UNIVERSITY OF WATERLOO

TECHNOLOGY SUMMARY

Food quality testing using millimeter waves

Background

Food quality assurance, especially in the food processing industry, has never been more important in keeping with increased global trade and associated quality/safety regulations.
It is advantageous to food processing companies to be able to monitor the quality of their foods in real time, thereby allowing them to identify and respond to any potential issues quickly and at minimal cost. The cost of dealing with issues related to the safety and quality of food once the product has reached the end consumer can be very expensive and detrimental to a company's reputation.

Description of the invention

A method has been developed that enables instantaneous real time monitoring of food quality. This technology can be used to detect the consistency of the product going through the production line, for instance to determine the level of frozenness of the food or to detect any impurities amongst other capabilities. The Waterloo technology utilizes a non-contact millimeter wave radar sensor to perform a deep scan of the food and an algorithm to determine if the food is within the tolerances specified.

Advantages

This technology allows for food quality testing to be conducted inexpensively, quickly, and continuously in real time, all without slowing down the food processing process as it utilizes non-contact sensors.

Potential applications

This technology can be used in the following ways:

- To measure the consistency of a food product
- To measure the level of frozenness of a food product
- To detect any impurities in a food product, such as cooking oils (eg. olive oil)
- To detect any defects in packaging materials or containers
- Has the potential to be combined with some type of bacteria sensor for rapid low-cost measurement.

Reference

10177 & 10223

Patent status

US & CA patents filed

Stage of development

Prototype
Ongoing research

Contact

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