Competition Winners

With financial sponsorship from Pera International, the leap® team from Pera Technology ran a series of unique competitions for UK SMEs. We looked to award successful companies with a submission to Horizon 2020, to help them secure funding for their new product or idea.

The following is an overview of some of the successful applicants.

**GR8 Engineering**

GR8 Engineering Limited (GR8) is a UK based SME with 85 years of combined experience and specialisation in injection moulding, injection compression moulding, stretch blow moulding and the application of Coralfoam technology.


Our first target market is food packaging and provides enormous commercial potential for GR8 within the UK, Europe and globally. We know our industry, our market drivers and our buyer needs, and we aim to revolutionise the thermoforming industry with our unique EcoForm technology, growing our business to over £10M per annum in royalties and machine revenues by 2020. We will patent our processes and scale up our business to become a high-growth SME, recruiting new expert staff to enable this. We require funding to refine and commercialise our EcoForm technology, which has been proven using a single cavity prototype of the injection mould machine and an initial prototype of the thermoforming system.

We aim to progress our EcoForm process from a single cavity prototype mould to an 8 × 16 cavity production mould. Our project will drive growth and innovation into a greener food packaging sector and enable us to develop a finalised prototype in readiness for commercialisation. EcoForm has been designed with a unique environmentally based approach that offers; reduced materials wastage, faster production rates and improved design flexibility; and promises cost-effective, high volume manufacturing.

**Fripp Design**

Prostheses are artificial body parts, which can also be soft tissue such as the nose and ears, and orthoses are external artificial devices for supporting the limbs or spine or to prevent/assist relative movement.

The current manufacturing process of these involves first taking an impression from the patient, making the mould, hand painting it and then modifying it to fit. The making of moulds is prone to error and occasionally leads to sub-optimal designs involving re-makes, alterations and repairs. Moulding also has severe constraints particularly where complex geometries and thin walled parts are required and it does not allow for varying of softness and tear strength within the moulded part. The multiplicity of stages in the manufacture of these custom parts makes the moulding process very expensive and time consuming.

Fripp Design and Research, one of Europe’s leading providers of innovative 3D print solutions, seeks to commercialise a new method for the rapid manufacture of soft tissue prostheses by developing the world’s first full colour silicone 3D Printer to replace the current moulding manufacturing method that is time consuming, highly variable and very costly. The use of faster and highly accurate 3D printing technology in the medical devices industry will not only lower costs by up to 72% but will also open up new design freedoms that prior to this were only dreams. The 3D printer developed can also be used in making orthoses and removable partial dentures (RPD) frameworks using silicone. The market opportunity goes beyond medical devices, into the high growth industrial gaskets and seals, where the market size surpasses €20 billion.

The Feasibility Study will establish the technological and manufacturing capabilities of the printing device and determine the potential medical and industrial markets for the application of our product. Final prototype assembly, testing and validation will be done within the Phase 2 project.
Bedfont Scientific

The increasing incidence of Helicobacter (H.) pylori infections and their close link with gastric cancer, gastric lymphoma, duodenal and gastric ulceration, give impetus to the H. pylori diagnostics market. Existing solutions are too costly, inconvenient and invasive; have a long analysis time or need technical expertise to analyse.

Bedfont Scientific Ltd offers a portable H. pylori diagnostic device, HYscreen, which detects ammonia in exhaled air as a biomarker for H. pylori. It has a rapid diagnosis, higher accuracy, lower cost, greater simplicity and convenience. It has the following innovation features: a mouthpiece breath entrapment sampling system, a thermal oxidizer and a Nitrogen Oxide (NO) sensor. This solution is aimed at primary and secondary care in Europe and USA and population screening programs in Asia, answering the call for a cheaper, quicker and simpler monitoring device. This will lead to improved clinical decisions that will facilitate early treatment of the infection, preventing H. pylori related cases of gastric cancer and gastric or duodenal ulcers.

Consequently, Europe-wide and global savings of up to €1.5 billion and €5.66 billion respectively will be realized by avoiding unnecessary endoscopies, biopsies, expensive H. pylori tests and the healthcare bill from H. pylori-related conditions.

Ultimately, HYscreen will open doors for fast and affordable population wide screening. The test will use cheaper C12 urea, though work still needs to be done to make it commercially available. There is a challenge to shorten the thermal oxidizer system for better aesthetics and to reduce ammonia absorption. In Phase 1, we study the feasibility of optimising the thermal oxidiser system, the use and optimisation of C12 urea, protection of the product and the detailed business plan.

Phase 2 will produce the final product from the prototype along with the validation steps and clinical trials.

ATC

Scoliosis affects 2-3% of the world population i.e. about 12 million people in the EU. 20,000 cases of severe scoliosis are reported each year in the EU but less than 3,000 cases ever undergo surgery due to cost and complexity of the surgery.

Severe cases of scoliosis are treated by spinal fusion; a major surgical procedure that makes the spine permanently rigid restricting physical activities and permanent arrest of spinal growth. The impact of spinal deformity caused by scoliosis on the quality of life before and after surgery is huge compared with other chronic conditions such as arthritis, chronic obstructive lung disease, diabetes and hypertension.

Due to the need for an alternative method for better correction of scoliosis deformities we have developed novel devices and a highly innovative care model involving a safer and significantly less invasive, complete cure which preserves spinal mobility and growth potential. Our solution will result in reduced cost of treatment by over 40% because of shorter hospitalisation, reduced operating time, elimination of additional procedures and lifetime care costs. Spine surgery currently holds a €10.2 billion global market share and is estimated to grow at a compound annual growth rate of 6.9% to reach €17.5 billion by 2022.

We aim to capture a market share of 0.1% in five years post commercialisation of our project and earn compound revenues of €42.5 million by selling our devices over the same period. In Phase 1 of this project we intend to conduct detailed planning of the testing and design optimisation phases, carry out a market study plan, identify and engage international partners and develop a draft business plan for use upon commercialisation within a period of six months.

In Phase 2 we will develop an advanced prototype meeting relevant EU and US Medical Devices Directives, demonstrate surgical techniques, rehabilitation strategies, and post-operative procedures and also conduct introductory marketing of our devices.