot (dynamische) windbelastingen, heeft een spectaculair uiterlijk en uitzicht en combineert bestaande en nieuwe bouwoplossingen.

The Twist

An innovative, multifunctional, sustainable, architectural and constructive highlight - In the architectural and constructive design project 'High Rise Building Design' students work on the design of a skyscraper for the centre of Eindhoven. The Twist complies with all the functional, sustainable and - not unimportantly - constructional demands with regard to the (dynamic) wind force, has a spectacular appearance and view and combines existing and new constructional solutions.



with comments that really got me thinking. They pointed out that people may not have really enjoyed the music they listened to on a particular trip, for instance, or that they only wanted to be reminded of one particular song. In general, however, things ran very smoothly, not least because we were dealing with what was essentially a human process.'

Collected soundtrack

Willem strongly believes in his free discovery. He is not interested in making a fortune from it. 'I welcome the slogan, 'Dare to stay small'; I simply love the fact that people are using Quasar, and whether that's 10 or 100 people doesn't matter to me. With Quasar, I want to create nostalgia. The feeling of being with friends looking through an album or CD collection, a collection that often represents the very soundtrack of our lives.

A soundtrack in data form, admittedly, but one that has the unique character of letting you listen to music together. This presents a great challenge for designers. It is our task to incorporate that human factor into high tech and, in doing so, bring back the stories surrounding music.'

'Wouldn't it be great to hear music that takes you back to certain moments in time?'



design conversations



Ontwerpers denken niet alleen over hoe zij producten, diensten en systemen creëren, maar ook over de manier waarop. Ontdek de denkwereld van ontwerpers en maak kennis met deze bijzondere soort van designs, die bedoeld zijn om de reflectie op ontwerpen te stimuleren en zowel ontwerpers als gebruikers te inspireren.

Designers don't simply think about how they create products, services and systems, they also think about the process. Discover how designers think, and learn about this unusual kind of design that is meant to encourage reflecting on the design process, and inspire both designers and users.



design conversations
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FloatNL

Drijvende Holland-promotie voor diplomatieke doeleinden - Ik ga op reis en neem mee... Nederland. Maak kennis met FloatNL, een gloednieuw promotie-instrument voor diplomatieke doeleinden, zoals herdenkingen en staatsbezoeken. Het modulaire systeem herbergt verschillende drijvende elementen die afhankelijk van de missie, zijn om te toveren tot expositieruimte, ambassade, restaurant en meer.

FloatNL

Floating Holland promotion for diplomatic purposes - I am going travelling and I have packed... the Netherlands. Introducing FloatNL, a brand new promotional tool for diplomatic purposes, such as commemorations and state visits. The modular system accommodates various floating elements that, depending on the mission, can be transformed into an exhibition space, embassy, restaurant and more.



design conversations
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Healthcare Environment & Activity Design (HEAD) game

Samen spelen, samen bouwen - Mobiele ziekenhuizen ontwerpen is complex. Alles moet op elkaar aansluiten, terwijl één algemeen overzicht vaak ontbreekt. Zoveel beslissingen, zoveel stakeholders. Deze twee design games bieden een oplossing. Het ene spel bevordert de discussie tussen alle betrokkenen, het andere maakt co-design met beslissers mogelijk.

Healthcare Environment & Activity Design (HEAD) game

Play together, build together - Designing mobile hospitals is complex. Everything has to interconnect, while a general overview is often missing. So many decisions, so many stakeholders. These two design games stir things up. One game promotes the dialogue among those involved, the other facilitates co-design with decisionmakers.



design conversations
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Client: Rawshaping Technology | rawshaping.com | ideationlab.nl

Hybrid Design Tools

Al doende het beste uit twee werelden combineren - Hybrid design tools brengen de reële en virtuele wereld dichterbij elkaar, door van beide de content te combineren. De gereedschappenserie helpt ideeën, vage beelden en gedachten concreet te maken van gebruikers die hun cognitieve, creatieve en intuïtieve vermogens benutten om vanuit gevoel, ervaringen of deskundigheid te ontwerpen.

Hybrid Design Tools: Ideation Lab

The experience of making combines the best of two worlds - Hybrid design tools draw real and virtual worlds closer together, through combining content from both. The tools series helps to make tangible ideas, vague images and thoughts of users who design utilizing their cognitive, creative and intuitive capacities from a feeling, experience or expertise.





design conversations

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Modern colour - colour plan TU/e Science Park

Kleurenplan en –waaier als basis voor één compacte campus - Gebouwen en 'ensembles' op het TU/e Science Park vormen op het oog één geheel. Met dank aan een allesomvattend kleurenplan. Speciaal onderdeel van het plan is de kleurenwaaier. Die zorgt voor architectonische samenhang tussen karakteristiek en modern en wordt toegepast bij nieuw- en renovatiebouw op de Eindhovense campus.

Modern colour - colour plan TU/e Science Park

Colour plan and fan as a basis for a coherent compact campus - At a glance, the buildings and groups in the TU/e Science Park appear to form a homogeneous whole. This is thanks to a comprehensive colour plan. A special part of the plan is the colour fan. It ensures architectural cohesion between classic and modern and is employed for new builds and renovations at the Eindhoven campus.



design conversations

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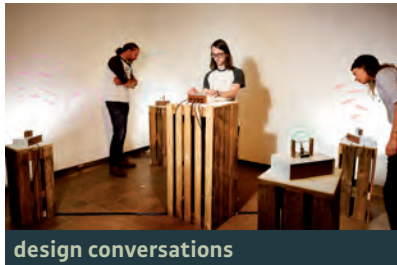
h.h.yegenoglu@bwk.tue.nl | www.chronotopos.com

Spatial Biographies

Ruimte geven aan persoonlijke verhalen - De rol die Ontwerper Benno Premsele en couturier Max Heymans speelden in het publieke leven van Amsterdam, in het bijzonder voor de naoorlogse homo-emancipatie is 'beschreven' in een spatial biography. Tekeningen en maquettes tonen de verknoping van gebouwen en belangrijke plaatsen in de stad met hun kleurrijke levens. Deze tentoonstelling toont een selectie, toegespitst op het leven van Max Heymans.

Spatial Biographies

Providing space for personal stories - The roles that Designer Benno Premsele and couturier Max Heymans played in the public life of Amsterdam, especially in post-war gay emancipation is 'described' in a spatial biography. Drawings and scale models show how buildings and important places in the city are linked to their colourful lives. This exhibition presents a selection, focused around the life of Max Heymans.



design conversations

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Noids

Een ritmisch feest van herkenning - In de collectie ritmische instrumenten 'noids' brengt ieder instrument een eigen ritme, geluid en beweging voort. Afhankelijk van hoe de muzikant noids bedient, vult de ruimte zich met een steeds wisselende compositie. Het aanwezige publiek herkent verschillende lagen en patronen, simpelweg door rond te lopen.

Noids

A rhythmic celebration of recognition - In the collection of 'noids' rhythmic instruments each instrument has a rhythm, sound and movement of its own. Depending on how the musicians play the noids, the space fills with continually changing compositions. The public recognize the various layers and patterns, through simply walking around.



design conversations

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Tabula

De kunst van het aandachtig kijken - We zien kunstwerken meestal zonder écht te kijken. Het in een waas gehulde digitale schilderij 'Tabula' verandert onze kijk op kunst. Bezoekers 'ontsluiten' Tabula door te focussen op specifieke delen, waarna de waas langzaam verdwijnt en het schilderij zich in volle glorie laat zien.

Tabula

The art of attentive observation - We often see works of art without really looking at them. A digital painting 'Tabula' shrouded in a haze alters our view of art. Visitors 'release' Tabula through focusing on a specific part, through which the haze slowly vanishes and the painting reveals its true glory.



design conversations

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Positive Design Principles

Wat is er aan de hand met jouw positieve emoties? - Producten lokken vaak verschillende, positieve emoties uit. Welke precies, is af te lezen aan onze hand-object-interactie. Positive Design Principles helpen ontwerpers bij het ontwikkelen van 'producten-met-een-specifiek-geluksgevoel'. Hoe? Kijk naar de filmpjes en vraag jezelf af welke hand-expressie jij wilt dat de gebruikers van je product laten zien.

Positive Design Principles

What is going on with your positive emotions? - Products often evoke different, positive emotions. Which exactly can be read from our hand-object interaction. Positive Design Principles help designers in the development of 'products with a specific feeling of happiness'. How? Watch the clips and ask yourself which hand expressions you want to see your product users display.



design conversations

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Travelling set of music pavilions

The architectural sound of music - Klassieke muziek is vaak geschreven voor specifieke ruimtes. Zo was Allegri's Miserere Mei oorspronkelijk bedoeld voor uitvoering in de Sixtijnse Kapel. De drie rondreizende muziekpaviljoens - ontworpen voor drie individuele composities - staan door hun bijzondere architectuur garant voor een optimale luisterervaring en unieke muzikale belevenis.

Travelling set of music pavilions

The architectural sound of music - Classical music is often written for specific spaces. Allegri's Miserere Mei was originally intended to be played in the Sistine Chapel. Thanks to their exceptional architecture, the travelling music pavilions - designed for three individual compositions - guarantee an optimum listening and unique musical experience.

Designers and experts enthusiastic about
Healthcare Environment & Activity Design (HEAD) Games

Play together, build together

Designing (mobile) hospitals is complex. Equipment, staff, and patients: with space at a premium, everything has to interconnect with seamless precision, while one general overview is often missing. The Healthcare Environment & Activity Design Games provide greater understanding of this process. They not only promote dialogue among those involved, but facilitate co-design between designers and decision-makers.

From Haiti to Nepal, from China to Japan: the world is regularly struck by earthquakes and other large-scale natural disasters, leaving chaos in their wake. The many victims often rely on mobile hospitals for medical aid. “Because in most cases the infrastructure has been completely destroyed, the fastest way for a mobile hospital to reach the disaster site is by air”, says Julia Garde, university lecturer at the Design, Production & Management Department of Twente University. “It’s quicker than by road. But the downside is that you can’t take everything you need in a helicopter, because of the weight. Every kilo is really one too many.”

Three by three metres

As Garde points out, this makes designing mobile hospitals extremely complex. “The staff needs to be able to function optimally with the least amount of equipment and materials. Processes must run smoothly because every second counts. There are so many aspects to consider. The layout of the space, medical applications,

the composition of the team, general procedures: all these elements influence one another, while the knowledge is in the heads of the different people involved.” To facilitate dialogue and co-design between designers and decision-makers, Garde developed two so-called Healthcare Environment & Activity Design (HEAD) Games. “The first game is a large, physical game measuring three by three metres that participants – mainly designers and hospital experts – can play hands-on, and manipulate. The second is a digital game in which players can see how their plans work in a virtual setting.”



‘Initial scepticism makes way for enthusiasm’

Designers and experts

Garde recently put her HEAD Games to the test in different design workshops, and in the design of ‘ordinary’ hospitals, including Medisch Spectrum Twente. “This revealed, in a very tangible way, that designers and medical experts think, and do things, very differently. In workshops focusing on mobile hospital development, for example, designers decided to place crush barriers in front of the hospital. They also argued for a tunnel at the entrance to keep out the dirt, among other things. Designers also thought that a mobile hospital should be modular. Less urgently needed elements, such as a mortuary, could be delivered and connected at a later stage. In their turn, the medical experts wanted to install a cooling unit to serve as a mortuary and as a place to store blood products. The experts proposed a special tent for fatally injured victims who were beyond saving.”

