GLUTENSENS

Glutensens is a device designed to rapidly detect the presence of gluten traces in food, supporting restaurants, canteens, and catering services in managing gluten contamination.
The system enables the identification of very small amounts of gluten that are difficult to detect directly at the food preparation site, helping to improve the control of food preparation processes.
The goal of the project is to provide a simple, reliable, and accessible tool to verify the presence of gluten in food, contributing to greater safety for people with celiac disease or gluten sensitivity.
Teoresi MedTech contributed to the development of the project through:
• development of the electronic device
• design of hardware and software
• integration of hardware and system software
• support for regulatory certification

"FoodTech solution to improve food safety in professional kitchens"

Laboratory	Teoresi MedTech
Specialization Area	Health and Wellness
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Keyword	Food safety, Biosensor technology, Electrochemical sensing, Gluten detection FoodTech



Fig. 1: Photo 1 – Glutensens device for the analysis and detection of gluten contamination. Source: Glutensens



Fig. 2: Photo 2 – Internal structure of the Glutensens device. Source: Glutensens

Innovative aspects

The core of Glutensens is an electrochemical biosensor based on aptamers, capable of specifically detecting gluten traces quickly and reliably.
The main features include:
• electrochemical biosensor for gluten detection
• specific aptamers for gluten recognition
• reduced analysis time
• direct usability in professional environments
Another distinctive aspect is the ability to perform analysis directly at the point of use, without the need for laboratory testing.

Description

Glutensens is based on an electrochemical biosensor functionalized with highly specific aptamers, designed to identify gluten traces in different types of food, including complex samples.
The system can detect gluten quantities down to 20 ppm in just a few minutes, providing rapid verification that can be directly used in professional kitchens.
The project offers an innovative approach to gluten detection and control, combining high analytical performance with ease of use, making it suitable for both industrial applications and professional environments.
The device has been tested on different types of food and is currently undergoing certification. Tests were carried out under conditions that ensure reliable results regardless of cooking conditions and food type.

Potential applications

The device is designed for use in restaurants, canteens, and catering services. It enables the implementation of a continuous gluten monitoring process during food preparation, reducing the risk of cross-contamination.
This approach contributes to improving food safety standards and increasing consumer confidence, especially for individuals with celiac disease.
Specifically, restaurants and food service operators can verify in real time the absence of gluten traces, integrating the device into a controlled preparation process.



Fig. 3: Photo 3 – Glutensens device: design and interface for the analysis of gluten traces. Source: Glutensens

Involved partners	• Teoresi MedTech • Glutensens
Implementation Time	18 months
Technology Readiness Level	TRL7 - System prototype demonstration in operational environment
Exploitation	€3 per use (€3,000 per device)

Application example

In a professional kitchen or restaurant, the Glutensens device can be used to verify in a few minutes the presence of gluten traces in dishes before service. A cook can perform the analysis using the electrochemical biosensor, which can detect even minimal gluten levels in complex samples.

The result allows immediate identification of potential contamination, improving control over preparation processes. This approach ensures compliance with safety standards, reduces the risk of errors, and increases the reliability of gluten-free preparations.

Teoresi MedTech

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L'eredità si fonde con l'innovazione e la visione del **Gruppo Teoresi**, dando vita a una unit di eccellenza nel settore dell'healthcare, aperta a nuovi mercati e in grado di accettare le sfide e cogliere le opportunità offerte dallo sviluppo tecnologico.
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Website https://www.teoresigroup.com/it/company/medtech/

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Published on 28/04/2026