



RAPID PROTOTYPING ASSIGNMENT-I

By

M.Boopathi 18 02 203

B.Ramanathan 18 02 211

G.Sachin 18 02 212

Biomimetic :

Biomimetic refers to human made processes, substances, devices or systems that imitates nature. The art and science of building biomimetic apparatus is also known as biomimicry because they mimic biological systems.

Burrs and Velcro :



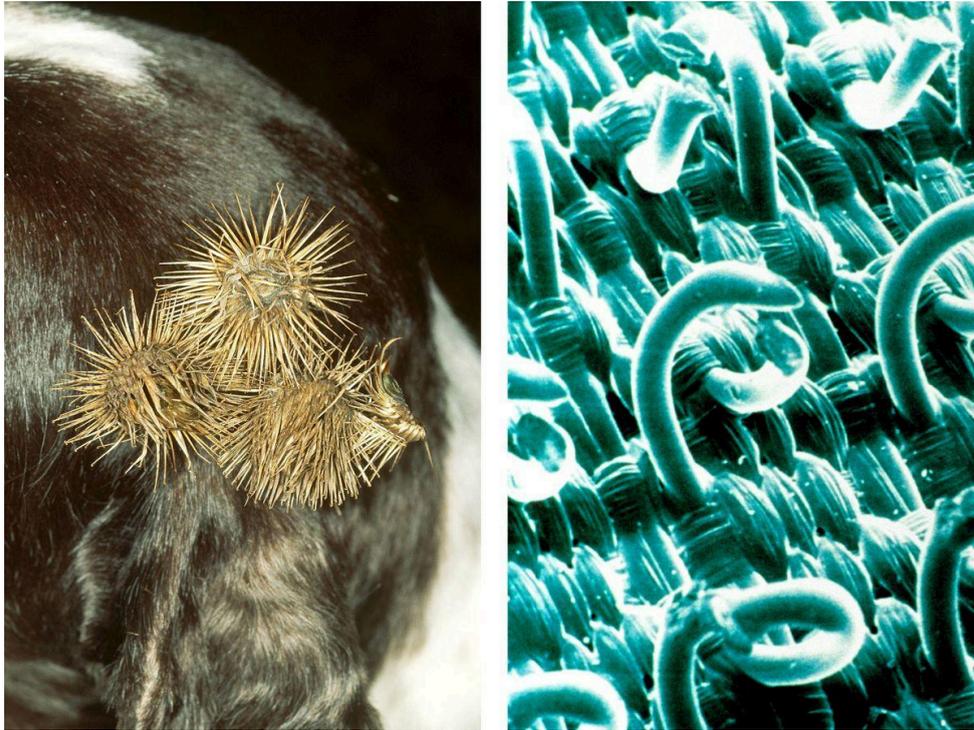
Velcro is one of the widely known example of biomimicry. Velcro are

widely seen in shoes, slippers, bags, dhoti, and so on. But the interesting thing is that velcros are mimic of burrs, Velcros actually imitates nature.

A swiss engineer George de Mastral invented Velcro through an incident. In 1941 he was taking his dog for a walk after sometimes he noticed that some pesky burrs got stick to his dog's hair.

George de Mastral had an idea that would impact the world. He then decided to take a closer look at the burrs how would they work. The small hooks found at the end of the burr needles inspired him to create the now ubiquitous Velcro.

Mastral spent some time by analysing the burrs and needles projected at its end, under a microscope and notching the small tiny hooks at the end of the burr. This research incubated the development of the Velcro.



Burrs normally have the nature of sticking with everyone including fabrics. Mastral was eager in replicating the burrs “catchiness”, and finally he ended up in creating Velcro, a fastening system that is used today for a long list of daily application.

The structure that makes burr so useful are its fine, hook shaped spikes with its high resolution scan at 6.3 microns we can see the curved spikes and how well they grasp the dogs hair.



CTVo software's virtual cut method shows that the spikes are actually hollow, this could be an improvement in future design of Velcro. Usually hollow materials are

Stronger than the solid materials and could save more money than that...



References :

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