



Photo by:  
Muhammad Al-Ameen Mustafa Kamal

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# Agriculture-based Product Design

Rizal Rahman & Nik Aizan Nik Abdullah

'Global' thinking may overlook the diversity between people in different communities (Kim et al 2006). According to Leinbach (2002:3), design should no longer be seen as a styling shape or just an art object but products should be designed and produced with appropriate features. They include cultural aspects and elements of localisation which could provide a more competitive edge in the market. Rodriguez et al. (2006) have suggested that in creating products for current emerging markets, designers should develop deeper understanding about the needs and context of the people using them.

Product manufacturers and designers have to understand elements from local environment. They also need to know how products respond and are being used in a local context in order to meet their product's goals.

Additionally, form would combine with colour, texture, shape, style, layout and ideation forming the "formal properties" of a design. Products are not only required to be technically functioning but also are well integrated with other affective elements in design. They include touch, feel and taste which are linked to human life, memories, social and culture. These elements of design form the main thrusts in implementing design practice and thinking in the final year of these industrial design students' projects.

The following design exercise was designed to stress on experimenting with practical design forms that are relevant with current technology while accommodating agriculture-related consumer needs. By experiencing a systematic approach in developing good design quality products, students were exposed to methods for exploring their design ideas and enhancing their skills and thinking in this exercise.

The initial study began with students exploring potential areas or issues that required design improvements and opportunities for new agricultural product development. This basic anthropological experience had enabled them to identify new possibilities in developing novel products. Students learnt about systematic research techniques and developing relevant analytical skills. They would then propose a relevant technology and focused on certain target market's needs during their design development stages. These design exercises incorporated basic manufacturing knowledge in terms of materials selection, fabrication process and sustainable values relating to local agricultural contemporary design issues.

In the Malaysian context of developing product and discussing local design agenda, various problems are encountered in exporting local goods internationally. This is especially in promoting tropical fruits. Local versions of 'Fruit Packaging' and 'Fruit Opener tools' are two examples that emerged from the designers' social engagement experience with the local agriculture developers and their surroundings. The incompatibility of adapting universal tools in assisting local fruit lovers to enjoy delicious tropical fruits have driven the initial study for these two projects.

The use of mock ups to study the forms and shapes has contributed to exciting design development for these projects. It allowed interesting experimental problem solving that stemmed from the design exercise. The use of inappropriate tools available in the market to open 'the hard and spiky' shelled local fruit *durian* could lead users to other problematic areas such as ergonomics, hygienic and other safety-related issues.

