

Developing the award-winning UWI Label



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Technological Innovation with the UWI Label

Creating a smart label to help reduce food wastage

Over £11bn of food is wasted every year in the UK alone, the equivalent of £680 per family, much of which is food thrown out whilst still edible and safe to consume. A unique labeling system could have a significant impact on both the amount of food being unnecessarily discarded and in saving people money on their shopping by no longer needing to replace products as often.

Inventor Pete Higgins hit on the idea of a smart label which would tell him how long any jar had been opened for, and therefore whether or not the food inside had gone off. This would be indicated by a clear strip which over time would turn green, indicating for how many days, weeks or months have elapsed since the jar was first opened, depending on the contents, before finally turning red to show the food had expired and was no longer safe to consume.

UWI Labels (pronounced yoo-wee) started life as an electronic solution, but further study indicated that it would be too expensive for the food sector, even with mass production. Version two of the label was a hybrid of electronics and chemical, which brought down the price considerably but there were still concerns with cost and potential reliability issues of using electronics in varying temperatures especially in refrigerators. It was then that Pete looked to see if there was a wholly chemical solution that could act as a stable timing device.

Leading Original Thinking

Through Interface-the knowledge connection for business, UWI was introduced to Heriot-Watt in order to help advance the technology of the label and develop the commercial potential of the product. The collaboration received Scottish Funding Council Innovation Voucher funding, followed by funding through EDTC and the Product Realisation Centre, and has given rise to an important and successful partnership between industry and academia.

Heriot-Watt University was asked to collaborate with Pete, using its renowned expertise in micro-engineering and experts in colour chemistry. It was soon realised that the idea had significant global applications, such as the pharmaceuticals industry, medical science and aeronautical manufacturing.

The label needed to be compliant with all food safety regulations, as well as something that can be fully integrated into the packaging at point of production. It needed to be self-adhesive, and able to work independently of ambient temperature.

A solution was sought to overcome the problems of how to mark time in a constant fashion from the moment a jar is open, and how this can be achieved in a way which uses non-toxic substances.

Working with Heriot Watt's expertise

Spanning two of Heriot-Watt's Campuses, Edinburgh and the Borders, experts were identified to evaluate the problem, and undertake research into the subject to find appropriate chemicals. With the help of funding grants, Robert Christie, Professor of Colour Chemistry & Technology, and Roger Wardman, Professor of Colour Science, supported the company in to identify a range of chemical systems which have the potential to fulfil the requirements of the UWI Label.

The next stage was to develop a working prototype to show to investors, and demonstrate the technology to investors.

Top Heriot-Watt University academic, Dr. Will Shu, was asked to collaborate on the scientific development and overall design of the UWI Label, with the aim of it becoming a standard feature on every food jar throughout the world.

The future

Heriot-Watt is helping the UWI Label develop from idea to marketable product. Currently, the product is in a prototype stage. With the help of SMART Scotland funding, a low cost, high volume manufacturing process is being developed to enter the product into the mass market, with a view to getting the product on the shelves in the next few years.

Having raised £50,000 investment in May 2011, the UWI Label went on to win top prize in the Barclays 'Take One Small Step' business competition and was awarded £50,000 to go towards the ongoing development and expansion of this innovative idea.

Further Information

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