Creating Public Awareness of Renewable Energy by Combining a Photovoltaic System and Nature

Energy is seemingly permanently and nearly everywhere in the western world available to the end consumer. While a majority of the western civilization is aware of the downsides of fossil energy sources and is favoring renewable energy sources, the energy consumption is still increasing. The situation is quite clear to the experts in the field, but further awareness in the public must be created. Therefore this paper addresses a method of creating this awareness: installations that stimulate conversations of renewable energy. A solar tree was developed and built to serve young people with an AC outlet at a rock festival. The tree was realized under mechanical constraints and considerations of the electrical network to allow energy storage and conversion. This paper will introduce the principle of provotypes, which are provoking human thinking toward environmental friendly technology. The mechanical requirements and the developed solution is shown, before providing intensive insight into the electrical configuration, consisting of a battery, photovoltaic cells and a DC-AC converter. Furthermore a low complexity charge controller is presented. The resulting solar tree is capable of attracting peoples attention, surviving in harsh environments and providing power up to around 100 W.