# Jury Review

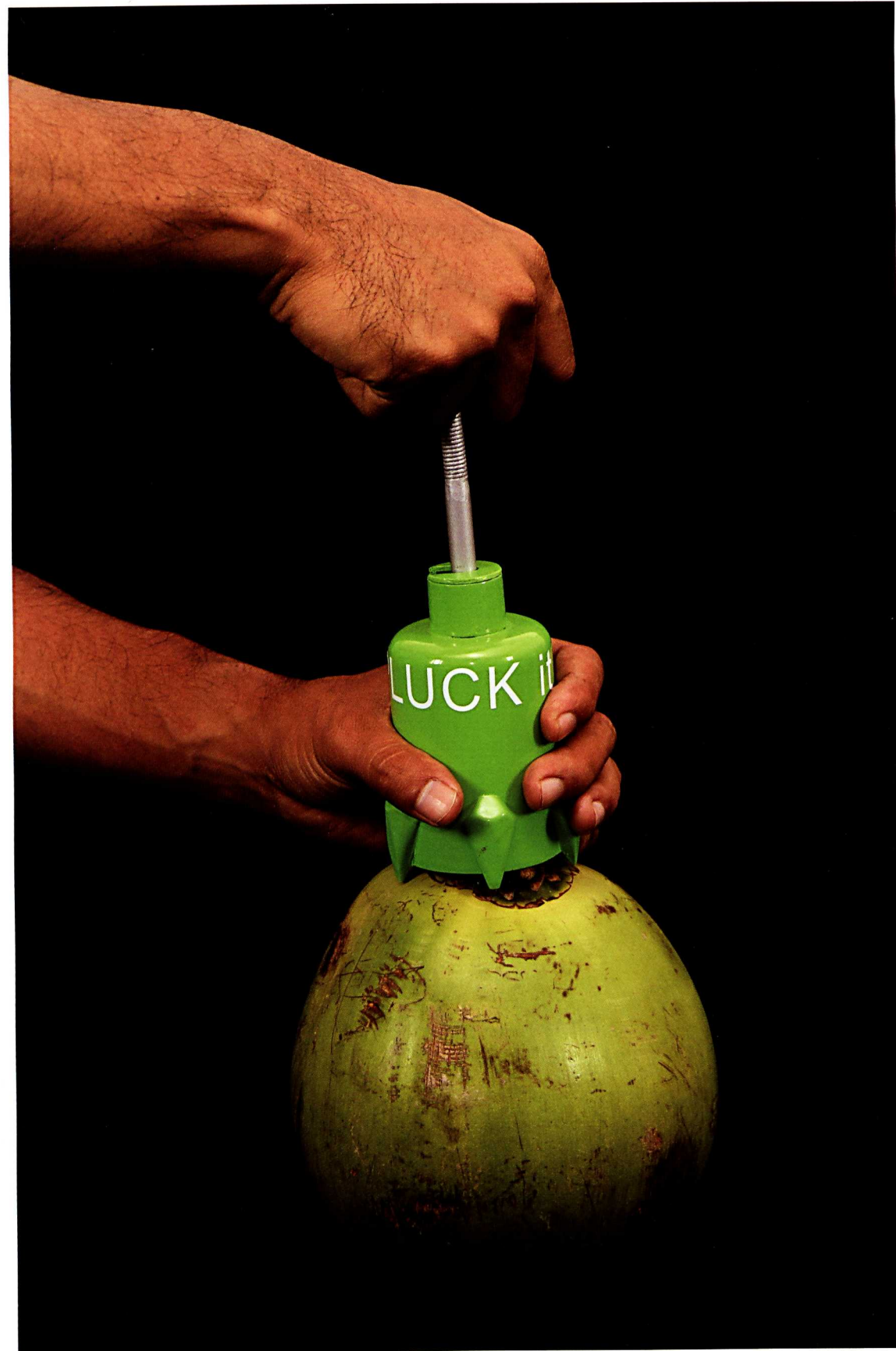
Mohd Fuad Eusof

By examining the quality of 3rd year students' design works and their respective presentations, I am of the opinion that most students have successfully addressed the purpose of their study. These can be observed in the quality outputs of their design works which include sketches, mock-ups, prototypes and panels presentation. However, some aspects could be further refined especially on the development of students' knowledge and logical thinking about where and when a product should be positioned and its relevancy with current market demand. Bridging creativity and students imaginations to match with reality world is not an easy task to achieve. From my assessment, I found about 30% of the design concepts applicable or practical if proposed to the real-world. However, this rate could be improved if students were given more time and proper research guidance in their social inquiry to match their products with current users and environment. Despite the lack of research and inability to connect design outputs to 'real world' situation, the effort of proposing such interesting pieces of design works exhibited good quality design presentation techniques. I believe that these students can be trained and groomed to become successful designers in Malaysia and in the international scene.

# Young Coconut Extractor

Nik Aizan Nik Abdullah, Sazrinee Zainal Abidin & Rahinah Ibrahim

Observations and sensitivity to problems are among methods employed to generate ideas. Based on selected current issue students are required to improve selected mechanism, system design and to focus on the reliability aspect. The young coconut extractor integrates a simple shape that is easy tool to operate and was given an attractive soft pastel colour appearance.



