

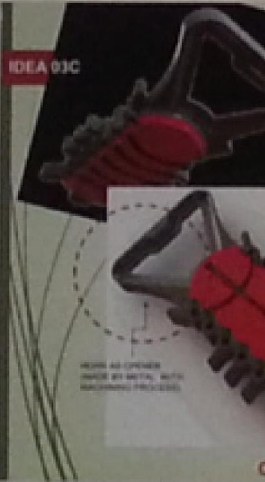
## CHAPTER 8

PRODUCT DEVELOPMENT: F R O M I N V

ORYCTES RHINOSORUS BOTTLE OPE

Ahmad Fairuz Ariff, Raja Ahmad Azmeer

At pres  
which took consideration not only on the  
uses plastic together with semi-curve  
grip. It is inspired by nature (insect) in whi  
This can be seen on its horn that function  
looks in its design, the contrasting col  
appearance as well as provide cues on h  
also offers a dual purpose in the form of  
or as a local insect collection for collecto



NER

Raja Ahmad Effendi, Mohd Nasir Baharuddin

ent, a new design of the bottle opener is produced appearance but also the ergonomic aspect that es providing users a steady thumb and firm hand ch it mimicked the Rhinoceros beetle's body parts. ned as a cap remover. Although it portrays rugged or applied on this product creates an appealing ow it can be operated. Furthermore, this product a keychain, a glow in the dark refrigerator magnet rs.



CRYSTIC RHINOSORUS BOTTLE OPENER

### BEVERAGE COASTER CASE

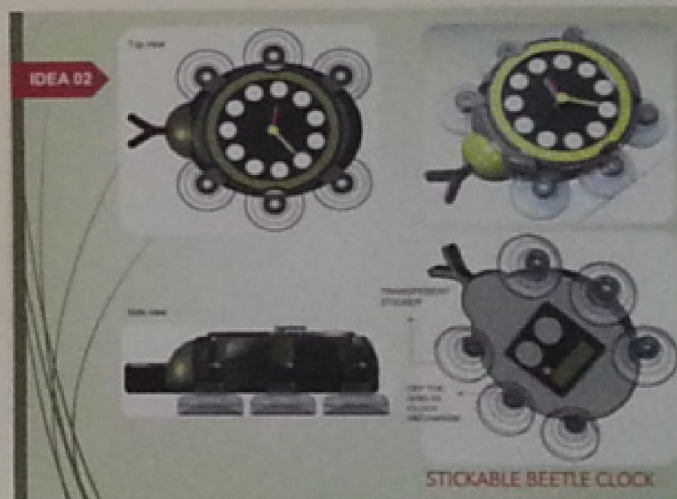
A coaster is a base to rest a glass or cup upon. The main purpose is to protect the table surface from dirt or water spilling. As it is not being properly kept, coasters are usually misplaced after being used and this will cause inconvenience to users. In order to keep this product intact, it is important to design a container that will serve this purpose. As a result, a coaster container is designed. It is based on the stylization process of shapes with reference to the Rhinoceros beetle. Besides incorporating an impressive appearance in its design and styling, the five piece coaster that is included in a set is printed with a series of different types of Rhinoceros beetles as further information to users. Moreover, the coaster set may be used as a decorative item for the users, as well as an advertising and promotional item which serve as perfect executive business gifts.



BEEBLE CASE COASTER CONCEPT DESIGN

### STICK ABLE BEETLE CLOCK

A clock usually functions as an indicator, keeper and coordinator on time. Therefore, clock was designed to portray a fun and interactive approach within the shape and system of a beetle. With impressive design and styling, suitable materials were chosen to evoke the user's positive emotion towards the beetle clock, which consists of plastic for its body and clear syntactic rubber for its leg. In comparison to the refrigerator magnet, the advantage of this product is not only can it be attached on the refrigerator surface, but also on the wall due to its syntactic rubber material. Apart from this, it may also be useful as a souvenir for tourists.