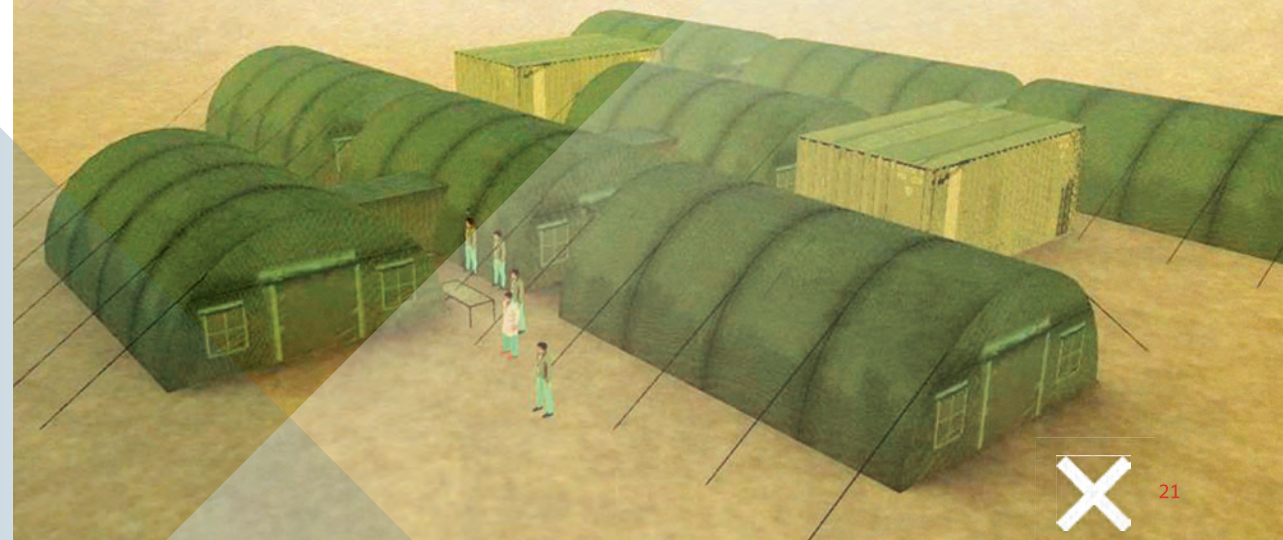
Where the designers suggested appointing four staff members to take responsibility for the logistics relating to a patient, the experts didn’t share their conviction that extra personnel were needed. Garde: “In contrast to the designers, the experts were much more insistent on equipment and material. Interesting and very useful to know.”

All-embracing scenario

Garde notes that both sides responded positively to her HEAD Games. “Many players’ initial scepticism makes way for enthusiasm. During the workshop, people realised that usually, they literally talk at cross purposes. ‘Playing’ and thinking as a group helps to bring different perspectives together. Participants gain a better understanding of each other, which results in a plan that both sides support. Taking a holistic approach based on a tangible scenario also generates ideas that, as an individual, you might not come up with as quickly; or perhaps not at all.”

According to Garde, design games clearly have a future in the health sector. “Participation is becoming increasingly important in our society. Design games are a tool to allow different target groups to participate, in this case in designing a hospital. What’s more, games also enable hospital architects to respond to client requirements in a far more targeted fashion. Design games encourage people to come up with great ideas for tackling areas differently, together. Or, in other words, better.”

‘Designers and experts think and do things very differently’



future mobility



Nu de dieselmotor definitief afgeschreven lijkt als milieuvriendelijke krachtbron is de focus meer dan ooit gericht op elektrisch en ‘zongedreven’ voortbewegen. Zon en elektriciteit zijn als lucht en vuur, in de ideale mix gaan zij ons onbeperkt energie verschaffen en is de elektrische auto slechts een schakel in de keten van duurzame energie. Niet alleen energie, ook de manier waarop we ons verplaatsen en het comfort dat we nastreven gaan steeds belangrijker worden. Een rijker wordende wereldbevolking gaat zich ondanks de digitalisering meer en meer verplaatsen.

Now that the diesel engine has been written off for good as an environmentally friendly power source, the focus has significantly shifted to electric and ‘solar-powered’ transport. Sun and electricity are like air and fire – the ideal blend will provide us with limitless energy and the electric car will be merely a link in the sustainable energy chain. And it’s not only energy, but our modes of transport and the comfort we require of them, which are becoming increasingly important. Despite digitization, earth’s progressively wealthier population will be more mobile than ever.



future mobility

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Avular

Industriële drones met high-tech controlesoftware - Dankzij de samenwerking tussen Avular en TU/e worden state-of-the-art regelsystemen toegepast op de industriële drones van Avular. Dit zorgt ervoor dat de drones veel stabielere kunnen vliegen in bijvoorbeeld zware windstoten. De veiligheid van drones wordt door dit onderzoek van de TU Eindhoven vergroot. Hierdoor hoeft er voor het uitvoeren van een inspectie, zoals het opsporen van lekken in leidingwerk, geen steiger meer te worden gebouwd.

Avular

Industrial drones with high-tech control software - Thanks to the cooperation between Avular and the TU/e of Technology a state-of-the-art control system has been incorporated in Avular’s industrial drones. This ensures that the drone’s flight is more stable in gusty conditions. Thanks to this research by Eindhoven University of Technology the safety of the drones is being improved. This means that for performing inspections, like finding leaks in pipework, it is no longer necessary to build scaffolding.



future mobility

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Baby Comfort Class

Ontspannen met baby’s het vliegtuig in - De Baby Comfort Class (BCC) is een speciaal voor KLM ontworpen product-servicesysteem om het reisgenot van ouders met babies te verbeteren. BCC bevat een aantal offline en online oplossingen die ouders beter voorbereiden op de reis en de betrokkenheid van het personeel bevorderen, waardoor stress van ouders en het kind vermindert.

Baby Comfort Class

Relaxing with babies in an aeroplane - The Baby Comfort Class (BCC) is a special product service system designed for KLM to improve the travelling experience for parents with babies. BCC comprises a number of offline and online solutions that prepare parents for travelling and increase the involvement of personnel, reducing stress levels for parents and their offspring.



future mobility

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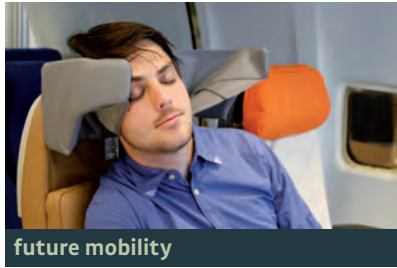
Green Team Twente

Auto van de toekomst rijdt op puur waterstofgas - Green Team Twente heeft met de ‘H2Zero’ dé auto van de toekomst in huis. De efficiënte, comfortabele, alleszins fraaie auto loopt op waterstofgas en heeft door gebruik van hightech materialen en baanbrekende technologie genoeg aan de energie van één Marsreep om drie uur te rijden.

Green Team Twente

Car of the future that runs on pure hydrogen gas - The Green Team Twente has created the car of the future with the ‘H2Zero’. This efficient, comfortable, perfectly attractive car runs on hydrogen gas and through the use of high-tech materials and ground-breaking technology it can run for up to three hours on the energy contained in a single Mars bar.





future mobility

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HeadRest: Design of an adjustable headrest

Zijwaarts leunen en jezelf afzonderen tijdens het vliegen - Lekker wegdommelen of slapen tijdens een langeafstandsvlucht willen we allemaal. Ook als we Economy Class reizen. Zijwaarts leunen in relatieve afzondering van je burens? De HeadRest biedt met zijn hangmatconstructie optimale ondersteuning van het hoofd en zorgt op subtiele wijze voor privacy. Prettige vlucht!

HeadRest: Design of an adjustable headrest

Leaning sideways and isolating yourself during flights - Everyone likes to doze off or sleep during a long-haul flight. Even when travelling in Economy Class. Does leaning sideways in relative isolation from your neighbour sound good? The HeadRest with its hammock-like construction offers optimum support for your head and subtly provides you with privacy. Have a nice flight!



future mobility

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V20 solar racer

Eerste in serie gebouwde draagvleugel solarracer - De V20 is 's werelds eerste in serie gebouwde draagvleugel solarracer. Uitdaging was het ontwerpen van de cockpit: licht, ergonomisch en reproduceerbaar. Het ontwerp is getest met 3D-modellen van rijders om zeker te weten dat 90% van de doelgroep met de boot uit de voeten kan.

V20 solar racer

First hydrofoil solar racers built in series - The V20 is the world's first hydrofoil solar racer to be built in series. The challenge lay in designing the cockpit: light, ergonomic and reproducible. The design was tested with 3D models by racers, to be certain that 90% of the target group would be able to handle the boat.



future mobility

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InMotion onthult de KP&T IM/e!

InMotion onthult de snelste elektrische race auto ter wereld - Deze volledig elektrische raceauto is het eerste prototype op weg naar het uiteindelijke doel van InMotion: meedoen aan de 24 uur van Le Mans. Met de KP&T IM/e laat InMotion zien waar het als studententeam toe in staat is. 17 oktober is het zover!

Revealing the KP&T IM/e!

InMotion unveils the fastest electric racing car in the world - This electric racer is the first prototype on its way to InMotion's ultimate goal: participation in the 24 hours of Le Mans. InMotion shows what a student team is capable of with the KP&T IM/e. 17 October is showtime!



future mobility

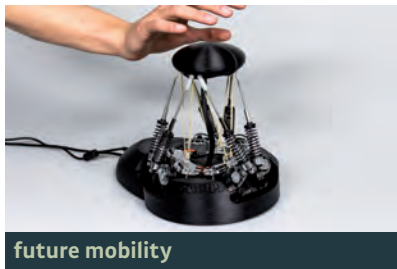
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Partners: TU/e, NXP, AME, TMC, Province of Brabant

STORM Eindhoven

Elektrisch de wereld rond in 80 dagen - STORM Eindhoven dient als testplatform voor nieuwe technologieën en als lichtend voorbeeld van elektrische mobiliteit. Binnenkort gaat deze allereerste toumotor in 80 dagen de wereld rond door in te pluggen bij mensen die STORM steunen. Door de hele wereld de potentie van duurzaam vervoer mee te laten beleven, wil het team een kentering teweegbrengen in de mindset rond elektrische mobiliteit.

STORM Eindhoven

Around the world in 80 days using electricity - STORM Eindhoven serves as a test platform for new technologies and as a shining example of electric mobility. This very first touring motor cycle is soon to travel around the world in 80 days through plugging in at people who support STORM. Through allowing the whole world to experience the potential of sustainable transport, the team want to turn the tide on the mind-set concerning electric mobility.



future mobility

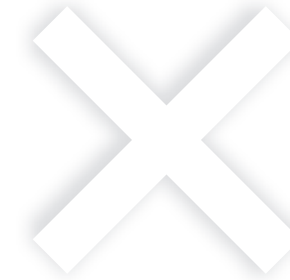
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Stewart

De bemiddelaar tussen mens en zelfrijdende auto - Zelfrijdende auto's hebben overduidelijk voordelen, maar beperken gebruikers in hun expressie en vrijheid tijdens het rijden. De interface Stewart herstelt het evenwicht tussen mens en machine via een intuïtieve en expressieve vorm van interactie gebaseerd op tast. Stewart laat voelen wat jouw auto gaat doen en jij als bestuurder kan via de tast laten weten dat je het er niet mee eens bent.

Stewart

The negotiator between people and the self-driving car - Self-driving cars have clear benefits, but limit the freedom of expression for users during driving. The tactile interface Stewart addresses the balance between man and machine through an intuitive and expressive form of interaction. Stewart 'explains' what your car is going to do. If you disagree, this leads to a haptic discussion between you as a user and Stewart.



Green Team Twente: Hydrogen car H₂Zero is future-ready

Revolutionary trip

The car of the future? If the students of Twente University have their way, it will run on hydrogen gas. At all events, the development of the H₂Zero is a step in the right direction. The hydrogen car, designed and built entirely by the students, is super energy-efficient, produces zero toxic emissions, and is comfortable and safe to drive. With the technology raring to go, it's now up to the car industry and petrol stations to embrace the clean alternative.

