



December 2011

The newsletter of the Institute of Inventors and Innovators

How soon the year end comes around yet again, and what a year it has been for the III. We are so pleased to have welcomed a huge and still growing new membership to the Institute. We must be doing something right. Hopefully you, the members have all benefitted from being part of our family and “*the home for inventors*”. Whether it is the meetings, the EUREKA!, the web site, the resources and training, “Pitch it to the panel” or one of our listed service providers, if you have been helped our objective has been met.

It just remains to wish you and your families a very Merry Christmas and a successful and inventive new year. Relax enjoy your holidays, until we all meet again next year. Remember, our first meeting is on the **third** Wednesday in January, see below.

Our Gauteng meeting on the 9th of last month was an on site visit to the University of Johannesburg IntelliLab.

We were wowed by the topic of the evening - the
“Fuel Duel”.

Three teams of 3rd and 4th year engineering students and their mentors set about designing and building a trio of alternative fuel cars in the space of three months. Nico Steyn introduced the event which was to be streamed live for those unable to attend and also to be available on the III web site. He introduced Keagan Smith the project leader who called on representatives from each team to present their project to us highlighting their challenges and successes. It was good to see engineering theory and practice coming together in a “can do” environment with the obstacles of the world of work compounded by pressures of time and cost.

Although all the cars had electric motors as the final drive and were three wheelers built using mainly off the shelf mechanical items and purpose

made space frames, three different power sources were used.

First up, Team Solar. The solar vehicle was pretty conventional in solar terms. A large surface area plastered with 514 solar panels totaling 65m². It had to be as light as possible given the low power available from the panels which are only about 16% efficient at power collection. A lightweight aluminium and marine ply frame with a fiberglass shell is the construction of choice. Aerodynamics and electronics were key design elements for success. The brittle solar cells had to be strengthened and were connected in both series and parallel to controllers able to manage the power supply. Solar is of course the ultimate green to operate.

Secondly, Team Hydro. A fuel cell borrowed (ha-ha) from sponsors MTN had been modified beyond restoration to make it fit for purpose. The unit is pretty expensive due to a platinum catalytic content.

Hydrogen is a tiny molecule and easily finds escape routes. We learned that fuel cells tend to exhaust some hydrogen along with water. The team had modified the cell to capture lost hydrogen for reuse. Using 75l of hydrogen per minute it exhausts 2l of water per hour. With all hydrogen vehicles fuel safety is a serious item and still a major challenge for public transport projects. There is a lot of learning for future application in this vehicle. The car is undoubtedly very green, always assuming that hydrogen can be produced by sponsors Afrox in environmentally friendly ways.

Finally, Team Turbine. Yes it's a combustion engine but it can use a variety of fuels from kerosene to bio diesel and LPG so it has the potential to be very eco friendly. The free wheeling turbine drives a generator which charges the batteries which drive the motor. Thus the turbine runs independently at optimal conditions. The 6kw turbine was no bigger than a vacuum flask and was from the hobby aircraft industry. Spitting fire and smoke and noise it naturally

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attracted attention but mufflers should tame this beast. Great care was taken to protect against fire with detectors and extinguishers in place. Weight was not a big problem and several large batteries were used but still more power was needed for rapid acceleration.

In fact subsequent to our visit it became clear that due to the type of motors used all the cars lacked starting torque and constantly variable transmissions are to be used as the most cost effective means to gear them. Add some electronic problems and component part delays and the plan now is to complete the project next year.

We could see that this duel is not just about the multi disciplinary engineering challenges but also an exercise in managing the various resources and supplies. It has given fun and stimulation to the students who have given their teams their all, sometimes to the detriment of their individual studies and their sleep. We could absolutely sense the enthusiasm of all the participants. During question time our members highlighted the possibility of UJ registering some marketable IP from this project?

If you would like to share the excitement you can meet the participants and follow their weekly progress on **Fuel Duel** DSTV Channel **319**. Check info. for times.

