15 July, 2013

# TUT students engineer solutions to tackle world hunger

**Hot on the heels of the 2012 PneuDrive Challenge winning team’s recent trip to SEW Eurodrive’s headquarters in Germany, SEW Eurodrive General Manager Communications Rene Rose spoke to the Tshwane University of Technology (TUT) students about their winning design and their overall involvement and experience in the contest.**

The winning team, which is made up of **Mias Swanepoel**, **Byron Nielson**, **JP Joubert** and **Gerrit Botha**, point out that upon entering the contest they were confident that they were going to develop a winning design that would highlight the reality of hunger in the world, thereby tying into the contest’s theme of engineering a solution that could improve the lives of South African disadvantaged communities.

The team’s initial research into the area of plant yields revealed that significant improvements could be made in the area of seed propagation and planting. The team recognised that many disadvantaged communities have insufficient land to grow crops and/or have limited income to purchase enough food to meet their daily requirements. As a result, the team aimed to develop a concept that would essentially increase the effectiveness of the seeding propagation and planting process, and thereby decrease the cost of seeding and crop production, which would offer opportunities to supply cheaper agricultural products to end-consumers.

After months of in-depth research and consultation with professors, lecturers, industry professionals and fellow students, the team developed the concept of a high-speed, automated

seeding machine that brings together new research in “arboriculture hydrogels" and mass production in order to improve the process of preparing seeds for planting.

The team points out that research indicates that by reducing the costs associated with seeding and improving the productivity and planting efficiency of greenhouse farms, food production can be increased at a lower cost.

The Gel Seed Printer makes use of hydrogels with mechanised seed planting. One of the most important characteristics of the hydrogel is its ability to hold large amounts of water far exceeding its own weight. The team stresses that this characteristic is important in a farming environment because hydrogels can store water and nutrients in capsules allowing for slow release in areas that are characterised as being arid. Instead of releasing the water all at once, the hydrogel consumes moisture and locks it in, keeping the ground moist.

A sproutling that has been fed and vaccinated against disease and pests results in a seed that is more likely to take root and grow, when compared to a seed that has to germinate naturally. By designing a high-speed machine that has the ability to prepare seedlings inserted in pre-prepared hydrogels, the result is a unique approach to seed propagation and greenhouse farming.

Overall, the judging panel awarded first place to the TUT team for a well-researched and innovative design which essentially could mechanise, simplify and improve the efficiency in the way farmers raise their crops.

Speaking on their learning’s during the contest, the team says that they were exposed to project management lessons, which they believe; they would only have been exposed to later on in their working careers. What’s more, the team also expressed that one of the most interesting things that they learnt was how versatile drive and pneumatic technology actually is in the real world. The whole team agreed that the vast range of components that are available was also an eye-opener during the contest.

***Ends.***

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