A sustainable car powered by hydrogen – that's the dream of Green Team Twente. Since 2011, students from different disciplines have worked hard to turn their dream into reality. "The Green Team changes each year and always builds a completely new car," says Ymiel van der Zanden, who studies International Business Administration and is the team's spokesperson. "And over the years, the team has expanded, too. Originally, it consisted purely of engineering students, but now the team includes electrical engineers, chemists and industrial designers." The multi-disciplinary approach is proving a huge success. By combining their skills, the team is able to build the entire car. From the body to the interior, and from the electronic system to the chemical processes. This year, the high point was the development of control electronics for the new fuel cell. Ymiel: "Step by step, we're building a hydrogen car that, in the future, will perform like any other car. With the H₂Zero we've not only focused on efficiency, but on comfort, functionality and image. It's a beautiful car."

Favourable comparison

H₂Zero. Or: H to Zero. The name of the hydrogen car says it all – driving hydrogen-fuelled vehicles doesn't only produce 'zero' emissions, it's super-



efficient as well. H₂Zero also stands for water (H₂O), which is what forms after burning takes place in the fuel cell. "H₂Zero is clean, quick to refuel, and efficient," explains Ymiel. "By way of comparison: this car can drive with one tenth of the capacity of a vacuum cleaner. And in terms of energy-savings, the energy found in a single Snickers bar can power the H₂Zero for up to three hours."

When matched against other 'cars of the future', the H₂Zero compares extremely well, says Ymiel. "The hydrogen car is far more efficient than the solar-powered version. And the electric car? It takes hours to charge, and has heavy lithium batteries. And that's a metal that's hard to extract. Hydrogen can be produced in infinite quantities."



'One Snickers bar can power the H₂Zero for up to three hours'

Spreading the message

An important yardstick for Green Team Twente is the annual Shell Eco-Marathon, a competition that also includes assessing the most energy-efficient car. 200 teams took part in the 2015 edition in Rotterdam. Although the students of Twente University didn't pick up an award for their car, they did walk off with the prize for best communication. That's quite an accolade, says Ymiel. "We don't have plans to start a 'Green Team Twente production line' and begin making vehicles. The core of our mission is actually to demonstrate the car. We aim to visit as many schools, conferences, and exhibitions as we can, as often as we can, to explain to young students, petrol station owners, and anyone who is interested, what we can do and what the car of the future could be like. We're spreading the message."

'Step by step, we're building the hydrogen car of the future'

Hydrogen fuel stations

When asked to make a prediction about what the future holds, Ymiel says that hydrogen-powered cars are making a gradual appearance. "They're slowly beginning to gain a foothold. Around 2000, Toyota predicted that hydrogen cars would be the vehicles of the future. Now, it's a matter of waiting for car makers to catch up, and for the introduction of hydrogen fuel stations. Germany's in the lead as far as that's concerned, and has pledged to install 400 hydrogen fuel stations by 2023. The Netherlands is running a little behind. We need to catch up!"

health



Ontwerpers houden zich met een breed scala van gezondheidsvraagstukken bezig. Op geen enkel design terrein wordt er zo intensief gekeken naar gebruikerswensen om tot optimale producten en diensten te komen. Over beter worden, gezond blijven en nog meer uit je eigen lijf halen.

Designers are dedicated to addressing a broad spectrum of health-related issues. When it comes to designing products and services tailored to meet users' needs, health is by far the most demanding field for design. This topic looks at getting better, staying healthy, and how to get even more out of your body.



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BackUp

Slim T-shirt gaat lage rugpijn tegen -

Veel mensen, zoals verpleegkundigen, hebben lage rugklachten vanwege overbelasting. Speciaal voor hen is BackUp ontworpen. Dit met de smartphone verbonden T-shirt piept zodra sprake is van een verkeerde houding of beweging. BackUp zorgt voor bewustwording. Het motiveert dragers écht op hun rug te letten.

BackUp

Smart T-shirt to prevent lower

back pain - Many people, like nursing staff, suffer from lower back pain as a consequence of over-burdening. The BackUp was designed especially for them. This T-shirt that is connected to a smartphone beeps when an incorrect movement is made or position is adopted. BackUp raises awareness. It motivates wearers to really watch their backs.



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BioMirror

Een biologisch kijkje in je lichaam -

Biofeedback bestond al in klinische settings, maar binnen het BioMirror project wordt afgetast hoe het ook in het dagelijks leven toepasbaar kan zijn. BioMirror bestaat uit interactieve vlakken die door het aannemen van verschillende vormen (spiraal, golven of door de wind gedreven) reageren op lichaamssignalen, zoals ademhaling, hartslag en activiteiten van het autonome zenuwstelsel.

BioMirror

A biological look inside your body -

Biofeedback already existed in clinical settings, but within the BioMirror project it is being explored how this could be applicable for daily life. BioMirror comprises interactive areas that, through the adoption of different shapes (spirals, waves or wind propelled), respond to body signals, like breathing, heartbeat and autonomic nervous system activity.



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Blundur

Slaap-apneu non-invasief in kaart

gebracht - Zo'n 300.000 Nederlanders hebben slaap-apneu, een chronisch en vermoeiend (ademhalings-)probleem. Kwantificering van apneu gebeurt via plaatsing van een katheter in de slokdarm; een voor patiënten weinig prettige methode. De Blundur-sensor meet de ademhaling van buitenaf en is een comfortabel alternatief tijdens slaapstudies.

Blundur

Sleep apnoea mapped out non-

invasively - Around 300,000 people in the Netherlands suffer from sleep apnoea, a chronic and tiring (respiratory) problem. Apnoea is quantified through introducing a catheter to the oesophagus; not a particularly pleasant method for patients. The Blundur sensor measurement of the breathing from the outside is a comfortable alternative during sleep studies.





health

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Frugal Thermometer

Een aan de context aangepaste en eenvoudige thermometer voor Afrika - Door een gebrek aan alternatieven is in veel Afrikaanse landen een hand op het voorhoofd dé manier om koorts te meten. Vaak met nadelige gevolgen. De Frugal Thermometer is een betrouwbaar, gebruikersvriendelijk en goedkoop alternatief. Kleuren, geluidjes en emoticons geven aan of, wanneer en waar mensen medische hulp moeten zoeken.

Frugal Thermometer

Adapted to suit the situation, a simple thermometer for Africa - Through the absence of alternatives in many African countries a hand on the forehead is the way to measure a person's temperature. Often with disastrous consequences. The Frugal Thermometer is a reliable, user-friendly and cheap alternative. Colors, sounds and emoticons indicate if, when and where people should seek medical assistance.



health

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Sense Math

Blinde kinderen krijgen wiskunde al voelend onder de knie - Blinde kinderen hebben vaak moeite twee-dimensionale grafische informatie te begrijpen. Dat maakt wiskunde een lastig vak. 3D-printtechnologie biedt kansen door grafieken te 3D-printen en deze aan te bieden op een tablet. De tablet herkent iemands vingerbewegingen en voegt afhankelijk van de vingerpositie, audio-informatie toe.

Sense Math

Blind children master mathematics - Blind children often struggle to understand two-dimensional graph information. This makes mathematics a tough subject. 3D-print technology offers the possibility of printing graphs in 3D and offer them on a tablet. The tablet identifies a person's finger movements and adds audio information depending on the finger position.



health

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MyDayLight

Via lichtkleuren dagelijkse activiteiten structureren - MyDayLight helpt mensen met autisme via interactie structuur aan te brengen in hun dagelijkse activiteiten. Is het tijd voor de afwas? Dan verandert de lichtkleur in de keuken. MyDayLight geeft subtiele hints; gebruikers richten het licht (en dus hun leven) in zoals zij dat willen.

MyDayLight

Endowing daily activities with structure using coloured light - MyDayLight helps people with autism through introducing interactive structure to their daily activities. Is it time to wash the dishes? Then the colour of the light in the kitchen changes. MyDayLight provides subtle hints; users organize the light (and in turn their lives) as they wish.



health

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Smart Rehabilitation Garment for Posture Monitoring

Slimme kleding voor een correcte houding - Smart Rehabilitation Garment (SRG) ondersteunt mensen bij het aanleren of verbeteren van een correcte (rug)houding. SRG bestaat uit een slim vest met een centraal 'Bluetooth-knooppunt', sensoren en een mobiele applicatie. Gebruikers krijgen feedback via het vest (trillingen), geluidssignalen, visuele instructies en een trainingsoverzicht.

Smart Rehabilitation Garment for Posture Monitoring

Smart attire for correct posture - Smart Rehabilitation Garment (SRG) supports people in learning to position or correcting the positioning of their back. SRG comprises a smart vest with a central 'Bluetooth hub', sensors and a mobile application. Users receive feedback through the vest (vibrations), sound signals, visual instruction and a training schedule.



health

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Nature-Inspired Breaks

Verfrissing en flow op het werk - Kunnen ontwerpers de natuur terug laten komen in producten en wel zo dat we de heilzame effecten van natuur echt ervaren? En zijn die producten bruikbaar als rustgevers en plezierbrengers op het werk? Probeer de nature-inspired breaks, speelse interactie en een zintuigen-prikkelende ervaring, gebaseerd op de natuur.

Nature-Inspired Breaks

Refreshment and flow at work - Can designers preserve the goodness of nature in products and in such a way that we actually experience the beneficial effects of nature in them? And are the products useful as providers of tranquillity and pleasure at work? Try the natural-world-inspired breaks, playful interaction and a sensory stimulating experience, based on nature.



health

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Sonostapp

Nieuwe loopervaring voor mensen met een onderbeenprothese - Mensen met een onderbeenprothese missen 'gevoel' in dit deel van het lichaam. Met het audio-feedback-systeem Sonostapp horen zij via geluidssignalen op hun smartphone hoe zij hun gewicht verdelen, dus hun prothese belasten. Gebruikers lopen meer in balans, zijn mobieler en daardoor sociaal actiever.

Sonostapp

New walking experience for people with lower leg prosthetics - People with a lower leg prosthetic miss the 'feeling' in this part of their body. With the Sonostapp audio-feedback system they hear through sound signals in their smartphone how they are distributing their weight, the burden they are placing on their prosthetic. Users are able to improve their balance when walking, they are more mobile and, as a result, more socially active.



health

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Sports & Vitality district Genneperparken

Hét Eindhoven groengebied voor sport, beweging, recreatie en ontspanning - Dankzij de samenwerking en co-creatie tussen bedrijven, (sport)-verenigingen en kennisinstellingen (waaronder TU/e) verandert het Eindhovense groengebied Genneperparken langzamerhand in een Sports & Vitality district. Het project dient als proeftuin voor de ontwikkeling van andere bewegingsvriendelijke buurten waarin sport, innovatie en gezondheid centraal staan.

Sports & Vitality district Genneperparken

The Eindhoven greenbelt for sport, exercise, recreation and relaxation - Thanks to the cooperation and co-creation between companies, (sport) clubs and knowledge institutes (including TU/e), the Eindhoven greenbelt Genneperparken is gradually changing into a Sports & Vitality district. The project serves as a testbed for the development of other exercise-friendly neighbourhoods in which sports, innovation and health are central themes.



health

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Talk to the floor

Langer, veiliger thuis wonen dankzij interactieve vloer - We worden ouder en willen of moeten langer thuis blijven wonen. Onze woonwensen veranderen, maar de woning verandert niet met ons mee. In het project 'Talk to the floor' helpt een interactieve vloer mensen om langer thuis te blijven wonen. Zo meldt de vloer een val in huis en zorgt voor verlichting om de kans op vallen te verkleinen.

Talk to the floor

Living at home for longer and more safely thanks to the interactive floor - We are living longer and want to or have to live at home for longer. Our residential needs are changing, but the home does not change in step with us. In the project 'Talk to the floor' an interactive floor helps people to remain living at home for longer. The floor reports that a person has fallen at home and it decreases the chance of stumbling through illumination.



health

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Weernink, Marleen van Bergeijk, Joos Huys, Rob Kouwenhoven

Run!

