Gregor van Egdom

Creatief-technisch probleemoplosser

Portfolio of Industrial Design

Gregor van Egdom +31 (0) 6 - 4127 8974 gregor@gregorvanegdom.nl www.gregorvanegdom.nl

Sonology Interface

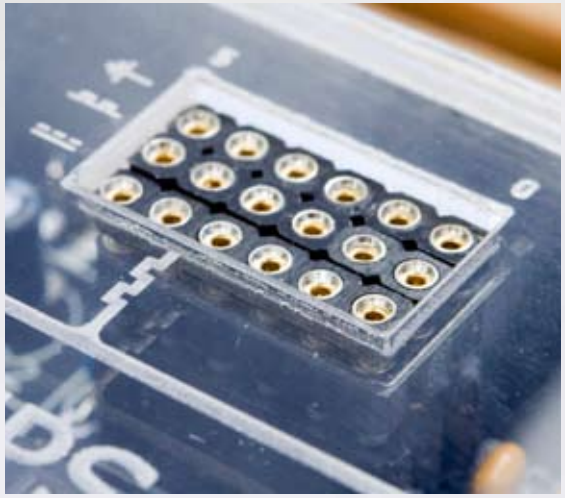
Enclosure for sensor-computer interface to make DIY musical instruments

This openly developed system provides students of sonology the opportunity to use all kinds of sensors to control virtual musical instruments during live performances. Users can connect up to 13 sensors, which measure the world around them. These can sense pressure, light intensity, distance and temperature, for instance. The data from the sensors is digitized by the IpSonCompact, and transformed into sound by a computer, like a synthesizer.

The enclosure provides protection for the PCB, mounting options, cooling for its components and guidance for the user.

The IpSonCompact is being developed as an Open Source project. Because the system itself is built with transparency and adaptability as basic principles, my vision was that the enclosure should also adhere to these standards.

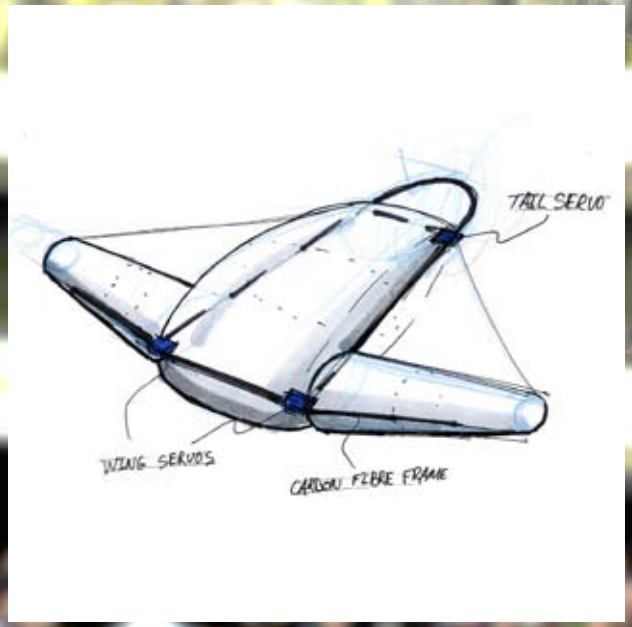
Visually, the enclosure is very open. The cover can also be removed easily to allow users to access the components. Three quarters of the parts for the enclosure can be made in a FabLab (an open fabrication workshop) and the design of the enclosure is released under an open Creative Commons license.

