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# Bright minds

Inventions displayed at the recent Invention, Innovation and Technology Exhibition reflect Malaysia's innovative ability.

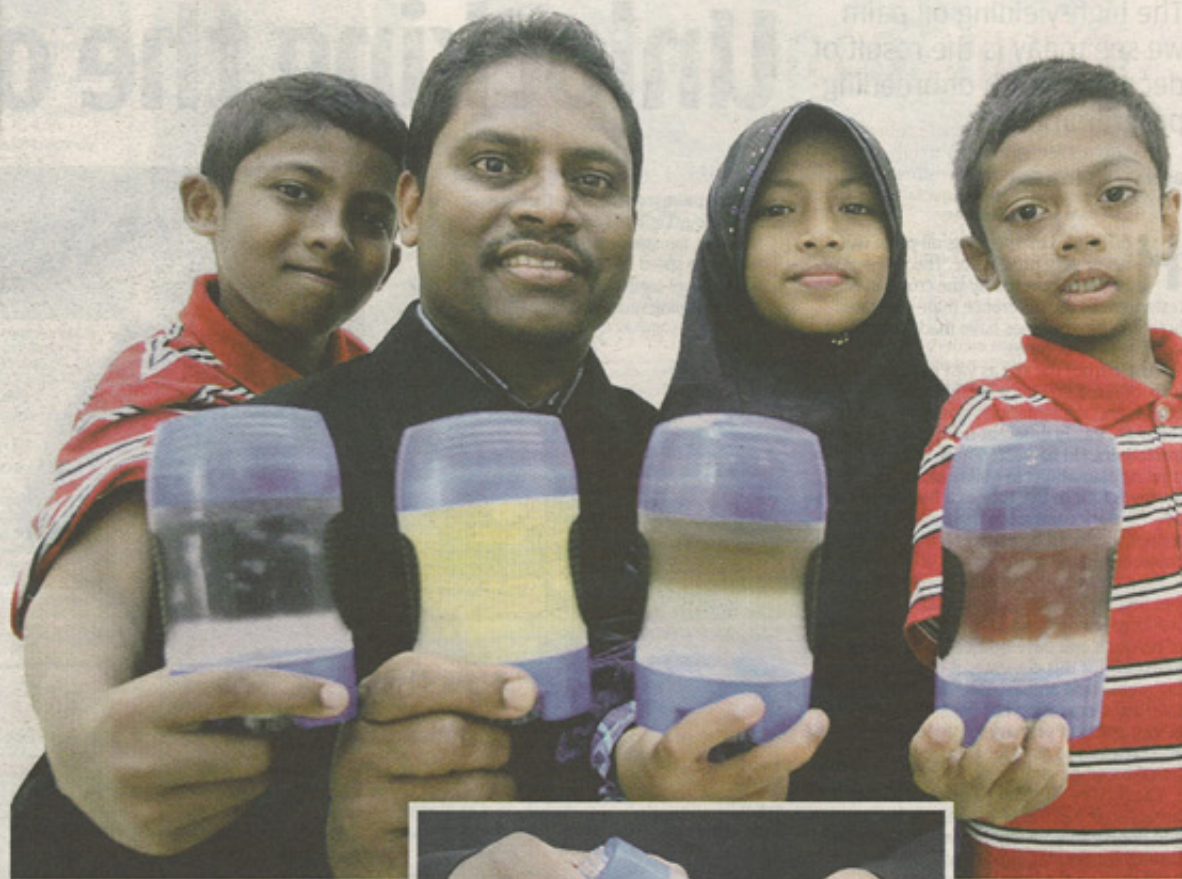
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**I**N many homes, breakfast can be a messy affair what with sticky fingers from spreading jams and kaya on toasts. Engineer Tajul Ariffin Abdullah faces this problem too, with his children, and that led him to ponder if there was a better way of dispensing bread spreads.

The senior lecturer and researcher took his thoughts to his work table at the Manufacturing Engineering Faculty at Universiti Teknikal Malaysia, Malacca. After two months of experimentation with his team, his novel invention, the Easy Bread Spread (EBS) was handed over to his quality control team - his children.