Wie rent wat, waarom, wanneer en hoe? - Run! faciliteert nieuwe hard-loopmanieren en inspireert (meer) mensen om te bewegen. Basis is een hightech Finse piste, waar interactie tussen lopers en omgeving wordt onderzocht. Ook wordt gekeken of InspiRun in het project past. Deze applicatie maakt trainingsschema's op basis van persoonlijke profielen en prestaties.

Run!

Who runs what, why, when and how? - Run! Facilitates new ways of running and inspires (more) people to take exercise. This is based on a high-tech Finnish piste, where the interaction between runners and their environment is studied. Whether INspiRun could be part of the project is also being looked into. This application utilizes training schedules based on personal profiles and performance.



health

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Komen | Client: Princess Maxima Centre for Child Oncology

Vika

Hoe kleiner, hoe fijner! - Vika is een interactieve muur voor kinderen op de oncologieafdeling. Spil in het spel zijn 78 roterende flappen die reageren op (arm)bewegingen. Hoe kleiner de beweging, hoe meer flappen bewegen. Kinderen creëren de spectaculairste reacties, wat hun zelfvertrouwen verhoogt en de ergste zorgen van ouders (even) wegneemt.

Vika

The smaller, the better! - Vika is an interactive wall for children in an oncology department. At the heart of the game are 78 rotating flaps that respond to (arm) movements. The smaller the movement, the more flaps move. Children create the most spectacular responses, boosting their confidence and (momentarily) dispelling their parents' worst concerns.



health

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BUOY

Uitdaging, begeleiding én lol tijdens het rennen - Het interactieve paallichtsysteem BUOY begeleidt hard-lopers tijdens hun loopronde. BUOY laat weten hoe snel je gaat, daagt je uit om een sprintje te trekken of motiveert je op als je goed bezig bent. Actief en fit blijven was nog nooit zo leuk!

BUOY

Challenging, guiding and having fun while running - The interactive post-lighting system BUOY guides runners during their run. BUOY tells you how fast you are running, challenges you to take a sprint or encourages you if you are performing well. Being active and staying fit was never so much fun!



Interactive VIKA wall aims to empower seriously ill children

‘The hospital as a living lab. What could be better?’

At first sight, VIKA looks like a relatively simple interactive object. But appearances can be deceptive. Behind the moving wall, developed by BSc students of Delft University of Technology for their ‘Interactive Environments’ minor, lies a richer story that began when the Princess Máxima Centre for Paediatric Oncology asked for an environment that does not focus on being ill, but on encouraging children with cancer, to grow.

It was no coincidence that the Princess Máxima Centre approached Delft University of Technology. Both organizations, together with the Revalidatiefonds, collaborate in the research project ‘Meedoen = Groeien!’, which is dedicated to preventing or lessening delayed physical and psycho-social developments in seriously ill children. The ultimate aim is to drop dramatically the risk of cognitive, emotional, social or behavioral problems later in life.

Healthy interaction

Seriously ill children benefit from healthy interaction – that much is clear. “Children with cancer often feel sick or nauseated because of the chemo,” says Aadjan van der Helm, assistant professor in interaction design, and involved in VIKA. “There are always concerns about what’s going to happen, and chances of survival. And this all has an effect on the parents, of course, who are often very protective of their child, sometimes to the extent that they barely let their child take a single step.” And all this while children, however sick they may be, want to play. “Play stimulates a child’s physical and social development,” adds Marco Rozendaal, university lecturer in interaction design. “*Playing together* also alleviates parents’ stress levels. It helps to process emotions, makes it easier to deal with unpleasant experiences, and improves communications between parent and child.”

‘VIKA can empower children and parents’

Iterative process

VIKA was developed by students from a wide range of backgrounds during the minor ‘Interactive Environments’. Van der Helm: “The group included students of Engineering, Industrial Design, the Built Environment, Psychology and a number of wizards. The design phase followed an iterative process. Prototypes were made

rapidly, put to the test, then evaluated and discussed. VIKA evolved step by step, in a very interactive fashion. All in all, it was a very successful assignment, thanks to the students’ enormous commitment.”

From a distance

The results are promising, agrees Rozendaal. “VIKA is a wonderful installation that subtly drives a wedge between the often rather over-anxious relationship between parents and their sick child. The 78 rotating flaps in the wall respond very strongly to small children and less so to adults. VIKA truly empowers children; it gives them an incredible boost. Children can play with it on their own, or with other children. Parents don’t necessarily need to be there. They can watch from a nearby couch, while still having a visual, audible connection, with their child.”

‘In dialogue with each other we can make the world around us a little bit better’

Meaningful design

One of the great things about an interactive environment like VIKA is that it engages the medical staff, as well as the children and doctors. “Of course, it affects the nurses and doctors that pass by,” says Rozendaal. “That’s the strength of interaction design. Installing VIKA in the actual hospital context allows us to assess the actual effect on children, parents and visitors and how the installation might become embedded in medical practises. People will wonder how to keep VIKA clean. Or how to ensure the safety of the object and its surroundings. The hospital as a living lab. What could be better?” Van der Helm adds: “Thanks to their meaningful design, interactive environments don’t make us feel that we’re dependent on technology, but in control of it and, in dialogue with each other, we can make the world around us a little bit better.”

Interactive route through the Genneper Parken greenbelt

Promoting physical activity

A number of organizations, including the local University of Technology, worked together to transform the Eindhoven greenbelt Genneper Parken into a Sports & Vitality district. Students of the Built Environment and Industrial Design faculties looked at how the area can promote physical activity. The result is a number of remarkable ideas, including plans to lay a Finnish piste, and to install an innovative system of posts fitted with light sensors that react to passing joggers.

Sports & Vitality district – Ad de Bont
District Genneper Parken is a greenbelt for sports and recreation in the south of Eindhoven. The park is criss-crossed by beautifully landscaped walking routes, and also boasts a variety of sports facilities, museums and cafés. Some time ago, an initiative group was launched to boost the quality of the area. Its ambition? To turn the greenbelt into a Sports & Vitality district; the place to be for sports and other forms of relaxation.

Healthy lifestyle

To devise and flesh out potential plans, the initiative group contacted the TU (University of Technology) in Eindhoven, and Fontys School of Sport Studies. Ad de Bont, researcher and lecturer at the Department of the Built Environment, is tasked with coordinating the project. “The idea behind a Sports & Vitality district”, Ad explains, “is to promote a healthy lifestyle, and vitality. And that’s

very important. Obesity is a well-known and increasingly prevalent problem, which is beginning to affect greater numbers of younger children. Although people are less keen on taking part in organised sports activities, activities that take place outside of clubs - like skating and running – are enjoying greater popularity. This project ties into that trend. One of the plans, for instance, involves laying a Finnish piste, a type of running trail often found in Belgium. It’s a form of running track with a shock-absorbent upper layer.”

Log in

To make the jogging trail, which has a desired length of approximately 7 kilometres (one-sixth of a marathon), even more appealing, students of the TU and Fontys School of Sport Studies came up with innovative and interactive methods (RUN!) to challenge and inspire runners. Ad: “The idea is that athletes

*Genneper Parken
to become
a Sports &
Vitality district*



will soon be able to log onto the route with a special app. Based on the runner's personal profile, the app will challenge them to do a particular workout or stick to a running schedule. We hope that by linking the physical world – the running route – with the digital domain – the smartphone app – we'll appeal to young people in particular, and inspire them to become more active."

RUN! - Ineke Neutelings/Carl Megens/Bastiaan van Hout

Project RUN! Is all about creating a stimulating sports environment through the use of high-tech applications. A number of ideas have been developed and partly tested, such as that of Ineke Neutelings, who recently earned her MA in Industrial Design. "The concept, which I realized together with Bastiaan van Hout and Carl Megens, is a sprint zone", she says. "Posts are installed along the edge of a 50-metre route, which light up to encourage runners to sprint. Lights are mounted on both sides of each post, and are visible to people running in either direction. The speed at which the lights come on depends on the speed registered by the sensors in the measuring zone just before the sprint section. The idea is to create a fun effect on the track – a short light show – when a runner sprints within the designated time.

BUOY – John Vlaming

A similar idea to that of Ineke, which also falls within the RUN! Project, is that of Industrial Design student John Vlaming. He christened his concept 'BUOY'. John is planning to install light posts along the edge of a 2½ kilometre running track. "I was intrigued by finding a way to do more with the actual environment in which someone is running. In contrast to apps that often only tell you how hard or how far you've run, you can use lights along the route as a way to give feedback. And by changing color, the lights help runners to maintain a certain pace, or challenge them to follow a specific routine. I think it's a very motivating form of personal training."



Interactive methods to inspire runners

home



Er zijn weinig plekken denkbaar waar design zo van evident belang is als thuis. Thuis is een plek geworden waar nagenoeg alles samenkomt. Niet alleen eten, slapen en recreëren we daar -samen of alleen-, we vinden er ook inspiratie en werken steeds meer vanuit thuis. Wonen en thuis zijn meervoudige begrippen geworden waar de ontwerpers aan bijdragen of op inspelen.

There are few places where design matters more than in the home. The home has become a hub of almost all our activities. Not just eating, sleeping and enjoying free time – together or alone – more than ever, home is where we seek inspiration, and where we work. 'Living' and 'home' have become multi-purpose terms to which the designers contribute or respond.



home

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GEIST

In het buitenland thuis in huis halen - In het buitenland wonen is fijn, maar expats houden op de een of andere manier graag voeling met hun moeder- / vaderland, hun identiteit. De GEIST-objecten - radio, klok en kalender - helpen subtiel bij het in huis halen van 'thuis' via kleine, alledaagse handelingen.

GEIST

Introducing your homeland to your home abroad - Living abroad is great, but expats like - in one way or another - to maintain an emotional bond with their country of birth, their identity. The GEIST objects - radio, clock and calendar - help to subtly bring some of your homeland to your home through small everyday actions.



home

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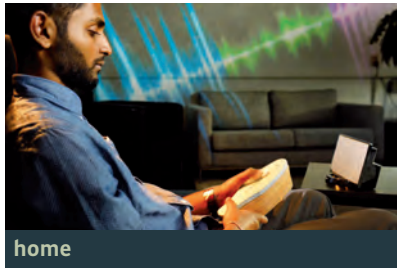
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Mizu

Slimme wastafel houdt ons een spiegel voor - Mizu laat zien hoe materiaalgebruik, aansluiting op het internet en een 'smart' producttoepassing mensen helpt te reflecteren en te anticiperen op hun consumptiegedrag. De 'slimme wastafel' past watertemperatuur aan op iemands gewoontes, schakelt de boiler automatisch uit en slijt harder naarmate (onnodig) gebruik toeneemt.

Mizu

Smart washstand holds a mirror up to us - Mizu demonstrates how use of materials, connection to the internet and a 'smart' product application can help people to reflect on and anticipate their consumer behavior. The 'smart washstand' adjusts the temperature of the water to a person's habits, switches the boiler off automatically and wears out more quickly as (unnecessary) use increases.



home

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Researchers: Miguel Bruns Alonso, Yeup "Brandon" Hur, Panos Markopoulos, Matthijs Kwak | Funding: GHOST is a collaborative project funded by the EC within the 7th framework programme through the FET Open scheme under grant agreement no. 309191 and a Design United Demonstrator

GHOST, Generic Highly Organic Shape-changing inTerfaces

Producten die zich aanpassen of passen wij ons aan? - Zijn er toepassingen denkbaar voor toekomstige materialen, die hun fysieke eigenschappen zoals vorm of elasticiteit kunnen aanpassen? Studenten ontwikkelden concepten waarin veranderende materiaaleigenschappen worden gesimuleerd. Zo is er een tandenborstel die zich aanpast aan het poetsgedrag. Bij te hard poetsen wordt de borstel flexibeler om dit tegen te gaan.