STICKABLE BEETLE CLOCK

V E N T I O N T O I N N O V A T I O N



## PRODUCT DEVELOPMENT: FROM INVENTION TO INNOVATION

Raja Ahmad Azmeer Raja Ahmad Effendi, Nasir Baharuddin

### Solar Heater Box

Ragaa Mohamed Elbashier Elhadaa, Rita Muhamad Awang, Ionel Valeriu  
Grozeszczu, Dzolkifli Omar, Uma Rani a/p Sinniah, Manjeri Gnanasegaram

### Beverage Coaster Case

Ahmad Fairuz Ariff, Raja Ahmad Azmeer Raja Ahmad Effendi, Nasir Baharuddin

### Stickable Beetle Clock

Ahmad Fairuz Ariff, Raja Ahmad Azmeer Raja Ahmad Effendi, Nasir Baharuddin

### Oryctes Rhinoceros Bottle Opener

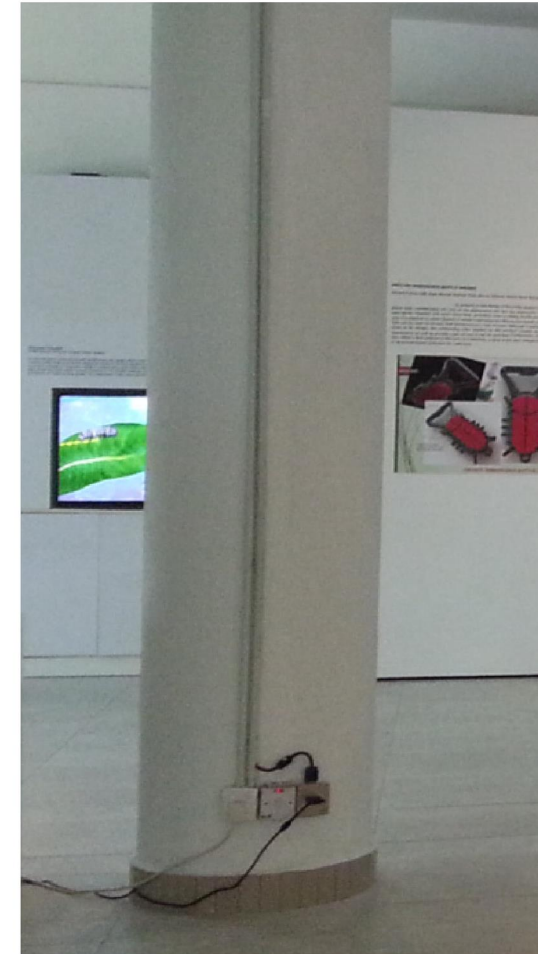
Ahmad Fairuz Ariff, Raja Ahmad Azmeer Raja Ahmad Effendi, Nasir Baharuddin

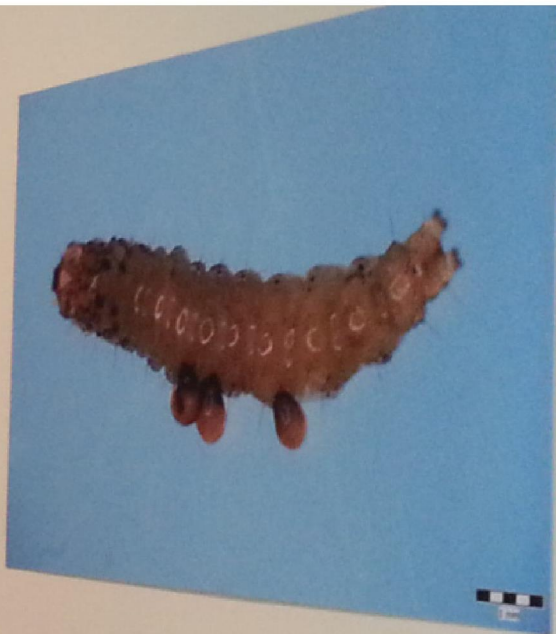


## Product Development: From Invention to Innovation

Raja Ahmad Azmeer Raja Ahmad Effendi, Nasir Baharuddin

In today's world we can see numerous product inventions around us. Starting from intangible to tangible products, all of them are derived from human inventive and creative ideas. The invention of the airplane by the Wright Brothers in 1903 (Crompton 2007) is a process of inventive and creative thinking that produced a new means of vehicle for human beings. This can be considered as the biggest breakthrough in the aviation history which provides an alternative transport that is time-saving, comfortable and convenient for the users.