"They immediately loved it," says Tajul. "One of my children refused to eat jam in the past because it was messy but now, I'm always buying jam for the house."

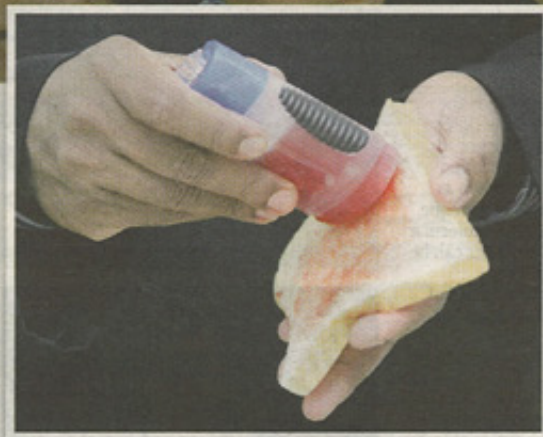
The EBS is a handy kitchen appliance that can be used for all bread spreads - butter, jam, margarine, peanut butter, chocolate and



so on. Comprised of a narrow bottle with a pump inside, it dispenses spreads evenly and smoothly by a simple twist of the mechanism. This translates to less wastage, which means that jar of Goobers' peanut butter will last longer.

"With the EBS, you can have snacks anywhere, even in the car," says Tajul, who took about two months to perfect his idea. "There is no worry of staining clothes or that your child may hurt himself with the knife."

Tajul has since been approached by various companies eager to commercialise his product. And to think it all started with a father wanting to make his children's breakfast a little less messy.



**Making life easier:** Tajul Ariffin Abdullah developed the Easy Bread Spread for the convenience of his children (from left) Muhammad Irfan, Sajidah Nafisah and Luqman Ariff. (Inset) The Easy Bread Spread dispenses jam easily over a slice of bread.

## Warm lunches



**Good eats:** The Eco-Friendly Insulated Bags, the brainchild of young inventors (from left) Tan Su Fern, Wong Kai Wern and Jonathan Aeruthayan, keep food warm through the use of bagasse (sugar cane fibre) for insulation.

WONG Kai Wern, 10, Tan Su Fern, 12, and Jonathan Aeruthayan, 12, are close friends from the Science and Maths Club of Sekolah Jenis Kebangsaan (C) Shih Chung Cawangan in Penang who decided to make lunchtime in school feel a little closer to home.

"When you bring your food from home, it gets cold and doesn't taste good," says Wong who came up with the idea of an insulated lunchbox bag.

With the encouragement of their teacher Tay Siew Choo, the trio conceptualised and created the Eco-Friendly Insulated Bag. This convenient bag enables cold food to remain cool and hot food to stay warm for 2.5 hours.

Its ease-of-use makes it suitable for school, travelling and picnics.

"We went on the Internet to research green materials and decided to use biodegradable sugar cane bagasse as the insulation material," says Jonathan. "It beats using polystyrene which is not environmentally friendly."

They say great innovation comes from simple ideas that meet the pressing needs of people, and in this case, it certainly does. The insulated bag essentially looks like women's make-up bag except that it has a zippered compartment to contain a layer of sugar cane bagasse, the fibrous matter that is left behind after sugar cane has been crushed for juice extraction.

This insulation layer provides excellent thermal insulation and so maintains the

temperature of the contents of the bag. The project garnered the support of teachers and parents who, excited by the students' ingenuity, helped sew the bags.

The students, along with their teacher Tay, participated in the Asian Young Inventors Exhibition (AYIE) 2011, held concurrently with ITEX (Invention, Innovation and Technology Exhibition) in May.

It was with an open mind that they participated, hoping to gain exposure and maybe receive a little bit of recognition. Never did they expect to win big but they did.

The little scientists bagged the ITEX 2011 Gold Award, WIPO (World Intellectual Property Organisation) Best Young Inventor and Asian Young Inventors Cup under the AYIE Environmental and Renewable Energy.