Ghost, Generic Highly Organic Shape-changing inTerfaces

Products that adapt or should we adapt? - Can applications be found for future materials that can adapt their physical characteristics like shape or elasticity? Students have developed various approaches in which changes to material characteristics are simulated. There is a toothbrush for instance that adapts to brushing habits. If the user brushes too hard, the brush becomes more flexible to compensate for this.



home

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Sponsor: Stamhuis Lineairtechniek

Phio (Physical Input Output)

Overtref tastbaar de platte ervaring van een app - De communicatie met een 'Internet-of-Things' product verloopt meestal via een smartphone-app. Phio, als generieke afstandsbediening, gaat uit van rijkere interactie via een tastbare interface en biedt daarmee een andere kijk op de interactie vergeleken met de platte app-ervaring. Phio stelt vraagtekens bij de obsessie voor schermjes en laat ontwerpers een alternatief zien.

Phio (Physical Input Output)

Tangibly exceed the flat experience of an app - The communication with the 'Internet-of-Things' products usually takes place through a smartphone app. Phio, as a generic remote control, offers a richer interaction through a tangible interface and, in doing so, provides a different angle on interaction when compared to the flat app experience. Phio questions the obsession for screens and shows designers an alternative.



home

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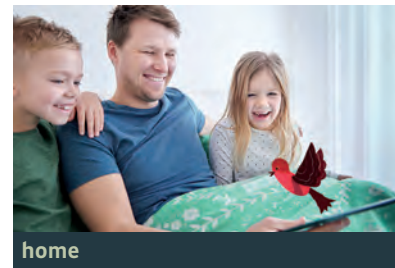
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Researchers: Jelle Stienstra, Bart Hengeveld | Companies involved: IKEA of Sweden AB (client), IDEO (coordination) | www.vincentvanrheden.nl

IKEA Concept Kitchen 2025

Wonder van vernuft, lust voor het oog - Studenten van TU Eindhoven en de Universiteit van Lund (Zweden) hebben in opdracht van IKEA of Sweden de Concept Kitchen 2025 ontwikkeld. De keuken is een wonder van vernuft, een lust voor het oog en biedt een kijkje in een toekomst waarin duurzaam leven steeds belangrijker wordt.

IKEA Concept Kitchen 2025

A wonder of ingenuity, a wonder to behold - Students at Eindhoven University of Technology and the University of Lund (Sweden) were awarded an assignment by IKEA of Sweden to develop the Concept Kitchen 2025. The kitchen is a wonder of ingenuity and a wonder to behold and offers a glimpse into the future in which sustainability will become increasingly important.



home

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Textales Roodkapje Edition

Dans met een digitale Roodkapje in een textiele sprookjeswereld - In de Roodkapje Editie van Textales kunnen ouders en hun kinderen via *augmented reality* het sprookje van Roodkapje meebelevén. Een smart phone of tablet-applicatie herkent de patronen op het dekbed, kussen of tapijt en toont digitale sprookjesfiguren. Welkom in de (sprookjes)wereld van digitale dynamiek en textiele duurzaamheid!

Textales Roodkapje Edition

Dance with a digital Little Red Riding Hood in a textile fairy-tale world - In the Little Red Riding Hood Edition of Textales, parents and children can experience the fairy tale of Little Red Riding Hood through *augmented reality*. A smartphone or tablet application recognizes the patterns on the quilt cover, pillow or carpet and displays fairy-tale figures. Welcome to the (fairy-tale) world of digital dynamics and textile sustainability!



home

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Towards transparent intelligence

Hoe intelligent is jouw slimme product eigenlijk? - Slimme producten veroveren stap voor stap onze huiskamers. Vaak hebben gebruikers moeite deze meteen te snappen, mede door het ontwerp. Wat maakt deze ontwerpen lastig om te begrijpen? En hoe voeg je intelligentie toe aan design? Maak kennis met Nova, intelligente interface voor de controle van luchtkwaliteit.

Toward transparant intelligence

Really, how intelligent is your smart product? - Smart products are invading our lounges step-by-step. Users often struggle to understand them quickly, partly due to their design. What is it that makes these designs so difficult to comprehend? And how do you add intelligence to a design? Learn about Nova, an intelligent interface for monitoring air quality.



home

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Researchers: Ron Wakkary, William Odom, Industrial Design, Eindhoven University of Technology and School of Interactive Arts & Technology, Simon Fraser University
Partner: Elisa Giaccardi, Industrial Design Engineering, Delft University of Technology

Unaware objects

Een onbewuste lange-termijn-interactie met design-producten - Unaware objects zijn er wel, maar ook niet. Ze zijn zo ontworpen dat ze geen aandacht nodig hebben of vragen van hun gebruikers. De objecten voeren voorgeprogrammeerde processen automatisch uit, hebben geen expliciete output-functies, ontberen traditionele interfaces of controlemechanismen en zijn immuun voor rechtstreekse interactie.

Unaware objects

An unaware long-term interaction with design-products - Unaware objects are both there and not there. They are designed in such a way that they need no attention from their users. The objects act according to pre-programmed processes, do not have any explicit output functions, lack traditional interfaces or control mechanisms and are immune to direct interaction.



Meaningful communication with the technology that surrounds us

A washstand that 'makes an impression'

In general, signs of wear and tear are often a reason to consider buying a replacement. With 'Mizu' it's different. Traces of use are deliberately made visible so that people can see how they have been treating their product. Industrial Design Engineering PhD student Holly Robbins devised the concept together with fellow students in the hope that consumers would become more aware of the way technology works and learn (or be reminded) how to communicate with it.



Technology is becoming an increasingly important part of our lives and is increasingly complex. That complexity is not something we are usually aware of because products are designed to make their use as simple and clear as possible, thus masking their complexity, as it were. 'The result is that we often lack an appreciation of the way technology works. And that can result in over-consumption', says Holly Robbins. She takes the way we use central heating as an example. 'If you know that you'll be leaving the house shortly, you don't light a fire in the hearth; it would take too long. It is much easier to turn the thermostat up a couple of degrees, but then you run the risk of forgetting to turn it down again when

you leave the house.' The point is, according to Holly, the more technology simplifies life, the further removed it leaves us from the actual function, like heating the house in Holly's example. The result is wastage. This problem requires a different approach. Holly: 'The challenge is to develop products that demand our attention regarding function and usage. We want to increase people's involvement with technology so that they become more aware of their consumption patterns.'

'Smart' washstand

In order to bridge the gap between people and technology, Holly and her fellow students



'We want to increase people's involvement with technology.'

(Shen-Kao Cheng, Beatrice Chichiarelli, Max van Heeswijk, Lennaert Kempers and Olivier van Nieuwmegen) have devised a new, 'smart' washstand: Mizu (Japanese for 'water'). On the one hand, Mizu is intelligent like so many of today's new technologies, Holly explains. 'The washstand is connected to the Internet and is therefore able to register water consumption and adapt to suit the individual's habits. But Mizu is also very efficient thanks to the way it communicates with the hot water supply and the pump system. The boiler switches off automatically if no-one is detected nearby the washstand.'

When it comes to instructions for use, Mizu is intelligent in a whole new way. Holly: 'Mizu works differently from most washstands. There are no tap handles and sensors you just have to hold your hand in front of because, figuratively speaking, they don't show us anything about how the product works. Instead, sensors in the bronze rim of the washstand respond to specific movements, movements that clearly indicate some aspect of the washstand's function. For example, in order to get hot water you have to rub over the bronze rim towards the right, as if you were warming your hands. For colder water you have to tap the rim gently, similar to the way you would waft cold air towards yourself. The left side of the bronze rim is used to adjust the force of the water flow. If you sweep your hand towards the tap – as if you were pushing

the water forwards – the pressure increases. The water flow is reduced by moving your hand in the other direction.'

Double message

There is a good reason for using bronze, Holly continues: 'Bronze shines when it is rubbed repeatedly. Over time, you can see a clear difference between the sections of the bronze rim that have and have not been touched; visible traces of use that reflect the user's behavior at the washstand. The shiny bronze 'communicates' with the user, so to speak. Our aim and our hope is that this type of communication will shorten the distance between man and technology, and make consumers more aware of their water consumption.'

'Mizu is intelligent in a whole new way.'

The first prototype clearly attracted great interest, Holly told us, even though it did take people a little out of their 'comfort zone'. 'The challenge now is to dispel the preconception that visible traces of use represent something 'dirty'. The fact that for our project we have chosen a bathroom washstand – a beacon of hygiene – makes it even more interesting.'

material innovations



Hoe virtueel ons bestaan ook aan het worden is, uiteindelijk is de materiële wereld de omgeving die we niet kunnen missen. We blijven constructies nodig hebben om te wonen, te werken, beschutting te vinden en ons fysiek voort te bewegen. Met de opmars van 3D printen openen zich ongekende nieuwe mogelijkheden, the sky is the limit. Maar er is meer. Ook met ijs valt veel verrassends te creëren.

No matter how virtual life becomes, we cannot survive without the material world. We need constructions for housing, working, finding shelter, and for our physical mobility. The development of 3D printing is opening up unprecedented new possibilities – the sky's the limit. And that's not all. Ice is another incredibly versatile material we use to create.





material innovations

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3D-printen met beton

Baanbrekende technologie zet architectuur en bouwen op z'n kop - 3D-printen met beton opent een nieuwe wereld in architectuur en bouwen. Niet alleen voor holle en bolle vormen, maar vooral voor slimme integratie met installaties. Op de faculteit Bouwkunde van TU Eindhoven loopt een onderzoeksproject naar de constructieve en materiaalkundige aspecten. Experimentele producties van prototypen worden een belangrijke bron van nieuwe kennis.

3D printing with concrete

Ground-breaking technology turns the world of architecture and construction on its head - 3D printing with concrete opens a new world in architecture and construction. Not just through concave and convex shapes, but especially through smart integration with installations. At the TU/e faculty of Built Environment a research project is running to acquire constructional and material knowledge. Experimental production of prototypes are set to become a source of new knowledge.



material innovations

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Researchers: Arno Pronk, Rijk Blok en Arjan Habraken

Sagrada Familia in ijs

Ijsbrug met grootste vrije overspanning ooit - Door ijs te versterken met vezels en gebruik te maken van oplaasbare matten lukte het TU/e studenten de grootste Pykrete koepel (30 meter) en een Sagrada Familia in ijs (21 meter) te realiseren. Aanstaaende winter wordt 's werelds langste ijsbrug geconstrueerd: de Da Vinci Brug in ijs.

Sagrada Familia in Ice

Ice bridge with the largest span ever built in ice - Combining several techniques (shotcrete, fibery enforcement and inflatable molds) research by students of the TU/e resulted in the largest Pykrete Dome (30 meters) and highest ice-dome, the Sagrada Familia in Ice (21 meters) in the world. Next winter the team will construct world's largest span in ice (50 meters span): 'Da Vinci's Bridge in Ice'.



material innovations

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www.light-touch-matters-project.eu | Research Partners:
LTM Consortium, Globuddy, Glove, Life Saver

Light.Touch.Matters

Voelt intuïtief prettig, licht en gevoelig - Project Light.Touch.Matters (LTM) ontwikkelt nieuwe, slimme materialen die aanraakgevoeligheid combineren met luminescentie. Ze zijn opgebouwd uit polymerische piezo-materialen en flexibele OLEDs. Deze LTM materialen laten product en bedieningsinterface naadloos in elkaar overgaan, bijvoorbeeld in revalidatiehulpmiddelen, dieetcoaches, dashboards of draagbare electronica.

Light.Touch.Matters

Feels intuitive, light and sensitive - Project Light.Touch.Matters (LTM) develops new smart materials that combine touch sensitivity with luminescence. They are constructed from piezo plastics and flexible OLEDs. These LTM materials allow a seamless transition from product to interface, e.g. in rehabilitation aids, diet coaches, dashboards or wearable electronics.



material innovations

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Warmbeton paviljoen

Nieuwe bouwoplossing zit als gegoten - Het gevelconcept warmbeton is gebaseerd op thermisch isolerend ultralicht beton, een bouw materiaal waarin thermische isolatie en draagvermogen samengaan. Na de ontwikkelfase richt het project zich nu op integratie en afstemming van architectonische, constructieve en bouwfysische kwaliteiten. Als basis voor nieuwe (bouw)oplossingen vervangt warmbeton de koudebrugproblematiek.