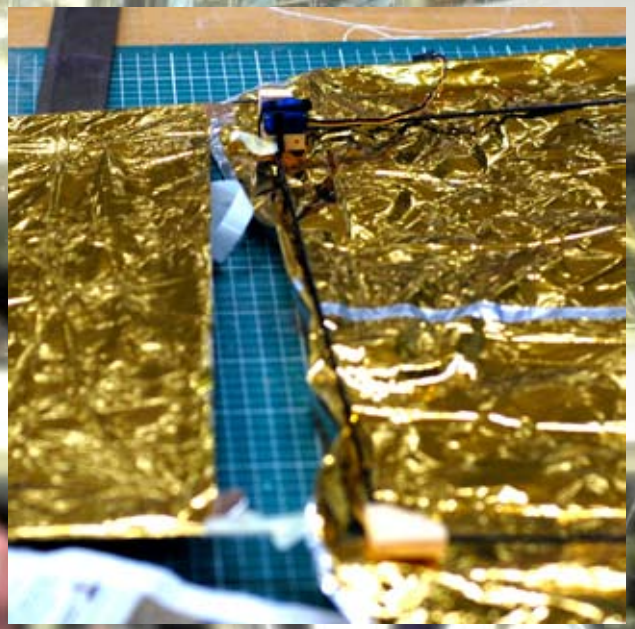


Flying Manta Ray

Helium-filled, remote controlled flying manta ray blimp

For a short assignment to get practical knowledge of mechanics, I designed and executed this helium filled blimp as part of a group of 3 students.
The manta ray-inspired form propells itself by flapping its wings up and down. A controllable tail provides control of lift.
Three micro-servos move the two wings and its tail.
The blimp is made of a carbon fibre skelleton and uses aluminium coated epoxy as its skin. The total weight of the airship is 180 grams, including power source (Lithium ION battery pack), radio controlled receiver, 3 servo's and all body parts.





Air freshner

Rechargable fragrance dispenser for Givaudan

Givaudan is the leading manufacturer of fragrances and flavourings. Companies like Procter & Gamble use Givaudans fragrances in their air freshners. In an effort to think along with their customers, Givaudan asked to design the “Air Freshner of 2010”, with specific detail to sustainability.

Business model

One of the key features behind the design is a different business model. Air freshners on the market today are without exception “throwaways”, which in itself is very environmentally unfriendly. Besides using “green” technology and materials, my vision was to double the cost price to make room for durable materials and techniques, and earn back the loss in profit through the sales of fragrance refills.

