University of Bedfordshire: REAMIT Big Data Hub - Ready to go!

University of Bedfordshire is at the forefront of hosting a 16-core big data server for securing and storing data obtained from REAMIT pilot tests.

The server will be fed with real-time as well as offline data which will be utilised for analysis and further scrutiny for identifying alert points and resolving quality issues within the fresh food supply chain network using big data analysis.

The data inflow will constitute raw measurements from traditional sensors such as temperature, humidity, volatile organic compound percentage, weather, and GPS (wherever applicable), as well as from pilots using advanced technologies such as Raman Spectroscopy and 3D Fluorescence.

The server will act as a central and secure storage facility, equipped with software intelligence to automate decisions for end-users. At this juncture, a custom made server equipment is built and tested at the supplier and is awaiting to be loaded with basic softwares to begin development in the coming weeks.

Dr. Lohithaksha Maiyar, who is the newly recruited Research Fellow of REAMIT project at University of Bedforshire will be working full-time for developing and maintaining the software platform for receiving and broadcasting the data to necessary partners. The REAMIT server at University of Bedfordshire will fall into the following three stage data flow architecture:

1. The first stage will involve transfer of data from all pilot sources to a common REAMIT cloud platform (which is currently active and being hosted by a partner company).

2. The second stage will involve downloading the data from this cloud to the REAMIT server at BED through offline and online channels.

3. The third stage will involve transfer of data from REAMIT server to interested partners for further analysis and data crunching. This architecture is designed to gain a broader perspective of future activities and is subject to change based on further input from project partners.

'REAMIT provides free technology support to food businesses' - See Page 5 for more info.

The 2nd REAMIT Symposium will now be an ONLINE event - November 5, 2020, 9am - 4pm

In partnership with Images & Réseaux, and as part of the REAMIT project, Valorial is organizing a symposium on Food Waste as an online event on November 5, 2020. This event will bring together around 100 -150 European players & aims to raise awareness among agri and agro-industries on the subject of food waste by providing them with solutions to the problems they encounter throughout the supply chain.

The aim of this Symposium is to achieve the following:

- To roll out the REAMIT technologies so they can be used in other companies
- To roll out the approach of REAMIT to other sectors
- To further develop the network of partners to ensure continued synergy and joint working
- To continue to develop the technology mix to ensure its ongoing currency

B2B meetings will end this day to materialize your action plans on the 'B2match' platform.
We will be providing expertise and networking which will meet 2 major objectives:

- Making companies aware of the problem of food waste throughout the value chain, and offer them solutions to take concrete action

- Present the work carried out by the REAMIT project team: research work aimed at adapting existing innovative technologies (new generation sensors, IoT, big data, etc.) and apply them to agri-food supply chain management to meet the goal of halving food waste by 2030.

More details on registration will be available on our website, **www.reamit.eu**

Ulster University on Trials with 3D Fluorescence Sprectroscopy

Partners of the REAMIT project, including Ulster University and the University of Bedfordshire, have been working on securing equipment for a trial based on 3D fluorescence spectroscopy. As this is still an emerging technology, a discovery process to find companies who can provide this equipment is currently underway. Discussions have also been held with Matthias Heiden of the now-defunct FreshDetect, who has agreed to send several devices to Ulster University to begin testing.
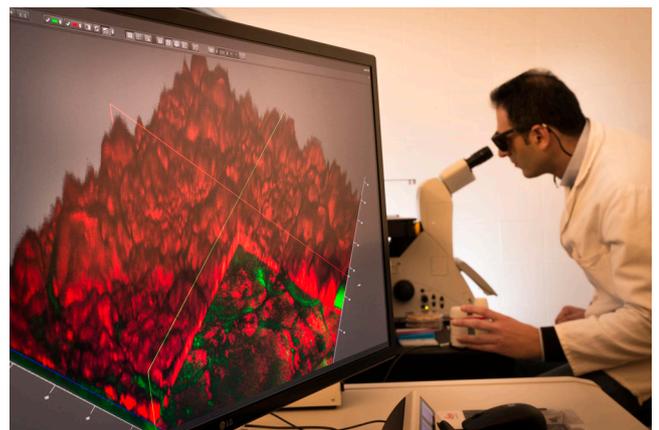
Raman Spectroscopy being used at the University of Nantes

Ulster University has been working on two more pilot tests with WD Meats. First of these pilot tests will focus on dry-ageing weight loss of meat. For this pilot test, Ulster University has been working with Whysor to enable their LoRaWAN gateway and begin forwarding packets to The Internet of Things Network. With this equipment now online, Ulster University will begin the procurement of sensors. A tour and meeting have been held at the abattoir facilities with Ulster University staff to find the common infection areas and what the first steps in beginning a trial will be. The second pilot test will focus on Clostridium esters and will be started in October 2020.