Warm concrete pavilion

New construction solution fits like a glove - The façade concept warm concrete is based on thermal insulating ultralight concrete, a construction material in which thermal insulation and load bearing go hand in hand. Following the development phase, the project is now focused on integration and harmonization with architectural, constructional and physical building qualities. As a basis for new (constructional) solutions, warm concrete replaces previous solutions for thermal bridging.



material innovations

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Eindhoven University of Technology; Department of the Built Environment in collaboration with the Department of Chemical Engineering and Chemistry

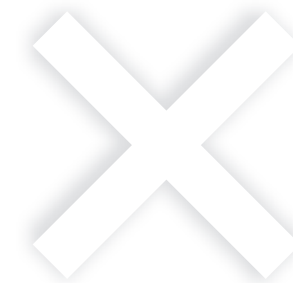
Researchers: Michael Debije, Mariëlle Aarts, Elphi Nelissen
Contributing students: Finn Vossen (LSC facade) and Michalis Kanellis (SONOB (Solar Noise Barriers)) | Client 'SONOB': Heijmans

Luminescent Solar Concentrators

De kleur van een duurzame toekomst - Luminescent Solar Concentrators (LSC) leiden opgevangen licht in een geconcentreerde vorm naar een traditionele zonnecel, waar het licht wordt omgezet in elektriciteit. Omdat LSC's stevig en transparant zijn en in elke vorm en kleur leverbaar, zijn ze ideaal om toe te passen in de gebouwde omgeving op plekken waar traditionele zonnepanelen minder geschikt zijn zoals in geluidsschermen en gevels van gebouwen.

Luminescent Solar Concentrators

The colour of a sustainable future - Luminescent Solar Concentrators (LSC) lead captured light in a concentrated form to a traditional solar cell, where light is transformed into electricity. As LSCs are robust and transparent and can be supplied in any shape and colour, they are perfect for incorporating in a built environment in places where traditional solar panels would be less appropriate, for example in acoustic sound barriers and building facades.



Replacing traditional concrete construction with smart concrete, thanks to 3D printing

‘No such thing as grey concrete’

Since Theo Salet was appointed professor of Concrete Constructions at the Structural Design unit at Eindhoven University of Technology faculty of Built Environment, he has proved that ‘ordinary concrete’ is far more versatile than we imagine. Learn about the research project ‘3D Concrete Printing’.

3D printing is one of the most revolutionary production technologies of this century. From its beginnings as a ground-breaking method to produce medical devices such as joints and heart valves, the technology has matured to include constructional building materials such as steel, wood, glass, and ... concrete. “Concrete has always been about constructional design. Is it safe? Will it stay upright? Will it buckle?” Theo Salet, professor of Concrete Constructions at Eindhoven University of Technology faculty of Built Environment discusses the merits of concrete. “Concrete is far more than that. You can use it for literally anything. To me, concrete is the material formerly known as concrete. There’s no such thing as grey concrete. And I want to prove it.”

“Muscle will make way for smart technology”

Smart concrete

Salet kept his word, and started the research project 3D Concrete Printing (3DCP) to acquire constructional and material knowledge of concrete, and explore production techniques.

“At the moment, 3D printing is often about being the first. Building the first 3D-printed hotel, house or office. Our aim is to use 3D printing to replace traditional concrete constructions with smart concrete. Getting the right concrete to the right place, using fewer materials and helping to limit environmental damage, and more besides. 3D printing allows structural components such as walls and facades, to be custom-made, adapted to the service requirements of a building – concrete that’s smart because it integrates functions. It also incorporates room for sensors that, via The Internet of Things, regulate the temperature and lighting in the building with a single wave of the hand.”

Showpiece

The showpiece and foundation of the project is the 3D concrete printer that measures a colossal 5x4x12 metres. A machine full of clever tricks, says Salet. “To mix and pump the concrete, the system must be calibrated to the path the printer follows, so that both functions can communicate. We’re also working on a new recipe for the concrete. Normally, reinforced steel is used, which means that concrete is calculated on the basis of tensile strength, as well as pressure force. Steel-

“To me, concrete is the material formerly known as concrete”

reinforced concrete will not work in 3D printing. So we developed tiny fibres that are added to the concrete mixture, and devised a calculation model to establish the fibre shape, size and material. Finally, we created a design model for an optimum print pad. A 3D printer extrudes ‘dots’ of concrete that are laid onto a site within a certain space of time. This needs to be calculated with great precision because the print speed and print sequence determine the ultimate strength of the construction. At the moment, this is still a matter of trial and error, but we hope that won’t be the case for long.”

Designing becomes making

3D concrete printing is not only a new method of making, enabling builders to carry out their existing work in a more automated and smarter fashion. It also demands the far-reaching integration of architectural design, technical design and production techniques. Salet: “Designing becomes making. Not with the idea of designers becoming producers, but with the idea of fostering an iterative process between designers and producers in line with the principle of ‘merging

design and production’. That is why we work together on this product and why I teamed up with colleagues from the Innovative Design and Architecture units within the faculty.

Embracing the unknown

Precisely what the future holds for 3D concrete printing no one can say. Salet believes that it will make concrete construction more refined and cost-effective. “We are moving towards a scenario of low-cost housing because we can produce 24 hours a day, 7 days a week. Another intriguing question is whether the 3D printing technique can provide a lasting added value to buildings and their constructions. In contrast to the way we currently work, it requires us to think everything out in advance. Muscle will make way for smart technology. It’s important to note that our research receives financial backing from around 10 partners from different corners of the construction industry. From cement supplier to contractor: they all wanted to invest and dared to embrace the unknown. Despite the difficulties presently facing the building sector. So prospects certainly look very bright.”



wearables



Kleding van de nabije toekomst is niet alleen om ons te beschermen, warmte te geven en onze identiteit te onderstrepen, wat wij dragen gaat steeds meer interacteren met onszelf en de omgeving. Wat wij aantrekken wordt nog persoonlijker, nog meer een vorm van steun en uitdaging in ons dagelijks leven. Imperfecties worden haast naadloos geheel of gecorrigeerd dankzij slimme producten die een direct verlengstuk van het lichaam vormen.

In the near future, clothing won't just protect us, keep us warm and express our identity; what we wear will interact with us and the environment. What we wear will become more personal, more a form of support and challenge in our everyday lives. Imperfections will be healed or corrected almost seamlessly thanks to smart products that are a direct extension of the body.



wearables

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Yu Song | Company: Vectory3; Pieter van der Zwan

3D Hand Scanner

Opent een wereld aan mogelijkheden - De mogelijkheden van 3D scanning zijn eindeloos. Het scannen van lichaamsdelen - handen in het bijzonder - blijft lastig, vanwege hun beweeglijke karakter. De 3D Hand Scanner maakt via fotogrammetrie en projectie een nauwkeurig, betaalbaar handmodel en is de eerste speciaal voor dit doel ontwikkelde scanner.

3D Hand Scanner

Opens a world of possibilities - The possibilities for 3D scanning are infinite. Scanning body parts - especially hands - is tricky, because of their tendency to always be moving. The 3D Hand Scanner utilizes photogrammetry and projection to create an accurate, affordable hand model and it is the first scanner designed especially for this purpose.



wearables

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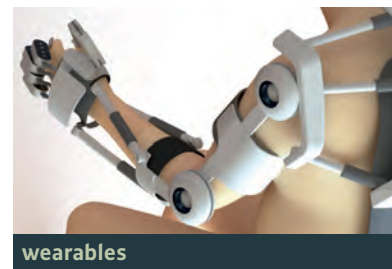
r.b.n.scharff@tudelft.nl | Researchers: Jo Geraedts, Wim
Poelman, Pieter Jonker | Company: Materialise; Willem
Verleyesen, Toon Roels

3D-Printing Soft Robots

Nieuwe mens-robot interactie met zachte hand stimuleren - Het onderzoeksgebied 'Soft Robotics' focust zich op de toepassing van zachte materialen in robotica. Dit project combineert op unieke wijze het 3D-printen van balgvormige luchtkamers met een pneumatische aandrijving voor vernieuwende toepassingen in de zorg, zoals prothesen en orthesen.

3D-Printing Soft Robots

Soft stimulation for new human-robot interaction - The field of research 'Soft Robotics' focuses on the integration of soft materials in robotics. This project uniquely combines 3D printing of bellows-shaped air chambers with pneumatic power for innovative applications in health care, like prosthetics and orthotics.



wearables

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Bionics for Healthcare

Thuis revalideren met de beste klinische ondersteuning - De meeste mensen hebben na een beroerte last van verlamningsverschijnselen in de arm. M-Brace biedt ondersteuning tijdens de revalidatie. De robotoefen-arm werkt met voorgeprogrammeerde oefeningen, reageert op bewegingen of spierspanning in de arm. M-brace is een aanvulling op therapie en betreft patiënten actief bij hun herstel. Zo kan men thuis therapie ontvangen en zonder extra kosten ten opzichte van de huidige situatie trainen, wat de kans op herstel vergroot.

Bionics for Healthcare

Home rehabilitation with the best clinical support - Most people suffer symptoms of paralysis in the arm following a stroke. M-Brace offers support during rehabilitation. The robot exercise arm works with pre-programmed exercises, responds to movements or muscle tension in the arm. M-brace is a supplement to therapy and involves patients actively in their recovery. This means that people can receive therapy at home and train without the extra costs of the current set-up, which increases the chance of recovery.





wearables

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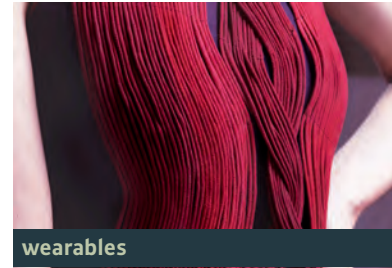
contact@paulinevandongen.nl | e.a.m.admiraal@tue.nl
www.paulinevandongen.nl | Companies: ArtEZ, SLEM,
Pauline van Dongen

Be-tween

3D-dress to impress - Minister Jet Bussemaker was tijdens Prinsjesdag 2015 een echte blikvanger. Het geheim? Haar innovatieve outfit: Be-tween. Zowel haar jurk als schoenen zijn gebaseerd op een 3D-bodyscan en ontwikkeld door middel van algoritmes met de software 'Grasshopper', waarin de minister haar persoonlijke voorkeuren kon aangeven en de outfit perfect passend werd gemaakt. Een elegante cross-over tussen digitale printtechnologie en traditioneel vakmanschap!

Be-tween

3D-dress to impress - On the day of the King's speech, Minister Jet Bussemaker stole the show. The secret? Her innovative outfit: Be-tween. Both her dress and shoes were based on a 3D body scan and developed using algorithms with the software 'Grasshopper', in which the minister could indicate her personal preferences and the outfit was made as a perfect fit. An elegant cross-over between digital print technology and traditional craftsmanship!



wearables

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In collaboration with: Malou Beemer | Coach: Oscar Tomico Plasencia

Kimbow

Interactieve jurk versterkt lichaamstaal en zelfvertrouwen - Kimbow is een interactieve jurk die reageert op de houding van de drager. Programmeerbare draden laten de jurk van kleur veranderen om lichaamstaal extra kracht bij te zetten. Door de opvallende uitstraling van Kimbow wordt het zelfvertrouwen van de drager vergroot.