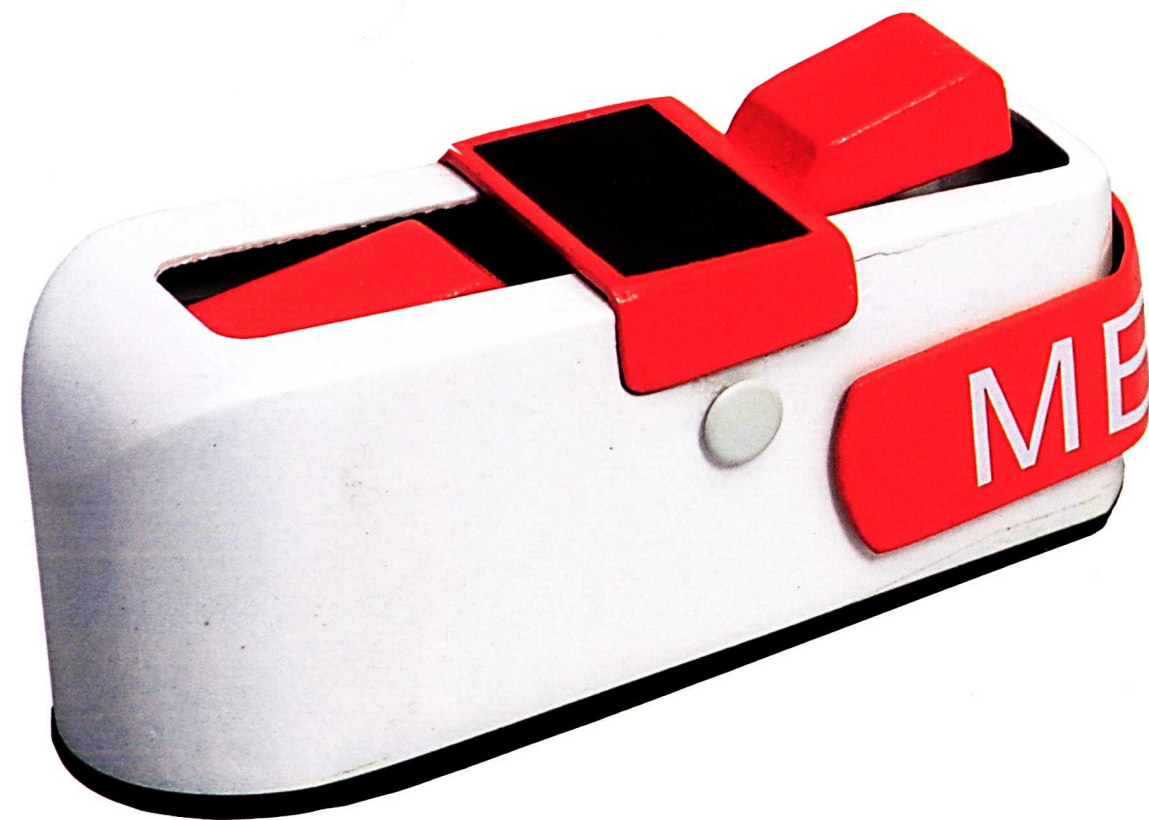
The design is tailored to a housewife or any female user. The culture of women at work assumes them not involving in heavy work particularly with one that exerts force or energy. "Pluck it" is a device developed for a woman to operate easily in a task which is otherwise traditionally performed by a man. The product is a result of a comprehensive study on women at work as they are often burdened by this hardship.

■ Mohammad Haziq Noraizan  
ID registration: MY 09-01173-01-01  
Co-inventors: Muhammad Haziq Noraizan, Sazrinee Zainal Abidin, Hassan Alli, Mohamizzam Mohammad, Mohd Azali Abd. Rahim, Rahinah Ibrahim & Osman Mohd. Tahir

# Watermelon Maturity Device

Nik Aizan Nik Abdullah, Sazrinee Zainal Abidin, Rizal Rahman & Rahinah Ibrahim

Technology development together with innovative design ideas are among the main factors in generating a phenomenal product design. Technological changes and findings about human factors in studies have inspired new product design by replacing most traditional tools and devices. Rosalam has developed a device to measure the ripeness of watermelon fruits. Traditionally, people measure the ripeness of watermelon by squeezing, shaking, knocking, feeling the textures, smelling, and even by observing the fruit's skin and texture. These traditional techniques are carried out to ensure that the fruits are ripened enough before cutting. The device functions to assist stakeholders in selecting ripened fruits by incorporating the velocity impact measurement scales. Reading from the velocity meter would determine the ripeness of the watermelons.