REAMIT Steering & Advisory Committee Meeting, 8 - 9 July 2020 Online meeting via zoom

REAMIT project partners met for the 3rd RAC+RSC+WP meeting. The meeting was hosted by REAMIT partners at Whysor B.V. We had originally arranged for this meeting to take place in The Netherlands but eventually, due to the pandemic, the meeting was organised online. Nevertheless, partners had many fruitful discussions and exchanges.

In Attendance: University of Bedfordshire, Nottingham Trent University, Images & Réseaux, SenX, Levstone, Valorial, University of Nantes, Whysor, Ulster University, IT Tralee, University College Dublin, WD Meats & an end-user working with REAMIT pilot test in the Netherlands.
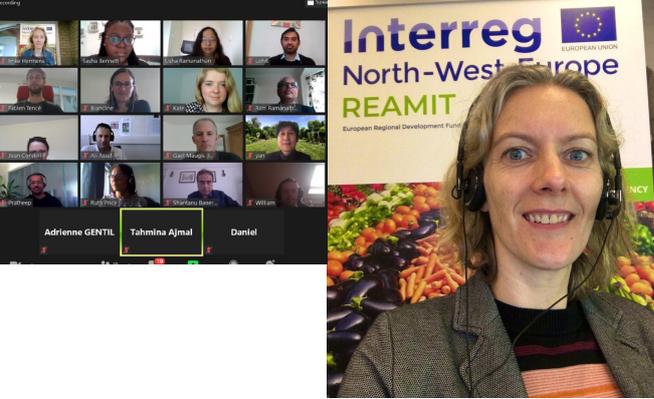
Dr. Tahmina Ajmal from REAMIT speaking at the Smart Food Factory Online Conference & Exhibition

Dr. Tahmina Ajmal of University of Bedfordshire was invited as speaker and chair of a panel discussion on the 'The Food factory of the Future, Smart & Collobarative' at the Smart Food Factory Online Conference & Exhibition on 10th of September 2020.

Dr. Ajmal is one of REAMIT's technology specialists in sensor technlogy as well as Senior Lecturer in Engineering.
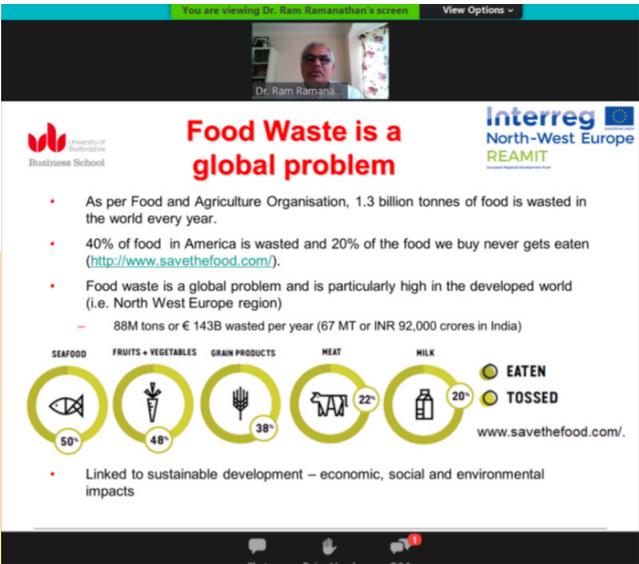
Prof. Ram Ramanathan speaking on climate change implications on reducing food waste

On Saturday, 19th of September 2020 , Prof. Ram Ramanathan was invited to speak at the KP @ 85 Festschrift Conference on the topic 'Climate change implications of reducing food waste using new digital technologies' used on the REAMIT project, focusing on carbon emission and its avoidance.

Introducing Dr. Lohithaksha Maiyar - Research Fellow for REAMIT Big Data Hub

Dr. Lohithaksha Maiyar is an independent researcher contributing to cutting edge research that focusses on improving resource efficiency for fresh food supply chains through Big Data analytics and IoT sensors.

Dr. Maiyar completed his doctorate from the Department of Industrial and System Engineering, Indian Institute of Technology Kharagpur, India. His research focused on the development of efficient transportation models for food grain supply chains.

Interview

1.   Can you tell me about your role in the REAMIT project?

First, I would like to thank the staff committee at University of Bedfordshire and the REAMIT team to select me for this opportunity to work with REAMIT project. My role in the REAMIT project can be described in three aspects. In the initial part, I have been entrusted to play a lead role to procure and build a big data server at University of Bedfordshire (BED), Luton Campus. Currently, I am actively involved in conducting the procurement and physical installation of the server facility within the University campus with significant inputs from different internal and external REAMIT team members. My role has been critical for designing the hardware configuration and establish an appropriate software platform licensing while negotiating with supplier companies to suit the needs of the project and to ensure that the procurement process abides by the guidelines set by the University as well as Interreg North West Europe programme.

The second aspect to my role will be to lead the work package that is responsible for launching the REAMIT cloud platform, by collaboration with REAMIT technology partners, developing mobile applications and performing big data analytics to support the cause of reducing food waste in NWE region.

