

THE CARBOARD BICYCLE

By Kim Assaël

Economy and ecology can go along together. Izhar Gafni, Israeli engineer and entrepreneur with a passion for ecology, has developed and patented a bicycle made of corrugated cardboard, perfectly functioning and above all durable thanks to the origami folding principles.

The idea was born in 2008 from the thesis of [Phil Bridge](#), a student at Sheffield Hallam University, but his bike had still some metal components and maintained a lower weight.

The new cardboard bicycle is stronger, lightweight but also ready for all the rainy weathers or hot summers. It is entirely eco-friendly and all made up with recycled materials. It doesn't have any metallic part, neither the frame, nor the handlebars, nor the saddle or the brakes.

The bicycle can support a weight of 200 kg. Cardboard is indeed light and robust at the same time, being used to carry fragile objects. But despite its old origins nobody until today had ever thought to use it to entirely replace the metal.

It took four years of testing and trials, but in the end, the technique of the various folds of cardboard in different directions, has been successful. The bicycle structure remains flexible and able to undergo most kind of stresses, being really indestructible. The wheels have no tires thus they cannot be punctured.

Details about the materials used and the manufacturing process are not yet completely disclosed to the public. It is known that the cardboard is put in water for three/six months in order to remove its hardness. Then the construction process foresees, as for the Japanese technique, many cuts and concentric folds in different directions to give strength to its structure. Finally it is treated with a special proprietary resin to become waterproof, and stronger towards the shocks. The only substance, which is not of organic origin, is a special lacquer used for the external painting with different colours.

The finished bike weighs 9kg, the cost of production does not exceed 9\$ while the selling price is about 15\$. The cardboard bicycle can be easily produced in every interested country. Izhar Gafni is now looking for investors to start a wide scale production of the bike, which is expected by the end of the year 2013.

In all major cities, such as Tel Aviv where the bicycle thefts have increased exponentially, this new model appears so economic that become useless to steal it. The first commercial



TECHNOLOGY WITH ECO-SHIC DESIGN

Recycled cardboard, reinforced by reused car tires and other organic materials, without any metal component. The result is an innovative technology, waterproof, fireproof, lighter and stronger than a metal alloy or carbon fibre, and so cheap as to enable a low-cost mass production.



model was conceived as an urban means of light transport. It has already being projected an electronic version of the bike with a removable battery.

When disposing the bicycle away it is always possible to give it back for re-cycling to the factory that produced it. And as for the origami the shape is always recreated in an eternal life cycle, even the cardboard bicycle is projected to continuously reborn, as in the best ecological traditions.

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[Cardboard Technologies](#)

erb.co.il/en/cooperations.asp

[The Economist](#)

[P3 Publico](#)

[Niceartlife Magazine](#)

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