Proud

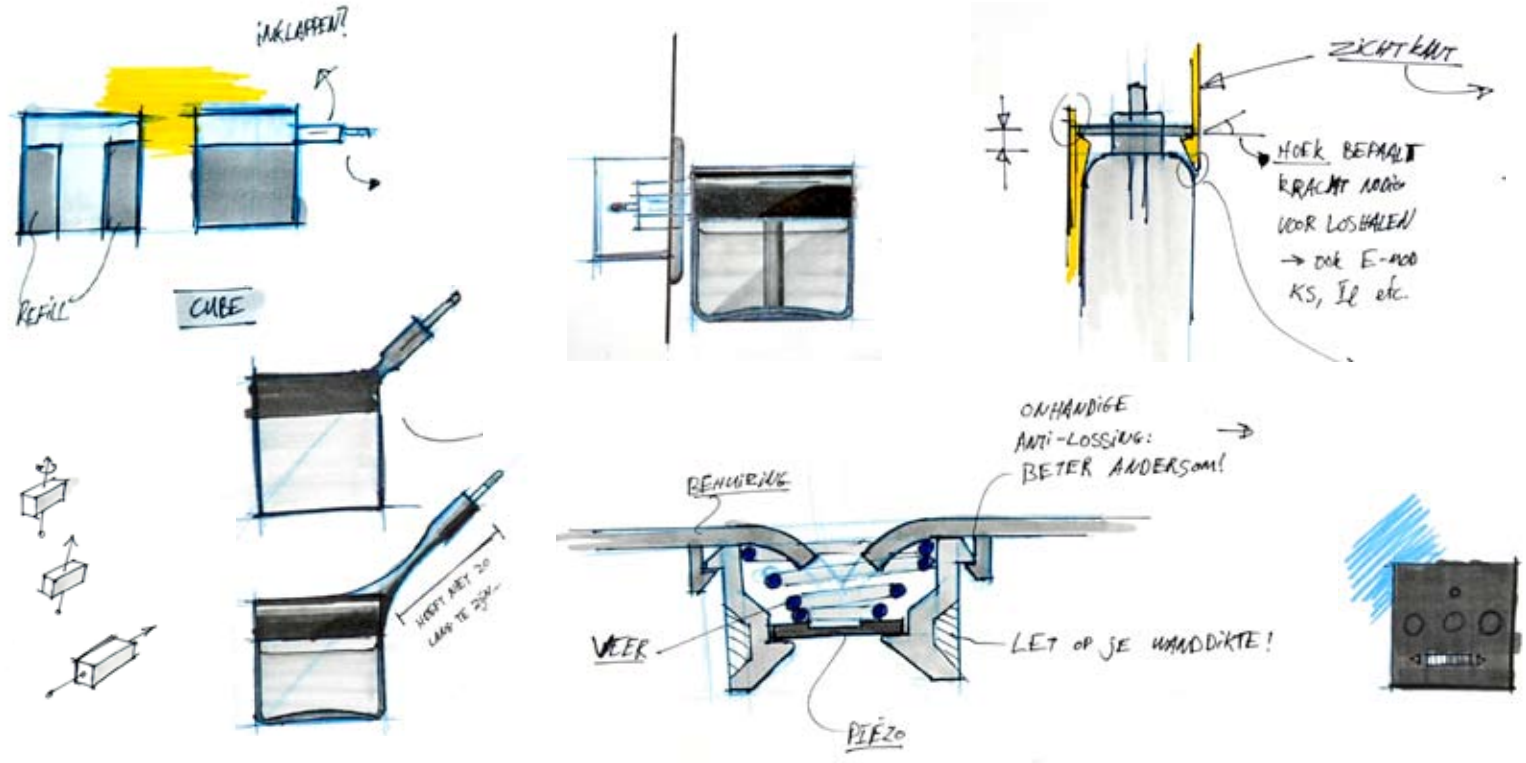
The product has a flexible power plug, which stands straight up in the air when the product is working on its battery, seemingly proud of its independance of the power outlet. The fragrance is delivered through the use of small piëzo elements, one for each of the two different fragrances. An intelligent microprocessor controls which of the two is delivered, and in what strenght. This is done based on the time of the day and day of the week, by a randomized program. The user maintains control by setting the strenght (10 levels) and a button for instant changing of the fragrance.

E-Ink

With the built-in battery, the product can function for about two months without recharging. When power is almost drained, a bright red dot on the power plug communicates the need for a recharge. This is an E-Ink display, also known as electronic paper,