Kimbow

Interactive dress amplifies body language and self-confidence - Kimbow is an interactive dress that responds to the attitude of the wearer. Programmable threads in the dress change color to amplify body language. The striking appearance of the Kimbow improves the self-confidence of the wearer.



wearables

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Lyè Goto, Simon Luitse | Model: Wilma Nawara

Custom fit parametric bra

Een 3D lichaamsscans als basis voor de BH op maat - Het is de wens van veel vrouwen: een BH die ondersteuning biedt, comfortabel is en helpt er goed uit te zien. Vooral de beugel in BH's veroorzaken vaak irritatie. Via 3D lichaamsscans is een ondersteunings-element ontwikkeld en een methode gevonden om de productie van op maat gemaakte BH's op te schalen.

Custom fit parametric bra

A 3D body scan as the basis for the made-to-measure bra - The wish of many women: a bra that provides support, is comfortable and makes you look good. The underwiring in bras is often a source of irritation. Using 3D body scans, a support element has been developed and a method found for scaling up the manufacture of made-to-measure bras.



wearables

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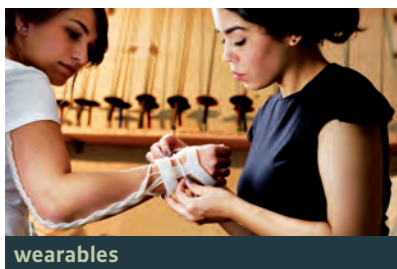
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LifeLines

Kledingpatronen 'vertellen' de verhalen van je leven - Zodra kleding de eerste tekenen van slijtage vertoont, wordt ze vaak niet meer gedragen. Lifelines wil graag de mooie eigenschappen van 'ouder worden' benadrukken en stemt in dit project leeftijd en kleding op elkaar af. Patronen op LifeLines-kleding worden letterlijk gevormd door iemands ervaringen en vertellen unieke, persoonlijke verhalen. Hoe langer de kleding wordt gedragen, hoe complexer de structuur.

LifeLines

Clothing patterns that 'tell' the story of your life - As soon as clothes start to show the first signs of wear, they are often no longer worn. LifeLines wants to emphasize the beautiful qualities of 'ageing' and in this project it matches age and clothing. Patterns on LifeLines clothing are literally formed by a person's experience and they tell a unique, personal story. The longer the clothing is worn, the more complex the structure becomes.



wearables

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Flow

Laat je lichaam voelen wat te doen en waar te gaan - Het aanleren van vaardigheden is vaak een combinatie van inzet, houding en herhaling. Focus ligt bijna altijd op de cognitieve component. 'Flow' gaat uit van leren via contact tussen draagbaar materiaal en de huid. Het lichaam voelt letterlijk wat te doen en waar te gaan.

Flow

Let your body feel what to do and where to go - Learning skills is often a combination of effort, attitude and repetition. Focus is almost always on the cognitive component. 'Flow' is based on learning through contact between wearable material and the skin. The body literally feels what to do and where to go.



wearables

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Mathias Funk, Yaliang Chuang, Lin-Lin Chen,
Companies involved: QisDesign and Brabantse
Ontwikkelings Maatschappij

Light Lapse

Het licht van mijn dag - Light Lapse geeft gebruikers inzicht in hun lichtervaring en past de lichtinstellingen bij thuiskomst naar behoefte aan. Persoonlijke, draagbare lichtsensoren registreren gedurende de dag de lichtervaring. Bij thuiskomst kunnen de lichtsensoren in een schaal worden gelegd, die de verschillende ervaringen weergeeft. De lampen thuis passen zich aan en compenseren de lichtervaring, zodat een gezonde lichtbalans ontstaat.

Light Lapse

The light of my day - Light Lapse provides users with an insight into their light experience and adapts the lighting to their requirements when they arrive home. Personal, wearable light sensors register the light experience throughout the day. When the user returns home, the light sensors can be laid in a dish that reproduces the different experiences. The lamps at home adapt to this and compensate the light experience, creating a healthy light balance.



wearables

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Lopes

Robot-loopbandtrainer brengt meest immobiele patiënten in beweging - De robot-loopband-trainer LOPES helpt patiënten op een intensieve, functionele manier bij het weer bewegen. 'Geheim' is het 'schaduwbeen' dat zijn kracht overbrengt op het been van de gebruiker op momenten dat het moet. LOPES is ideaal voor individuele begeleiding, zelfs van de meest immobiele patiënten.

Lopes

Robot treadmill trainer gets the most immobile patients moving - The robot treadmill trainer LOPES helps patients intensively and functionally when they are learning to move again. 'The secret' is the 'shadow leg' that transfers strength to the user's leg when necessary. LOPES is ideal for individual support, of even the least mobile of patients.



wearables

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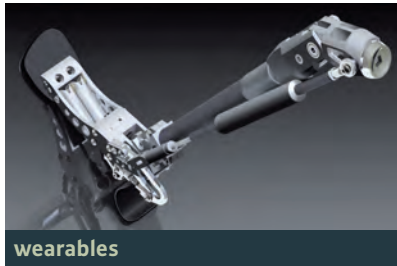
contact@paulinevandongen.nl | www.paulinevandongen.nl
Researcher: Oscar Tomico Plasencia

Rhombotic Flux

De invloed van nieuwe technologieën op de lichamelijke expressie van mode - Focus in mode ligt vaak op het eindproduct, terwijl de interactie tussen ontwerper en materiaal juist zo interessant is. Rhombotic Flux creëert met generatieve software patronen op een virtueel lichaam, waarbij lichaamsvorm en -contouren de basis vormen van schaal, dichtheid en richting van de patronen.

Rhombotic Flux

The influence of new technologies on the bodily expression of fashion - Focus in fashion is often on the final product, while the interaction between the designer and the materials is very interesting too. With generative software, Rhombic Flux creates patterns on a virtual body, where body shapes and contours form the basis for scale, density and direction of patterns.



wearables

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Reflexleg

Gevoelige robotica in een energie-efficiënte beenprothese - De reflexleg 'werkt' zonder afzonderlijke aandrijving van buitenaf. Bovenbeen, onderbeen en voet van de reflexleg zijn aan elkaar gekoppeld met slimme springveren die zo aan- en ontspannen dat 80% van de 'loop-energie' opnieuw wordt gebruikt. Ideaal om bergop of in verschillende tempo's te lopen.

Reflexleg

Sensitive robotics in an energy-efficient leg prosthetic - The reflexleg 'works' without separate external propulsion. The upper leg, lower leg and foot of the reflexleg are linked with smart springs that tension and relax in such a way that 80% of the 'walking energy' is recycled. Ideal for ascending slopes or for walking at different speeds.



wearables

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Script Hand Orthosis

'Handige' revalidatie-robotica voor multifunctioneel gebruik - De inzet van robotica is van grote waarde tijdens de revalidatie na een beroerte. In het SCRIPT-project (Supervised Care & Rehabilitation Involving Personal Tele-robotics) zijn verschillende arm-/handrevalidatiesystemen ontwikkeld die vinger-, hand- en polstherapie integreren. Een ervan is de exoscelet; een handorthese voor multifunctioneel gebruik.

Script Hand Orthosis

'Handy' rehabilitation robotics for multi-functional use - The deployment of robotics is of great value during rehabilitation following a stroke. In the SCRIPT project (Supervised Care & Rehabilitation Involving Personal Tele-robotics) various arm/hand rehabilitation systems were developed for the integration of finger, hand and wrist therapies. One of these is exoscelet; a hand orthosis for multifunctional use.



Super personal

3D printers and scanners are no longer novelties, but what is all possible with these technologies is still truly astonishing. Even the designers are surprised by the results sometimes.

Pieter Smakman (25),
Industrial Design Engineering/
Integrated Product Design,
Delft University of Technology

3D hand scanner Curatio

Try not to use your hands for just a few minutes and you will realize that we need them for almost everything we do. A hand comprises muscles, tendons and 27 small bones that lend this part of the body its agility. Handy! In the development of a good 3D hand scanner this same complexity and flexibility form an almost impossible obstacle.

Extremely accurate

There is no doubt that the world is waiting for a good and affordable 3D hand scanner. Based on accurate three-dimensional images, scalpels and scissors can be fine-tuned to a surgeon's hand. As too can the racket for a tennis star and the steering wheel of a Formula 1 driver. And braces in the case of a wrist fracture can be made so that they fit like a glove. The possibilities are infinite. Industrial designer Pieter Smakman: "Good 3D scanners already exist, but they're really only

suitable for stationary objects. They are not good enough for scanning the human body. If someone with their hand in the air has to stand on a rotating disc during a scan, the person can't help but move. So a scan like this isn't very accurate." How this could be achieved is something that Pieter has researched step by step.

Mini computers

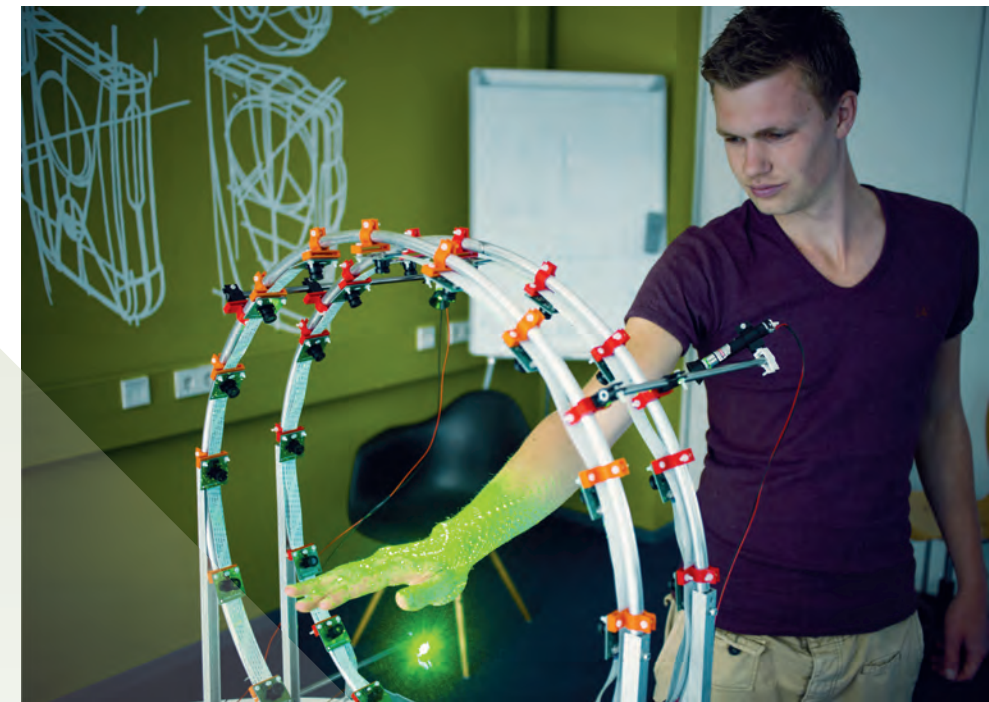
First of all, he investigated which optical technology would be best for determining the shape, composition and structure from various positions. This appeared to be photogrammetry: the hand can be captured in a 3D image through projecting countless reference points onto the hand and calculating the distance between the points with special software.

The more perspectives, so the more photographs that are taken simultaneously of the hand, the more accurate the 3D image.

But how many images do I need to shoot and how am I going to do that?, Pieter asked himself. "Inspired by a person's hobby, who built a full-body 3D scanner, I opted to work with Raspberry Pi's. They are affordable printed circuit boards the size of a packet of cigarettes with the functionality of a fully-fledged computer."

To arrive at the correct number, Pieter constructed a viewing cabinet that contained an artificial arm. Of this, he took photographs from 48 different positions. This is how he tested the

With a good 3D scan, scalpels and scissors can be made exactly to fit a surgeon's hand.



correct parameters: light intensity, projection of the reference points and camera positions. "Then on the computer I discarded 1 photograph from each series, through which I discovered that 32 images were sufficient for producing a good 3D scan."

Eureka!