Centre in Johannesburg on Thursday the 24th November 2011. This was an interesting and inspiring event, a very full day with a stream of presentations. Hosted by Allan Duggan, Popular Mechanics editor, the day kicked off with a musical laser display, including the bow of the violinist. A fascinating prelude to a later talk by Francois Prinsloo of the CSIR National Laser Centre.

The Keynote address was from Brian Steinhobel, South Africa's well known industrial designer who amply illustrated his subject "*why good design rules the world*" with examples of form and function from his portfolio.

There were valuable presentations on various topics of particular interest to South African inventors trying to get ideas past first base - DTI assistance; IP law; venture capital; additive manufacturing; and our own CEO Ravini Moodley gave a thought provoking talk on "*Bridging the Innovation Chasm*". Later, ILL members Richard Kgwahla (serial inventor) and Anthony van Zantwijk (patent attorney) further illustrated the small inventor's dilemma of trying, with limited resources, to get bright ideas to market. Richard's award winning ideas are still at first base, but watch this space!

Other presentations of note were Errol Braithwaite who took us on the journey of the Gautrain project; Simon Gear on the role of price in our environmental challenges and Ivor Ichikowitz who surprised and inspired us with his story of the Paramount Group, which through innovation and determination has become a key player in the commercial and military systems business.

The conference was followed by the INVENT 2011 awards dinner where the University of Cape Town bioengineer Dr. George Vicatos was named as South Africa's inaugural Inventor of the Year by Popular Mechanics for his development of a versatile and potentially life-changing facial reconstruction system. His R50 000 prize money included an award for top spot in the Cutting Edge category of the nationwide inventors' competition. The judges remarked that Vicatos' invention "demonstrated his commitment to a better understanding of the human organism and the tireless pursuit of practical solutions for its frailties".

PITCH IT TO THE PANEL

Our last session for 2011 was held on 19th November.

Watch out for details of the next opportunity to present your new idea to the panel of expert advisors in complete confidentiality. You will receive the benefit of their advice on taking your invention forward. You must make a booking if you want to participate.

For all the information you need email info@iii.org.za or phone Ravini on 011 487 1536



The **Popular Mechanics** Inventors Conference 2011 took place at the Indaba Hotel and Conference

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Dr. George Vicatos

III Member Jamii Hamlin picked up the award in the sustainability category for the ECOSTAKE. You can read more about that and see a video on the III Facebook Page. Gerard de Vaal of Cape Town won a runner up prize, for a patented revolutionary cooling system for LED products that could result in significant advances in the lighting industry. Read more on www.popularmechanics.co.za

From the III point of view this conference was very satisfying, we had a lot of members and potential members in the audience, members as speakers and much recognition of the valuable contribution the Institute is making. Clearly, friends of the Institute are many.

If you have a contribution to **Eureka!** Please submit it by email to the editor at info@iii.org.za

Letters to the editor are also welcome. Write to info@iii.org.za

ATTENTION

The first III Gauteng Branch meeting for 2012 is on Wednesday 18 January 2012 at 19:30 (7:30pm) at the Japari School.

Speaker to be announced.

INNOVATIONS GET FINANCIAL BOOST TO HELP IMPROVE POOR COMMUNITIES

On 31 October 2011 **The South African Breweries (SAB) Foundation** announced the winners of its inaugural Innovation Awards.

The awards were established to recognise unique product inventions which work to improve the lives of women, youth, persons with disabilities and persons in rural areas.

An open competition puts innovator applicants and their innovation through a rigorous, phased adjudication process. In the end, investments are made into those innovations which are innovative, scalable and can be commercialised with the end purpose of reaching and improving the lives of as many of the SAB Foundation's identified beneficiary groups as possible.

