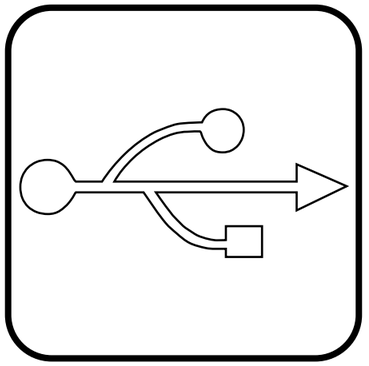
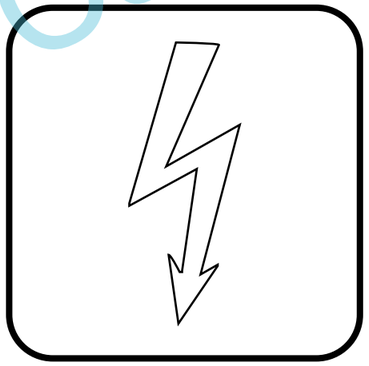
_Model

The model Mangoo shows a future packaging of mangojuice. It can have any shape, because possibilities are no longer limited by mecanic opening systems or methods of production.
In the background, the formation of the mangoo packaging out of a solid amount of material to hollow, rectangular form for transportation and the deformation into the destinctive mangoo desing is shown. In the firs model one can see the shiny surface of future packaging as well as the handling of the opening mechanism. Only place two fingers on teh white spots and trun them in indicated direction. It works for right handers as well as for lefthanders. The secound model shows an opended packaging. The transformation from closed to opend is shown in the background.



_Electronic Devices

Every packaging contains an electronic device, which is integrated into the shaping matrix. It is not only responsible for shape change; it can also provide detailed product information to the client by communicating to miscellaneous interfaces like handhelds or capable refrigerators. There is still another important role the device plays: It creates a display like a hologram on the whole surface of the packaging. The manufacturer of goods can alter the logo for special occasions quick and easily: for example at Christmas the chips adjust the displays and change it automatically back after the holidays have ended. Furthermore, touch sensors allow the client to interact with the packaging. Special information can be retrieved or games can be played (as part of the marketing of the product). The sensors will also revolutionize the handling of the packaging: now it can be opened by a simple touch and a short rotation of two fingers. The chip then activates the shaping matrix and the aperture will open and be ready for consumption.



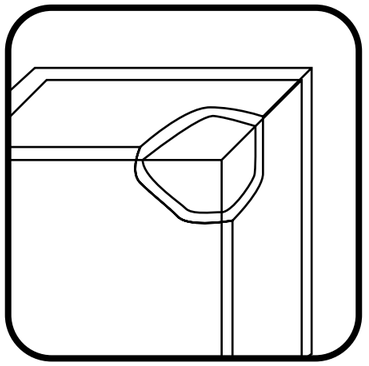
_Energy

The energy needed in order to run the functions of the packaging is generated by two different energy-harvesting strategies: Piezoelectronics and the use of ambient radiation sources.
Piezoelectric crystals or fibers convert mechanical strain into electrical current or voltage whenever they are mechanically deformed. This strain comes from many different sources such as human motion, low-frequency seismic vibrations or acoustic noise.
Special antennae can collect energy from stray radio waves or theoretically even light EM radiation and transform it to energy. These kinds of waves are broadcasted actively by an antenna placed in close surrounding of the packaging, for example in shelves or refrigerators. By using ambient radiation, the Packages have an independent energy source and are able to attract costumer’s attention through shiny displays also from afar. Such systems could be operated by remote control.

_Introduction

Safety and control are two closely related terms that win importace every day. The pursuit of control forced science to develop a material, which is shapeable on a molecular level. The use of this material revolutionized the design of productpackaging and gave the opportunity to make transportation of goods more efficient.
Also the surface of packaging changed dramatically. Interaction of formerly static packaging and clients is nowadays a common action.

Mangoo
future juice



_Material

The packaging of the future will be made of two different materials:
The main part consists of a synthetic material, which can be controlled on a molecular level. It is able to assume every shape from solid to hollow, guided by information provided by an integrated chip. The usage of a material like this in food packaging opens a new range of possible applications. Products have no longer a static shape: they can change between a form optimized for transportation, which is rectangular and stackable without any loss of space, and a design specific to the product as soon as it gets in contact with clients. As a result, the forwarding of goods becomes more efficient and environmentally more friendly.
The second material evolves from the fusion of two formerly independent bionic principles: The fluid repellency surface of a lotus leaf and the corselet of a sandfish. Like an oil film, it covers the whole surface of the shaping matrix and follows every change of conformation. The component copied from the sandfish makes it strong like a shield and provides protection to the packaging against all outside influences, while the optimized lotus effect repels the content of the packaging like two right sided magnets. Because of this material layer, the content of the packaging is not modified and can be used completely by the client without any remains.

_Cycle

Because the new packaging generation is able to adopt every shape, it can be used for all products and homogenized the packaging market in record time.
Empty packages can be rejected form common waste because of identification over the integrated chip. In a chemical process, the two materials will be separated from each other, cleaned and reassembled in order to enter the cycle as a new packaging. In every new packaging, the whole matrix will be reorganized, with te result that the former use does never leave any mark and will not be recognized by the customer.