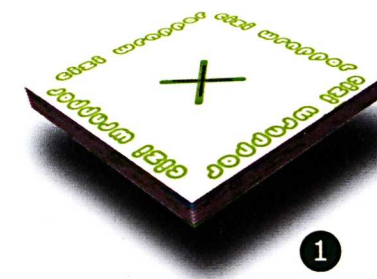


■ Rosalam Che Me  
ID registration: MY 09-01150-0101  
Co-inventors: Nik Aizan Nik Abdullah, Bakri Bakar, Sazrinee Zainal Abidin, Razman Ramli,  
Mohamizzam Mohammad, Hassan Ali, Mohd Azali Abdul Rahim & Rahinah Ibrahim

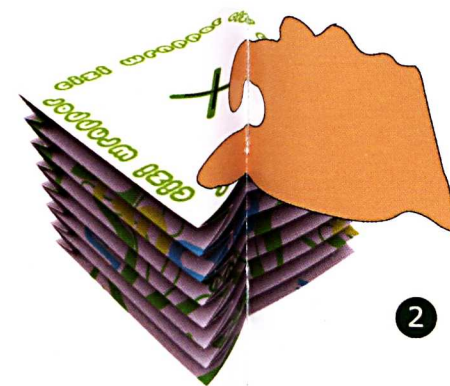
# Fruit Wrapper

Rizal Rahman & Nik Aizan Nik Abdullah

This product is designed to provide a proper 'local' packaging system for the Malaysian star fruit. It is developed based on the designer's observation and practical involvement during his 'stint' in anthropological work in the field of agriculture. Chong Wei Wei had identified several issues from existing packaging system that could be improved. The critical areas are insect infection, hygiene, improper packaging system and use of improper recycled material. In developing a new packaging concept for local fruits, appropriate material and flexibility to expand in size are major considerations since fruits will grow in size during transportation and exporting period. The proposed local packaging design version for star fruit also took in account with farmers' ergonomics and flexibility aspects. This localised packaging design system can be extended to cater to packaging of other local fruits.