The third aspect is to independently lead the REAMIT research work by constant interaction with pilot partners and other team members to collect field data and build new mathematical models to capture food quality and develop novel scientific algorithms to solve complex problems from fresh food supply chains.

2.   It must have been very challenging for you to start a new role exactly when the pandemic outbroke. Can you tell me how did you handle this and working remotely on WP T2 during the pandemic, including liaising with REAMIT team across all REAMIT countries?

Personally for me, I was happy to join the consortium and have all the documentation completed a couple of weeks before the lockdown began in March. I am extremely thankful to my line manager (Prof. Ram Ramanathan), project manager (Katarzyna Pelc), mentor (Dr.Tahmina Ajmal) and project co-investigator (Prof. Yanqing Duan) to guide me thoroughly to adapt myself for the new working conditions and enable a safe working environment. Due to the pandemic, two physical workshop events were cancelled which reduced my opportunities to interact face to face with end-users and project partners. Nevertheless, my active online engagement with the project team helped me to quickly get on with the ongoing project activities.

3.   Can you tell me how your role in REAMIT builds on your previous roles?

My background on building mathematical models, devising efficient algorithms through machine learning and soft computing techniques to solve problems from food supply chain management motivated me to apply for this post. I completed my doctorate from the Department of Industrial and System Engineering, Indian Institute of Technology Kharagpur, India. The thesis contributed to the development of efficient transportation models for food grain supply chains in Indian context. I was a Research Associate in the Department of Automatic Control and Systems Engineering, The University of Sheffield, prior to joining this post during which I have contributed to the development of sustainable and fuel efficient aircraft ground transportation models. I have applied supervised and unsupervised machine learning, evolutionary optimisation for solving problems from a wide range of applications from aerospace, manufacturing, online fashion markets, and food grain supply chains. I have significantly focussed on developing mathematical models to support cost-effective, sustainable and resilient transportation decisions.

I believe I have immense scope to build on my previous research experience on food supply chain management and extend or tailor some of the mathematical models to the UK context and find ways to reduce the wastage of fresh food. During my PhD, I have observed how wastage thresholds impact the various supply network costs and emissions across the rice supply chain.

Emilie Grange of the University of Nantes, Using Raman Spectroscopy to test on chicken pieces

REAMIT Technology demonstrations: Levstone Ltd have launched their 'Gateway' smartphone app
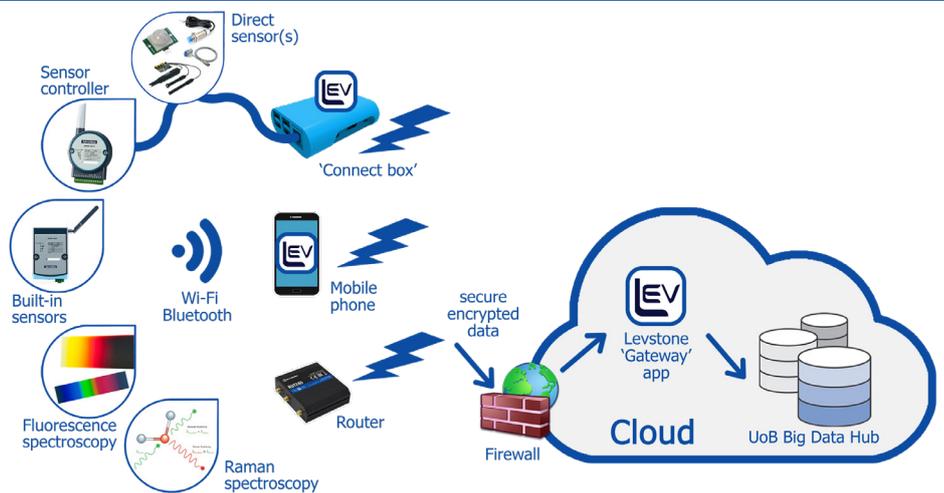
An illustration from Levstone Ltd demonstrating how data travels from the Levstone 'Gateway' smartphone app, stored in the cloud and is analysed at REAMIT Big Data Hub

No cost REAMIT Technology demonstration events
Call for business participation in REAMIT technology demonstrations

REAMIT is currently seeking companies in the agrifood sector to take part in REAMIT technology demonstrations, in the aim to reduce food waste & improve food quality. Click this link to see some of the benefits to your company: REAMIT Benefits Infographic

The REAMIT team aims to support food producer and transporter companies in maintaining high quality of food without human intervention. This is done through the use of sensor and Big Data technology and is particularly important in this challenging times of COVID-19 pandemic. REAMIT team have sensor technology available to be fitted in warehouses, retail stores, food pallets, or in trucks, to monitor food quality around the clock. We provide free service to food producer and transporter companies to customise REAMIT technology to the needs of each individual company, to improve the company's business operations and ultimately reduce food waste in the North-West Europe region. Contact us at **reamit4nwe@gmail.com** if you are interested in getting involved.

This is an initiative funded by Interreg North-West Europe.