PRODUCT INTEGRATED PV:
THE FUTURE IS DESIGN AND STYLING.

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The success of a product in nowadays consumer markets is strongly dominated by its design and styling, which apart from technical features, usability and production costs is considered to be one of the key factors to a well-designed product. Knowing this, it’s surprising to notice that only a small share of PV powered products [1] [2] has met aesthetic requirements. This has dramatic effects on the interest of consumers to purchase PV powered products [3]. Also initial research with 15 student groups, designing future PV concepts, showed that it yields better results when design and styling is specifically addressed in the development process [4].

Our comparison of the history of PV powered products and main stream design is represented by the timeline in Figure 1. From this overview, we can observe that for about two decades, PV powered calculators were the most dominant PV powered product on the market. They were received with great enthusiasm in the 70-ies. This enthusiasm was mainly based on technical features which were enabled by PV solar cells. For instance, the Journal New Scientist of 20th July 1978 reported “The concerned environmentalist can now calculate the downfall of society without eating into the world’s resources in the process. A new calculator that is coming on to the market......doesn’t need an on/off switch because the power comes from a small panel of solar cells”. However if looking at existing pocket calculators without solar cells at that time, it seems that the design of the solar powered calculator is lagging about 10 years behind. It may therefore be concluded that till 2010, PV products were largely in the functionality/performance phase of evolutionary product design [5], while other products with similar functions had already reached a phase which contained more meaning. This changed after 2010, when we see new designs of solar chargers that resemble trees or flowers, indicating a meaning which represents sustainability. In the design world it is already since the 70-ies common to experiment with meaning and emotion in the design of products [6], as is shown in the lower part of the timeline. Sustainability is on the one hand incorporated by the choice of materials – like the cork of the TV of Starck, the solar cells in the Solar Chandelier and the recycled fridges of the Endless Chair. In other occasions the sustainability is represented by the organic shaping of elements of a product – like the Bone Chair by Laarmann or the 3D printed lamp by Grossman. These approaches can be translated to PV products to make them more attractive.

Moreover, integrated approaches like in the design by Howard are reflected in solar powered lamps that are also chargers at the same time. This is integrative approach can lead to a meaningful integration of PV technology in products designs (Figure 2). This decreases the former gadget image of PV powered products and makes them aesthetically pleasing as well.

Figure 2 Meaningful integration of PV technology in product designs: “Tulip” charging station (left) and ‘Solar Parasol’ by University of Twente (2014).


Figure 1: Historical time line of the design features of PV powered products compared to main stream designs.