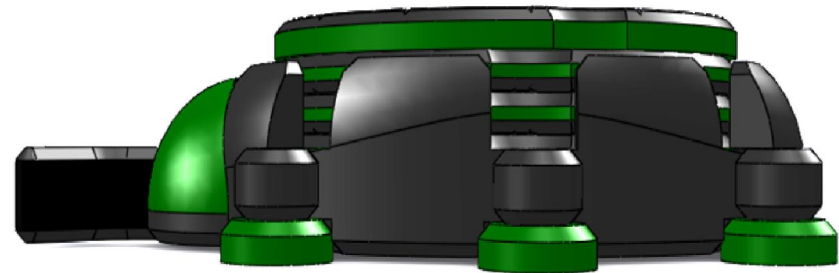
**Parasitoid**  
 Nur Hussain Adnan, Nur Izzahul Muli Yusoff, Marina Puzosil

Parasitoid is a term used for insects that play the role of common parasite. They spend a significant portion of their life cycle in or on other organisms whereas the adult parasitoids are free-living creatures. Unlike their closely-related sister group, the wasps, that needle-like appendages, called ovipositor, is used to lay eggs on or in their victims. Parasitoids can be further categorized according to the development of their grubs. Endoparasitoids undergo their life development inside the host whereas ectoparasitoids develop outside the host. Ironically there are some species of parasitoids that are parasitized by other parasitoids (hyperparasitoid). This shows that what goes around comes around.

In Malaysia, the culture of product invention has been seriously practised as this is one of the Government plans to increase the country's economic growth. The seriousness was shown by forming societies, e.g. Malaysia Invention and Design Society (MINDS), and organizing competitions and exhibitions e.g. PECIPTA.

Fundamentally, product invention can be understood as a method of formulating new ideas for products and processes. It can be a novel product idea which appears in one's mind that can initiate new product development or improvement on the existing product.

In terms of initiating new product development, this can be defined as a new idea that is different from anything seen or known before, for instance, a calculating machine which was invented by William Seward Burroughs in 1885 (Cavendish 2008). This product was totally a new idea when it was first introduced in the market and created a 'wow effect' in terms of its novelty.



As for the improvement of existing products, it is considered the product development process that relates to the appearance and technology based on the similar category of previous product inventions. This can relate to the invention of a cell phone by Martin Cooper in 1973 (Wilkinson 2011), which was based on the Alexander Graham Bell invention of 1876 called the telephone (Bruce 1973). At present, cell phones are widely used and can be regarded as a 'must-have' product by any individual. The cell phone as a product invention created a wider range of market segments that attracts the attention of global companies to venture into the telecommunication business.

Basically, when a first product is invented there is less consideration in terms of its commercialization aspect. To make the new product invention marketable, a group of people will be assigned in developing the product to look more innovative. This can be considered as a process of converting inventions (promising ideas for products) into innovation (commercialized products) (Chandy *et al.* 2006).

As for Malaysia, this group consists of experts from inter-disciplinary areas such as arts, business and technology which are currently being practiced in the industry. Specifically, these involve experts like designers, marketers and engineers who engage in developing product appearance, market study and new technology.

However, there is less study on product perception in the innovation process that involves psychologists. This discipline is considered a significant area which needs to be engaged by the industries in order to produce innovative products that appeal to the consumers' sense of aesthetics and emotion.

In actual fact, the combination of many disciplines is the key to the success in product invention and innovation. For instance, in the US, the success of iPhone by Steve Jobs is the result based on the collaborative work of inter-disciplinary experts (Kim 2011). Similarly with IDEO, an award winning global design firm based in Silicon Valley, which invented famous products such as the Apple mouse, Palm V and Polaroid I-Zone Pocket Camera (Kelly 2007).

For any developing country, product invention and innovation is considered a big 'thing' as it not only shapes the world to become a better place to live in, but also functions as a key factor in the development of modern society. In relation to Malaysia, besides the industrial sector, the education sector, especially universities, need to play a vital role in producing new inventions by having inter-disciplinary collaboration in order to create innovative products that is ready for commercialization.