

Food for thought! Technology can reduce domestic food waste

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QUT's Dr Geremy Farr-Wharton has tested the use of technology to reduce domestic food waste.

Consumers waste food because they don't know what's in their fridge, where it's located or how best to use it, a new QUT study has revealed.

Dr Geremy Farr-Wharton, who graduated from the Urban Informatics Research Lab in the QUT School of Design in July, has tested the use of technology to change consumer behaviour and reduce domestic [food waste](#), a problem costing Australians \$6 billion annually.

Dr Farr-Wharton's study sought to find out why people throw food out

and how technology could be designed to influence this behaviour and reduce food waste.

"There are three main reasons why household food ends up in the bin," he said.

"It is because of a lack of food supply knowledge (what's in my kitchen), food location knowledge (what's in my fridge and pantry), and level of food literacy (how to use it and how to judge its edibility)."

After identifying these factors, Dr Farr-Wharton conducted a series of in-home experiments to test three design interventions - the Colour Code Project, FridgeCam, and EatChaFood - all aimed to reduce food waste, by improving food supply and location knowledge and food literacy.

"The first intervention was the Colour Code Project, which used different colour mats inside the fridge to organise food types, and a chart on the door to indicate where food was located," he said.

"We found that when people know where food is stored they are more likely to use it.

"For example, in most households there is usually only one or two food buyers, so if you don't know an apple was bought and can't see it, then you are unlikely to eat it.

"Eventually that apple ends up in the bin. This represents a waste not just in the apple itself, but a waste along the entire food supply chain.

"Improving food location knowledge resulted in the most significant reduction in food waste."

The second intervention, FridgeCam, was a collaboration between QUT

and the Technical University of Vienna.

Dr Farr-Wharton said FridgeCam targeted food supply knowledge by providing people with a camera positioned within the fridge that took photos of their fridge interior and uploaded them to a website.

"The idea is that if you are out shopping and can't remember if you need milk or butter, you just open the website on your smart phone to check your fridge's inventory," he said.

Dr Farr-Wharton said the third intervention, EatChaFood, was a mobile app prototype that provided an interior view of the fridge, as well as a record of the food inside. It also offered meal suggestions based on food supply and food expiry.

"EatChaFood encourages users to consume their food prior to expiration by providing features to assist people with managing their food, including adding food items to an inventory, viewing all food in an inventory categorised by food types, and searching recipes containing inventory items," he said.

Dr Farr-Wharton said the outcomes of the interventions revealed that improving food supply and location knowledge, as well as educating people in how to use their food and how to judge its edibility, helped further reduce domestic food waste.

"With our design research, we are essentially 'connecting' people with their food - reducing the gap between food producers and consumers," he said.

"While we saw a reduction in the amount of food tossed out as a result of the interventions, the study did find that people's biggest limitation was around a lack of automation within the technology used.

"The next step in reducing domestic food waste is to design technology that knows what you have bought, where it is stored, and how to use it, so people can focus on cooking and eating."

Dr Farr-Wharton said at a big picture level, wasted food comes at a significant financial and environmental cost to Australia.

"It is a waste of resources in production, processing, storage and transport, and contributes to climate change and greenhouse gas emissions with discarded [food](#) accounting for about 20 per cent of landfill capacity, which goes on to decompose and release harmful methane gas," he said.

Provided by Queensland University of Technology

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