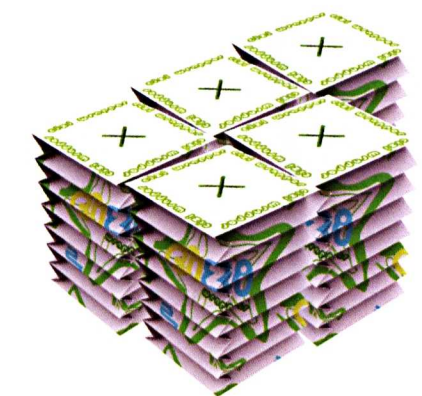
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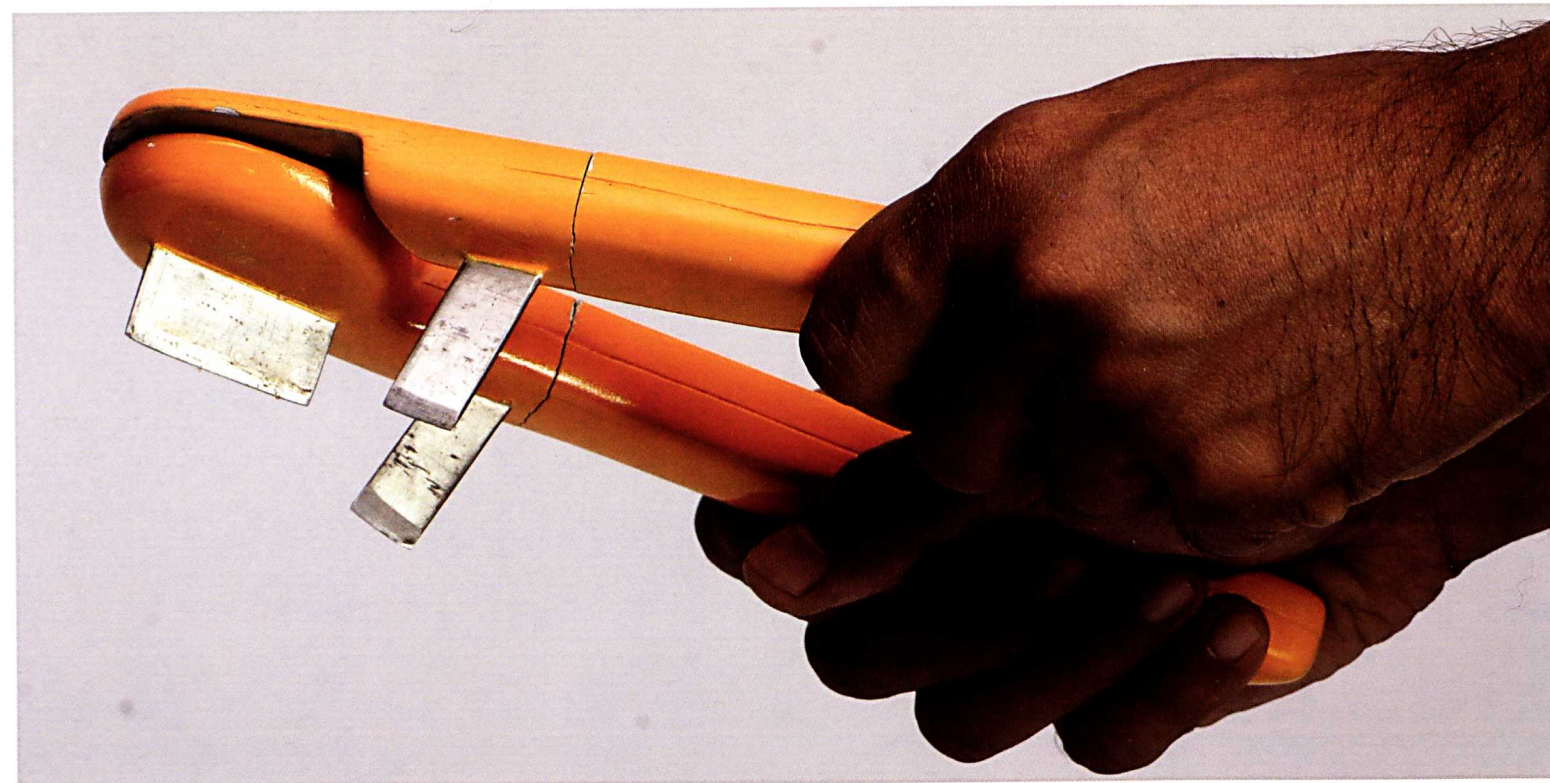


■ Zakaria Mohamed Ismail  
Award: Silver PRPI 2008  
Co-inventors: Nik Aizan Nik Abdullah, Muhamad Faizal Che Leh,  
Mohd Shahrizal Dolah & Arnis Aziz

# Durian Opener

Rizal Rahman

A local product requires a local tool to operate. The *durian* fruit opener is a tool designed to cater for the need of promoting tropical climate fruits to international market. Physically, the *durian* is thorny and quite difficult to open. Every species of *durian* has different rind thickness where traditionally, the *durian* is opened using hand tools, i.e. knife or *parang* and assisted by a gloved hand. It requires special skills and knowledge only known to some local people. In a local environment, the consumer will hold the *durian* on one palm and strike open the *durian* at the centre of the striate with a knife. Based on this mechanism, much force is applied. The thorns on the *durian* skin can easily hurt the hands. Therefore, women seldom open the *durian* on their own. This '*Durian Opener*' is specially designed and crafted by Chong Wei Wei to ease users who want to enjoy this fruit at home. The design is a portable household *durian* opener. Using this device, the task will use less force since the opener is convenient, safe and easy to use. Furthermore, besides encouraging *durian* to be promoted to international market, this device's design caters to users with different abilities including women and elderly people as it requires less force with high safety features.



Chong Wei Wei  
Award: Gold PRPI 2008  
Co-inventors: Muhamad Faizal Che Leh, Nik Aizan Nik Abdullah, Arnis Aziz & Mohd Shahrizal Dolah