"I am so happy and proud of my students," says Tay, who heads the Maths and Science Club. "This win was completely unexpected. These students are very bright and will set a good example to young children. I'm blown away by their ideas which are sometimes what I would expect adults to come up with."

Jonathan aspires to be a scientist when he grows up. Tan aims to be a doctor and Wong wants to emulate his dad and become a lecturer.

These children are valuable assets in a country which is striving to compete globally.

More of these young bright minds are just what will keep Malaysia competitive.

## Mopping up an oily mess

AN eagerness to solve global problems is what drives Muhammad Mukhlis Anas Eshamuddin, 15, and Muhammad Akmal Amani Ahnuar, 14, from Sekolah Menengah Sains Kepala Batas, Penang.

Both profess a passion for science and along with other members from their school science club, created an oil spill absorber, a surprisingly complex invention for such young minds.

"In coming up with an invention, we considered current issues and decided to address a major problem of the world. We wanted an invention that could provide a solution.

"Oil spillage is a huge problem. It affects the environment negatively and the effects stay for a long time. Many animals become casualties of these accidents, further impacting the ecosystem. We decided to do something to overcome this global problem," says Mukhlis.

It took them two years of research. "We were looking for sustainable raw materials to absorb oil. It so happened that our school was surrounded by oil palm plantations. That piqued our interest in investigating oil palm more closely."

The empty fruit bunches (EFB) of oil palms are waste materials left by the palm oil extraction and milling process.

The students experimented with EFB and formulated a prototype with excellent absorption properties. Unlike other forms of absorbers, it does not absorb water and enables oil to be extracted back. According to Mukhlis, this can help reduce the loss of billions of dollars.

"Our invention helps firstly in addressing the problem of oil spillage. Secondly it helps with the waste management of EFB in



**Super-absorber:** Muhammad Mukhlis Anas Eshamuddin and Muhammad Akmal Amani Ahnuar from Sekolah Menengah Sains Kepala Batas, Penang, are proposing that the empty fruit bunches of oil palms be used to mop up oil spills.

Malaysia," explains Mukhlis. "Malaysia is one of the biggest exporters of palm oil and we have plenty of EFB sitting around. In palm oil factories, EFB is used as compost and as a fuel to generate electricity. Converting EFB to oil absorbers will free up waste space and can generate income for the country."

The young inventors are now looking for interested parties to market their product.

**It's not wood:** The HybRID Gazebo is built using a hardy wood-plastic composite. (Inset) University Teknologi MARA Pahang lecturer Ahmad Fauzi Awang Othman found the wood replacement for building gazebos.



## In place of wood

A GAZEBO injects an air of charm in many gardens, providing a space for wistful reflections, quiet conversations and a moment of shade. But these wooden structures are prone to termite infestations.

When University Teknologi MARA Pahang lecturer Ahmad Fauzi Awang Othman was instructed by the university to create something for the students' rest home, he decided to put his background in wood technology to good use.

The lecturer from the Department of Wood Industry gathered a team that comprised lecturers Prof Dr Suhaimi Muhammed, Muhammad Mokhtar Samad and carpenter Rosli Jaafar. Together, they created the HybRID Gazebo, an environmentally friendly and durable structure that is as functional as the traditional timber gazebo.

"The HybRID Gazebo is made of 50% wood-plastic composite (WPC) and 50% solid wood.

WPC is a combination of plastic with dust from rice husk, wood, kenaf fibre and the empty fruit bunches of oil palm and coconut. It is completely recyclable and environmentally friendly. As our country has an abundance of raw materials, why not re-use them cleverly?" says Ahmad.

He says the use of WPC in construction can potentially reduce the felling of trees, adding that the structure is stronger than wood gazebos as it is not susceptible to deterioration or termite attack. And as WPC comes in ready colours, there is no fear of the colour fading nor is there a need for re-painting.

The cost of the gazebo is significantly less than similar-sized wood gazebo. There is no maintenance required and construction is simple as the gazebo is constructed with clip-on components.

The invention won the ITEX Gold Award under the building and construction category.