The winner of the inaugural SAB Foundation Innovation Awards 2011 is Reel Gardening, whose community gardening product, Garden in a Box receives an investment of R1 million. The SAB Foundation will invest in six or more production machines to increase capacity, raw materials, staff and a distribution vehicle in order to take Garden in a Box to designated rural schools and communities.

Reel Gardening is owned by 25 year-old Claire Reid, who 9 years ago created a handmade vegetable planting strip made from biodegradable paper. Each vegetable strip is water soluble, contains fertiliser and non-modified seeds and includes a set of seed growing factors to maximise the germination rate.

Reel Gardening has grown into a fully-fledged business marketing its products to retail and corporate clients. But at the heart of her business is its support of community based gardens throughout South Africa. Reid has developed a Garden in a Box for schools and communities in low income areas. This helps to address food security concerns and provides a sustainable income for the communities growing the garden.

Two runners-up, ShonaQuip and The Invoice Exchange received R500 000 each.

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ShonaQuip designs and manufactures innovative modular wheelchairs and seating support for people living with mobility disabilities in under-resourced areas, including rural and informal settlements.

The Invoice Exchange is a web-based company supporting and enabling small and medium sized enterprises, who supply blue-chip companies, to access working capital immediately by selling their invoices on an exchange and receiving payment within 24 hours rather than the standard "30-days plus" invoice.

Third place is shared by Arivi Paraffin Stove and Drybath whose innovations each receive R150 000 and fourth place is shared by Lifeplay MP3 and Micromune, who each get R100 000.

Seed grants of R100 000 each were awarded to FoodPods, MoveeCom Mobile Internet Café, Harvest of Hope – Abalimi Bezekhaya, Mthatha Agricultural Airport Services (MAAS) and Notetaker.

For further information contact Azure Janneker on (011) 881 8562 or 079 505 6966 email Azure.Janneker@za.sabmiller.com

Business Partners Celebrates Young Entrepreneurs during the Global Entrepreneurship Week

Two promising young entrepreneurs were crowned winners of the competition at an Awards Ceremony on the 16th of November 2011. The event was the culmination of a rigorous process, held under the auspices of Global Entrepreneurship Week.

Thabang Mabuza of Investong Human Capital and Sthembiso Makelelane of Twice Clean Bottle Hygiene both presented well thought-out and viable business plans, impressing the judges with their energy, passion and excellent pitches before the final judging panel.

They each received their prizes of a R10 000 Business Partners Mentorship Voucher and Laptop sponsored by IBM. All the finalists will also be given the opportunity to apply for free business incubation by Shanduka Black Umbrella's Johannesburg branch.

With the guidance of Mentors experienced in the SME industry and the exposure they have received from participating in the competition, the two would-be tycoons are hoping to attract investors or funders that can help them see the fruition of their hard work and business dreams.

Mathematician Mmabatho Mokiti from Mathemaniacs was awarded the Runner-up prize of R10 000 worth of Mentorship from Business Partners. Merit Awards were given to two finalists; Kihisha Suleman from EDUMO and Boledi Maleka of Boledi Speech and Hearing Therapy.

Motivational words from inspirational entrepreneur Lindiwe Shibambo, Founder and Owner of Maid4U, a Domestic Worker Placement Agency, presenter of the Youth Television Programme *Ispani*, and finalist in last year's competition.

"Their innovation, tenacity and dedication to chasing their dreams can serve as a true inspiration to all aspiring entrepreneurs," says Martin. "And the fact that they are so young, is perhaps most impressive and paints a positive picture of South Africa's future."

You can tell its awards season can't you?

WHAT YOU MIGHT HAVE MISSED

Sleeping with the fishes?

In Portugal (this could only happen there) research is going on to break the itch – scratch – itch cycle of eczema sufferers. Pajamas are being developed that are impregnated with an effective medication extracted from the shells of prawns and shrimps. This unusual method of delivery provides hours of almost all over skin treatment every day.

Here's hoping Santa brings you lots of good ideas to play with for Christmas!