To test if he could instruct all the 32 raspberries simultaneously, Pieter got the mini computers to take a photograph of his stopwatch. And yes, the same hundredth of a second could be seen on all 32 photographs. Sending the images down the line to the main computer caused another not inconsiderable problem: the wireless network was overburdened. Pieter racked his brains for a full two weeks with this problem, changed the computer script and incorporated a send delay into each raspberry. And then... Eureka! "What I then felt... It's truly wonderful when it all works. Especially because no one has done this before."

Lidewij van Twillert (25),
Industrial Design Engineering/
Integrated Product Design,
Delft University of Technology

Mesh Lingerie: the custom fit parametric bra

If a bra is comfortable when you are dancing, it is always right. This was the basic premise for Lidewij van Twillert's graduation project: the custom fit parametric bra. "I've always been interested in fashion and wanted to develop a piece of clothing through the application of modern technology. Which item of clothing was the most important for me that it fitted well and was comfortable?, I asked myself. That has to be the bra."

If you employ 3D technology, you can achieve a better, more personal fit

Personal fit

The last major innovation in the world of bras was the preformed seamless cup. "I started my graduation project with an analysis and historical research. I learned from this that there have been innovative ideas from time to time, but that in the end nothing really came of them. Many fashion designers cling onto traditional methods. Above all, they have a different tool kit from the one that industrial designers have at their disposal. If you employ 3D technology, you have a lot more measurements to work from than when you just pick up a tape measure, and you can achieve a better, more personal fit."

The first bra

Another student drew Lidewij's attention to a theatre company that was putting on a variety-type show and were in need of costumes. "The lead role had to dance, sing and act in lingerie. A perfect model for my research! I made my first test bra for her."

She had her work cut out for her, because Lidewij had made clothes in the past, but she had never made a bra, one of the trickier items. "I bought a book about drafting lingerie patterns and I completely immersed myself in it. It was very difficult, but after two intensive weeks my first bra was finished, complete with 3D prints. I surprised myself."

Time for the next prototype. "For this, I first scanned my model's breasts in 3D. I replaced

the traditional underwiring, which is never comfortable, with supporting elements, shaped to follow the curves of her breasts. That printed section is made of nylon, but I wanted to do more material tests. On the one hand, you want flexibility and yet, on the other, robustness. This is what makes choosing materials so complicated." Even the lace edging along the cup is printed and carefully tuned to the form of the breasts.

Perfect fit

Even though the wearers of the prototype were very satisfied, Lidewij made a number of alterations. "I wanted to show an even more beautiful bra." So she made a new 3D file that was again produced by a professional 3D print company. "It's really exciting when the new prints are delivered and a lot of fun to incorporate them in the fabric part of the bra. But the best moment of all is when I see my design on a model's body." Lidewij has certainly got a taste for this. At Delft University of Technology she has immersed herself in six months of material research and wearer comfort. In addition, she has started her own company: *Mesh Lingerie* (www.meshlingerie.nl), named after the file format of the to-be-printed components.

"I want to offer women a bra with a perfect fit guarantee; a bra that is comfortable in any situation."



Pauline van Dongen: a sustainable relationship with the clothes we wear

The many dimensions of a simple square of fabric

Clothing has become an ephemeral product. Fashion chains introduce a new collection every couple of weeks and consumers replace one item with the next at the drop of a hat. Most people do not have a sustainable relationship with their clothing. We can change that, argues fashion designer Pauline van Dongen (29). We can really change that.

'In my work as a fashion designer, but also in my doctoral research at Eindhoven University of Technology, I'm examining ways to bring back the personal aspect of clothing, and to let people experience the value of it. I'm trying to do this by combining the fashion designer's craft with new technologies such as 3D printing and 3D scanning. The way I see it, clothing is no longer a question of *either* mass production *or* customized products; the two can be combined with great results.'

Curves

As far as Pauline is concerned, personalized clothing is about more than shape and fit alone. It also has a lot to do with making clever use of the dynamic character of materials, and involving the person for whom the clothing is intended. 'A 3D body scan allows you to collect a huge amount of body data that you can put to great use as a designer. Special software enables you to use that data to align the prints on the fabric with the curves and shape of the body. Data can also be used to cut patterns so that a dress moves around the body in a particular way. If your model also provides an opinion, you can genuinely say that your clothing is *customized*. >>



'A 3D body scan allows you to collect a huge amount of body data that you can put to great use as a designer.'



Playground

Just type 'Jet Bussemaker Prinsjesdag 2015' in Google and watch the clip. Pauline uses a simple square of fabric as a basis for the 'Be-tween' dress worn by the government minister in the film. This fabric has been screen-printed using a special ink that expands on heating. As the ink expands, the fabric contracts. By programming the degree of expansion and contraction into special software based on body data collected from a 3D body scan, the dress follows the exact contours of the wearer. What's more, the shoes that the minister is wearing are also unique. In fact they are the first ever wearable 3D-printed platform soles. 'Back in 2010, I printed a pair of shoes as my graduation project, primarily to show that it could be done. Walking in them was pretty uncomfortable. A lot has changed in this discipline over the last five years; it really astounds me sometimes. For someone who is always looking for new techniques and loves to find out about other disciplines, it's a brilliant challenge. Every day it feels as if I've been let loose in a great big playground.'

Future

Although the fashion industry offers little time, space and freedom to experiment, Pauline is convinced that the future will be all about combining traditional and new technologies. 'Why would you have clothing for the Netherlands produced in India or Pakistan when you can knit, sew or print it using a computer application at a location nearby? In London there are knitting shops where you can have an affordable sweater made with a color pattern adjusted exactly to suit your figure and taste. This is not only beautiful, but sustainable and honest trade are also significant factors in this respect.'

Many companies and researchers are interested in Pauline's vision and approach. For example, she is developing a prototype in collaboration with Philips for a luminescent running shirt. 'This too is all about the value of clothing to the wearer, about the interaction between clothing and the environment, and how the body experiences the garment.'

'I'm sometimes astounded by all the possibilities.'



MIND THE STORY

Elk ontwerp kent zijn eigen verhaal, een verhaal over exploreren, beslissen en aanpassen.

Tijdens Mind the Story, het gesproken programma dat parallel loopt aan Mind the Step, staan de mensen centraal die bij het ontwerp een rol spelen. Als gebruiker, klant, organisatie, bedrijf. U maakt kennis met hun verhaal en raakt bekend met de verschillende stappen in het ontwerpproces.

Every design has its own story, a story about ideas, exploring, decisions and adaptations.

During Mind the Story, the lecture program that accompanies Mind the Step, the focus is on people involved in the design process. As user, client, organization and company. You will get to know their story and the various steps in the design process.



Program



Demonstrations, lectures and workshops

18 October 16.00 hrs	STORM Eindhoven
19 October 15.00 hrs	GIO (Closed event)
20 October 16.00 hrs	Mini-symposium on Soft Wearables: Kate Hartman and Jesse Asjes
21 October 16.00 hrs	Unaware objects: Students of Industrial Design
22 October 16.00 hrs	Mind the Story (t.b.a.)
23 October 16.00 hrs	Experience the Red: panel discussion by Study association Lucid, alumni association IDEa and design company Dokpunt
24 October 16.00 hrs	59,5 Million and I: Tove Elfferich
25 October 16.00 hrs	STORM Eindhoven

Stella Lux (Live stream)

Stella Lux, de opvolger van de illustere Stella zonneauto die in 2013 triomfeerde tijdens de Solar Challenge in Australië wordt op de voet gevolgd bij de poging om opnieuw records te breken. Elke dag zijn er berichten vanuit Australië over de Stella Lux en haar concurrenten. Live in Mind the Step.

Stella Lux, the successor of the illustrious Stela solar car that reigned in 2013 during the Solar Challenge in Australia will be closely followed when it tries to break new records. Every day there will be news about Stella and its competitors, from Australia. Live in Mind the Step.



Mini-symposium on Soft Wearables

(In English only)

Kate Hartman

Kate Hartman's work spans the fields of physical computing, wearable electronics, and conceptual art. She is the co-creator of Botanicalls, a system that lets thirsty plants place phone calls for human help, and the Lilypad XBee, a sewable radio transceiver that allows your clothing to communicate. Her work has been exhibited internationally and featured by the New York Times, BBC, CBC, NPR, in books such as "Fashionable Technology" and "Art Science Now". She was a speaker at TED 2011 and her work is included in the permanent collection of the Museum of Modern Art in New York. Hartman is based in Toronto at OCAD University where she is the Associate Professor of Wearable & Mobile Technology and Director of the Social Body Lab.

She is also the director of ITP Camp, a summer program at ITP/NYU. She is also author of the book: Make: Wearable Electronics: Design, prototype, and wear your own interactive garments.

www.katehartman.com

Jesse Asjes

Jesse Asjes is a developer of wearable, innovative and technical knitwear products. Using professional techniques and maximizing the potential of her materials, she pursues high aesthetic quality in everything she produces, both in her solo work and in collaboration with research companies, designers and fashion labels. Working within the discipline of 'beta textiles', she explores how solid materials become flexible by integrating them within wearable products. Using an open-source approach, she aims to make knitwear technology more accessible for designers and to create awareness among consumers. Her ambitions are international, and she has a strong interest in both global product development and local production.

www.jsssjs.com

59,5 Million and I: Tove Elfferich

(In Dutch only)

Ongekend veel mannen, vrouwen en kinderen zijn momenteel op de vlucht voor oorlog. Vele tienduizenden zijn onderweg naar een veilige plek in Europa. We zien schrijnende beelden, op de televisie, in de kranten en via sociale media. Die beelden worden een tastbare werkelijkheid als vluchtelingen worden gehuisvest in jouw eigen woonwijk. Hoe is dat? Wie zijn 'zij'? Hoe gaan 'we' ermee om? Voor haar afstudeerproject ging Tove Elfferich (Master student Industrial Design aan de Technische Universiteit Eindhoven) daarover in gesprek met de bewoners van de Eindhovense wijken Blixembosch en de Achtse

Barrier en met nieuwe bewoners van het Asielzoekerscentrum (AZC) de Orangerie, geopend november 2014.

De installatie waarin haar gesprekken zijn samengebracht biedt je als bezoeker de gelegenheid om je door middel van persoonlijke verhalen en ervaringen een beeld te vormen over vluchtelingen in jouw eigen woonwijk. Dit afstudeerproject laat zien hoe met "social design" bruggen gebouwd worden in veranderende maatschappelijke omstandigheden.

'It's your world' in Mind the Story

Vanaf zondag 18 oktober zijn er dagelijks (van 12.30 tot 13.30 uur) discussies met ontwerpers onder de titel 'It's your world', waarbij over grenzen heengekeken wordt naar de aanpak van 'wicked problems'. Onderdeel van de Dutch Design Week routes.

Every day (from 18 October between 12.30 and 13.30 hrs) there will be a program 'It's your world' that features designers discussing 'wicked problems', while looking beyond their own field, as part of the Dutch Design Week routes.



Colophon Mind the Step

Steering committee

Eindhoven University of Technology

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Chairman (Executive Board)
prof.dr.ir. Aarnout Brombacher
(Industrial Design)
prof.dr.ir. Philip de Goey
(Mechanical Engineering)
prof.ir. Elphi Nelissen
(Architecture, Building and Planning)

Steering committee Design United

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ir. Matthijs Netten, prof.dr.ir. Pieter Jan
Stappers, Angeline Westbroek

University Twente

Industrial Design Engineering:

ir. Julia Garde, dr.ir. Mascha van der Voort

Design Exhibition / Graphic Design

Volle-Kracht | concept, ontwerp en organisatie

Photography

Ernst de Groot (mesh lingerie)
Bob Mans (Kimbow)
Ernst Mutsaers (A custom fit parametric bra)
Tomas Mutsaers (Be-tween)
Bart van Overbeeke
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Translation

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De pdf-versie van deze brochure, inclusief vertalingen in het Nederlands van de artikelen, vindt u op www.mindthestep.nl.

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