Analysing the marketplace

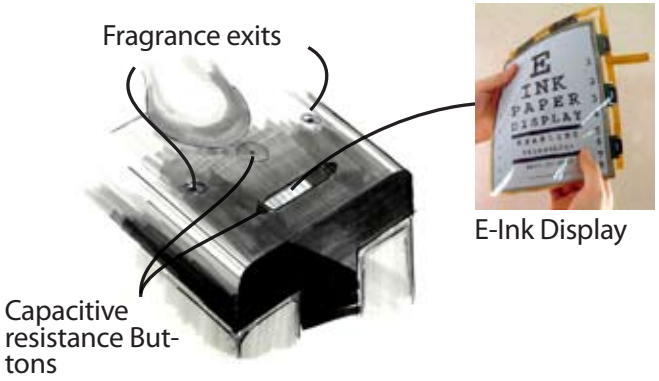
Idea creation

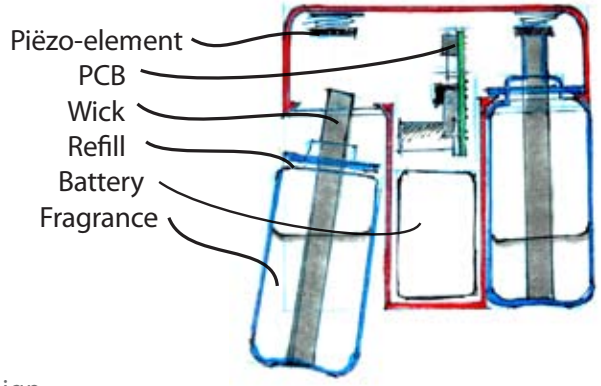


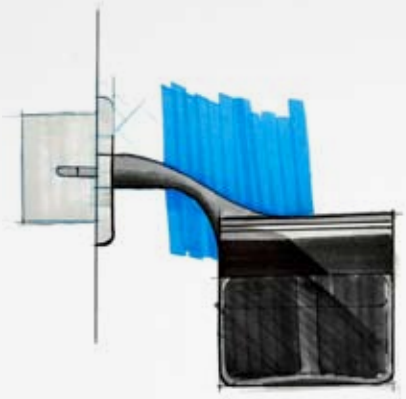
which preserves its state when power is lost. The 10 segment strenght display also uses this technology. The interface buttons use capacitive resistance technology (with audio feedback).

Engineering focus

A combination of exact measurements and mathematics was used to determine the specifications of the battery. An existing product using piëzo elements was disassembled and examined. Calculations were made on several critical parts of the product. All parts were designed as a full solid 3D-CAD model, used for finite element analyses (FEA), technical drawings and rendering the final product. For most of the procurable active parts of the product suppliers were suggested.
A working (!) 1:1 model was made to demonstrate use of the flexible power plug and the connection of the refills.







Usage: Recharging

Final working model

Bob-UP

A mechanism that helps elderly citizens to use a "rollator".

This product is mounted on the front of a walking cart known in Holland as a "rollator". It helps the user get on a curb or other obstacle, by translating the horizontal movement into vertical, lifting movement.

This group assignment was completed in about 4 weeks. The award-winning mechanism had already been invented, and needed to be shaped into a physical product.

Small series

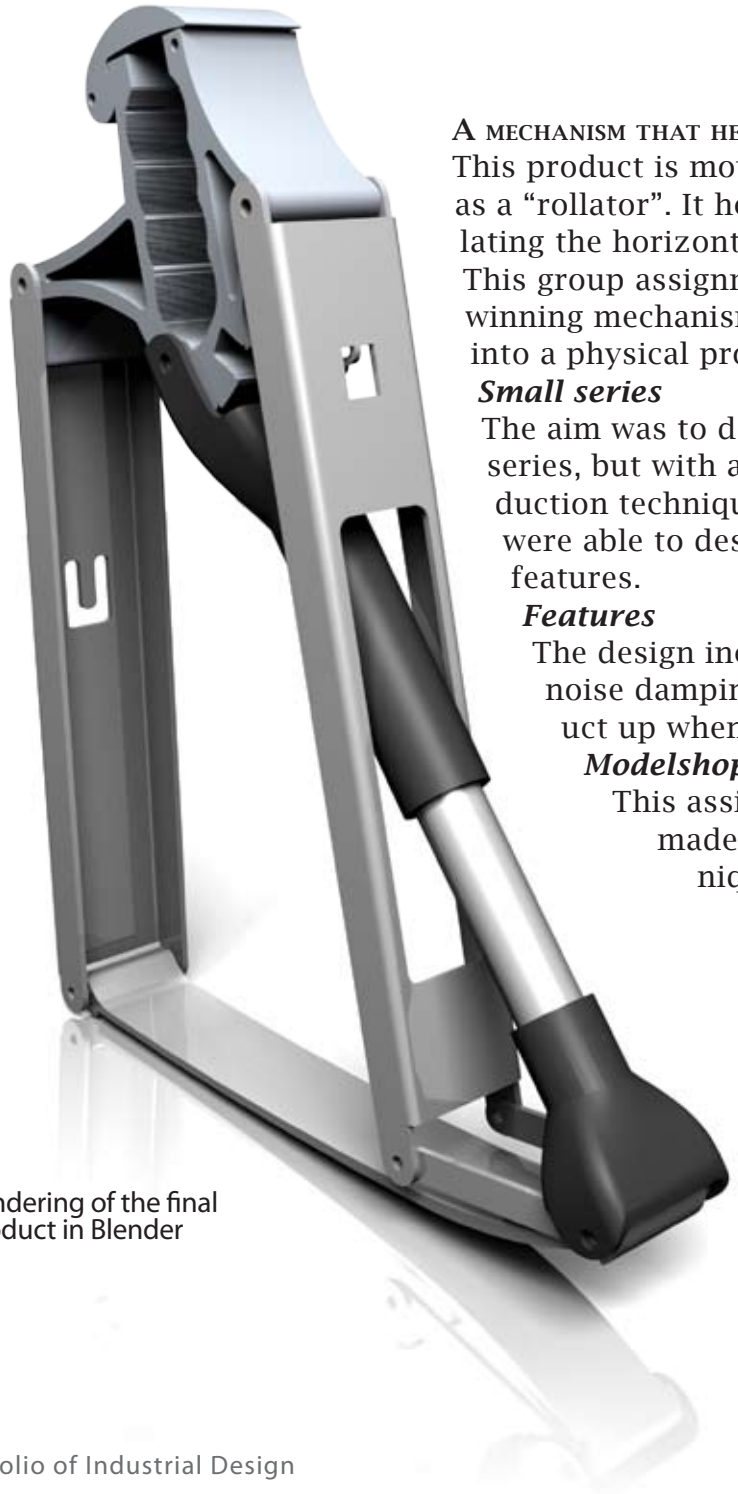
The aim was to design a product which could be produced in small series, but with advanced techniques. By creatively using these production techniques and careful consideration of purchased parts, we were able to design a highly sophisticated product with advanced features.

