

SMART Food Packaging



Bildtext

Smart sensors to monitor food quality and safety

The growing food industry and increased demand for the long-term storage and preservation of food push the needs to develop methods that can easily track and preserve food freshness and safety throughout the shelf life of the product. Integrated sensor in the food packages provide an efficient method to monitor the conditions of the food.

Integrating the sensors in the packages can provide the information about the quality of food and package integrity by monitoring gas concentration, pH, temperature or humidity, which could give indications of the product quality, the microbiological safety, the chemical composition, and nutritional value.[1] Smart sensors and labels that can be attached to packaging represent next-generation technology that can help monitor the status of the product. [1] Incorporation of sensors in smart packaging is increasing and has found some commercial success for food-freshness assessment, with notable examples for chemical rather than biological sensors.[1-3] The project includes following activities:

Literature research on the categories of sensors for food packaging application.

- Collecting the information about the sensors used in food packaging.
- Understanding the working mechanism of one specific sensor in the detecting the food quality or safety.
- Survey of the related technical people who familiar with the sensors.
- Testing the sensors which have been used in commercial food packages.

References:

- [1] F. Mustafa and S. Andreescu, Chemical and Biological Sensors for Food-Quality Monitoring and Smart Packaging, Foods 2018, 7, 168
- [2] G. Fuertes, I. Soto C. Lagos, et al. Intelligent Packaging Systems: Sensors and Nanosensors to Monitor Food Quality and Safety, Journal of Sensors, 2016, 2016, 4046061,
- [3] A. Doderò, A. Escher, P. Lova et al. Intelligent Packaging for Real-Time Monitoring of Food-Quality: Current and Future Developments, Appl. Sci. 2021, 11, 3532.

Target group of students

M, Bt, K, Kf

Group size

3 - 6

Special requirements

- Basic knowledge in materials science and engineering;
- Background in mechanical and engineering,
- Nanotechnology are meriting.

Suggestion from

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Can the project be duplicated?

No