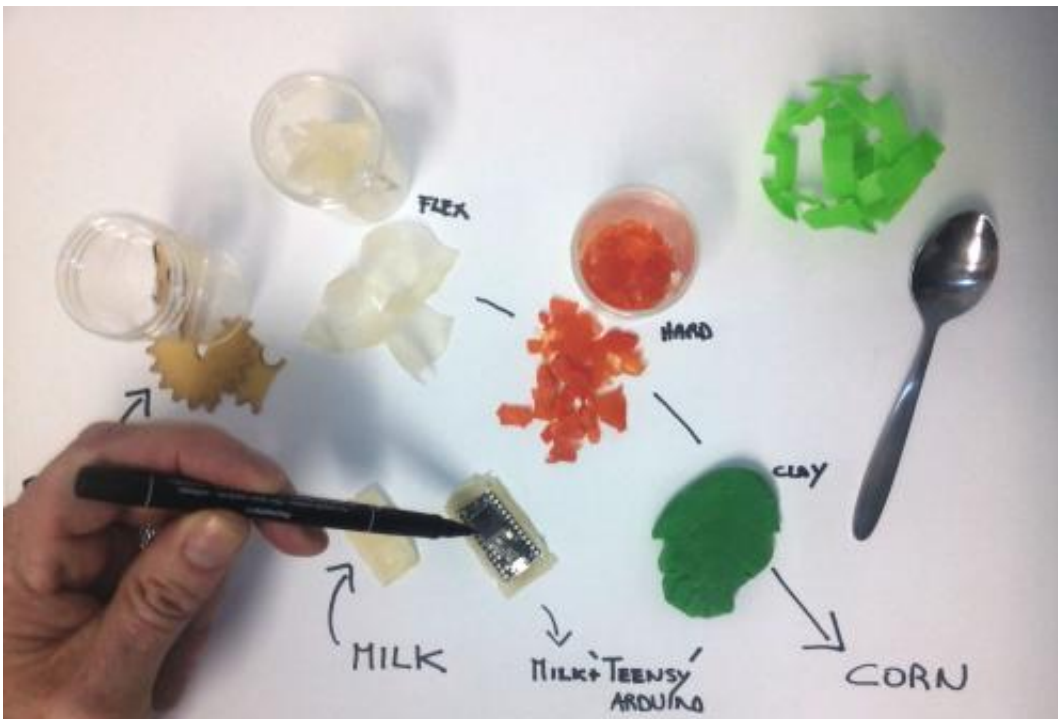


# Sensing devices for people suffering with anxiety

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Having fun in the Technology Kitchen

Imagine technology that is good enough to wear and safe enough to eat!

Technology innovation specialists at Lancaster University are working on a project to design a range of wide-reaching sensing devices for people suffering with anxiety.

This follows work undertaken by the School of Computing and Communications on an innovative anxiety management and peer support system, known as Clasp, which included a tactile, squeezable stress ball capable of logging anxiety triggers for people with autism.

Now the team are keen to move beyond one-size-fits-all health gadgets and progress to personalised, bespoke devices. They have taken the concept to the next level with a 'pick and mix' approach.

"Everyone has different needs," said team lead and Research Fellow Dr Maria Angela Ferrario, "and we discovered, on further research, that the design did not suit everyone – some people preferred a wearable technology and others were concerned about developing system dependence. Everybody is unique with different needs."

The project, which has attracted Engineering and Physical Sciences Research Council funding, will examine digital health tools by 'deconstructing' them to their simplest components so they can then be collaboratively redesigned, individually customised and combined to suit specific needs.

The first stage of the new project has seen all materials used in the initial technology go under the microscope at the University's Chemistry Department.

They arranged a special 'polymer laboratory' exploring the potential of new biodegradable, eco-sensitive and nontoxic materials for personalised manufacturing such as 3D printing.

"We have investigated the use of non-toxic, ecologically intelligent, biodegradable and environmentally kind materials for each component and the capability building of such technology in society," explained Dr Ferrario.

The team have adopted a modular approach to design. Technologies will be broken up into components, which can then be differently combined and built to suit individual needs by choosing different shapes, materials and functionalities, and manufacture them locally through existing 3D printing networks.

The dynamics of personal data capture and sharing, privacy and presentation will also be investigated in the project.

"The development of a Clasp 'open platform' will support the design and development of a wide range of personalised digital tactile anxiety management technologies for people with autism and their support network and with application beyond autism, " added Dr Ferrario."

"Using Clasp as a case study, we plan to design an exemplar for future digital health tools and to investigate potential impacts on end users, manufacturers, other technologists and policy makers," said Clasp Technical Lead Dr Will Simm.

To achieve this, the core research team, headed by Principal Investigator Professor Jon Whittle, has been extended to include other departments across the University including Design (Dr Steve Forshaw and Adrian Gradinar), Health and Medicine (Dr Ian Smith) and Chemistry (Dr Rachel Platel).

The 18-month research project, 'Clasp, Health Internet of Things', is a research partnership between Lancaster University, Autism Initiatives, Lancashire County Council, and other organisations working with people with autism.

A creative, fun part of the project will be to present an interactive stand at the Cambridge Science Festival on March 21 when families are invited to join a 'Technology Bake Off' event to 'cook up' an array of

sensing devices.

The 'Technology-Kitchen' will provide an array of exciting ingredients – gyroscopes, sensor-mimics, accelerometers, glycerol, and bio-plastic - to enable participants to cook up 'no-holds-barred' technology.

The team want people to come armed with their imagination to combine 3D printed shapes, mix materials and play with sensors to come up with new technology prototypes that are safe enough to eat and good enough to wear.

A recent trial run with Clasp project partners came up with seven imaginary devices including a 'Chillax Trigger' which senses stress coughs and comes complete with its own heat-induced hypnosis session and an 'Idea Catcher', an ear device which captures early morning creative brainwaves and filters them out from fragmented thoughts.

The best [technology](#) 'recipes' will go up on the new Clasp website at [www.myclasp.org](http://www.myclasp.org)

Provided by Lancaster University

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