Features

The design includes some nifty features, like movement and noise damping, variable height mounting and folding the product up when the "rollator" is parked.

Modelshop

This assignment included making a working prototype, made from the chosen materials and using the techniques most true to the end product.



Rendering of the final product in Blender

A "rollator" (walking caddy)

The model, made from aluminium, PA and steel

Navigator

A small electronical 'compass' for tourists exploring a city or other point of interest.

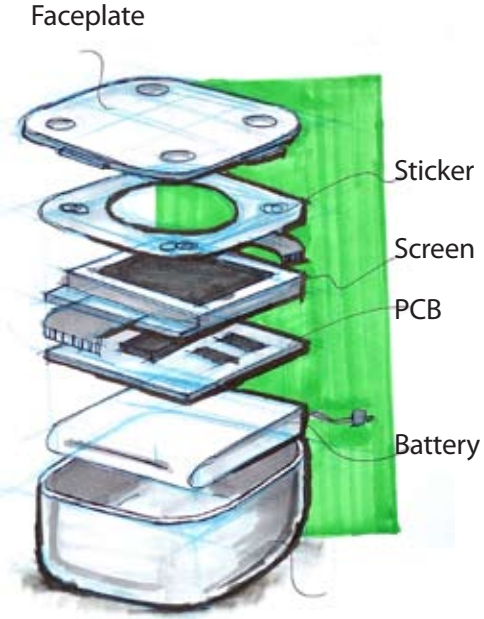
This product is a specific Interaction Design project. The assignment was devided into two parts: the software and hardware aspects of this product. First the interaction (software) had to be designed, and in a later stage the physical product.

Interaction

The way users would interact with the product was the backbone of this project. This design features intelligent software which uses geodata for advanced route planning. Though not visible for the user, the software automatically directs the tourist over the most apealing streets. The only thing the user sees is the needle of a compass, and a bar showing the remaining distance.

Small series

This product is optimized for small series production which was one of the demands of the customer (the local tourism bureaus). It uses advanced technology like *capacitive resistance* buttons (on the sticker), both GPS and a 3 axis electronic compass for positioning. The hardware is a *Single Board Computer*, running Linux. All the components are sourced, and the design in ready to be prototyped. As a general electronics enthousiast I went on to build a model with working LCD screen, just for the challenge.



Exploded view

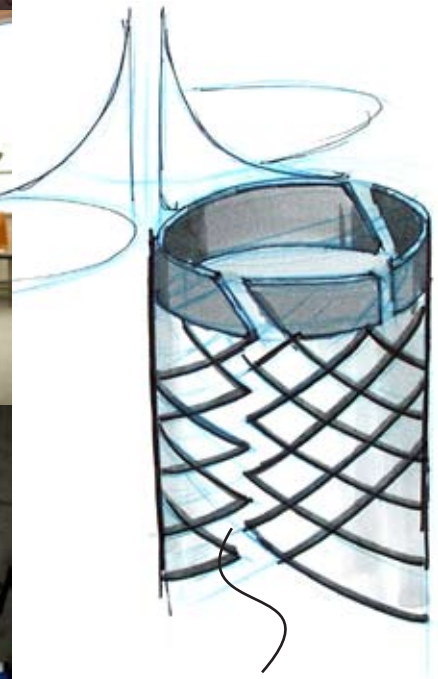
Sketched rendering

Model with working screen

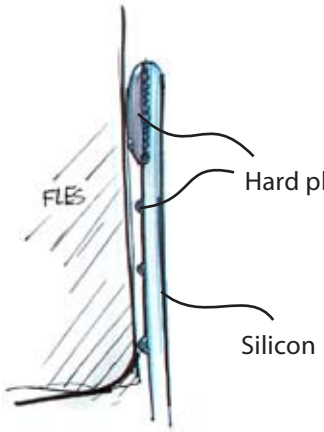
DE H/ *Bottle Carrier*

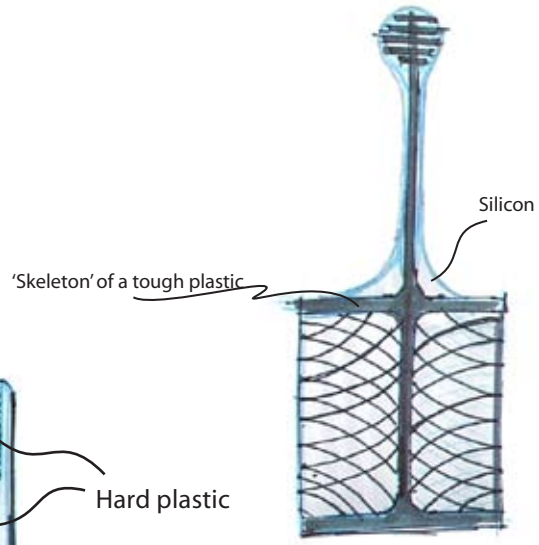
"DESIGN A BOTTLE CARRIER WITH THE NOTION OF DESIGN IN THE SIXTIES"

The assignment was simple: use the ideas on design - not the designs themselves to create a bottle carrier in the style of the 1960's.
Our take on the ideas of the sixties was that there were all kinds of new industrial production techniques, but no products to make use of them. So what were the innovations in techniques of the 21st century?
The Bottle Carrier is a 2-component injection moulded product, made from silicon and a harder, tougher plastic. The silicon provides flexibility, so the product can be "stuffed away". The silicon also makes it possible to fit different sizes of bottles. The 'skeleton' provides the necessary rigidness, and lets the bottles slide past the silicon without sticking.



Opening in the skeleton
to allow for flexibility





Sanne Koning (2004019) en Gregor van Egdom (20045304)

Collage

The Beach

A short assignment designed specifically for learning to distill physical shapes from an atmosphere.

The surrounding these shapes have to fit in is a beach pavillion. First, a collage of photos shot at various pavilions was made to set the atmosphere. Using the imagery as inspiration, sketches were made of forms flowing out of the collage. The next step was making small clay forms of the most promising forms. The clay forms were further detailed in hard foam, after which the final sculptures were made in said material. To define what material the sculpures should be made of, small cubes of the desired material were placed next to it.