

Precise

**Intelligent solution for sustainable
meat production and consumption**

Motivation:



Addressing food waste



Disruption:

Objective determination of expiration dates
Eliminate doubts – eliminate waste



Expiration
date:

06/11/22

Current practice

Expiration date determination: Currently done by human senses

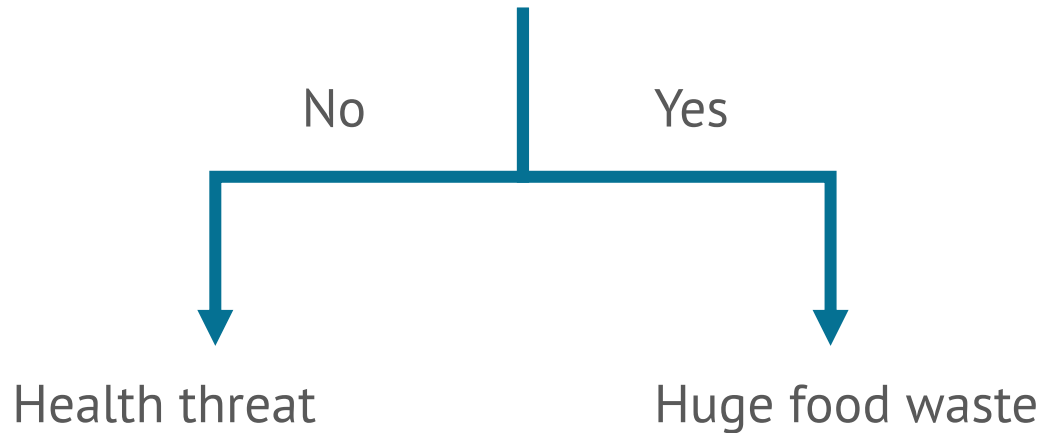
No devices for measurement!



Current practice

Human senses: Expiration date is subjective

Safety margin must be added

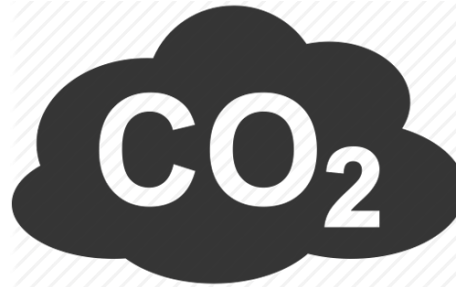


Current waste in border region



48.000 tons/year

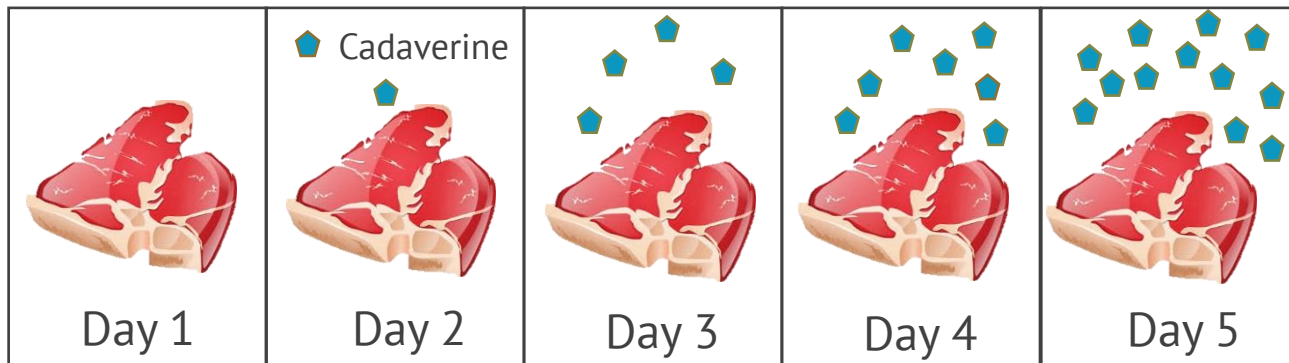
100.000
tons CO₂/year



8.000.000
€/year

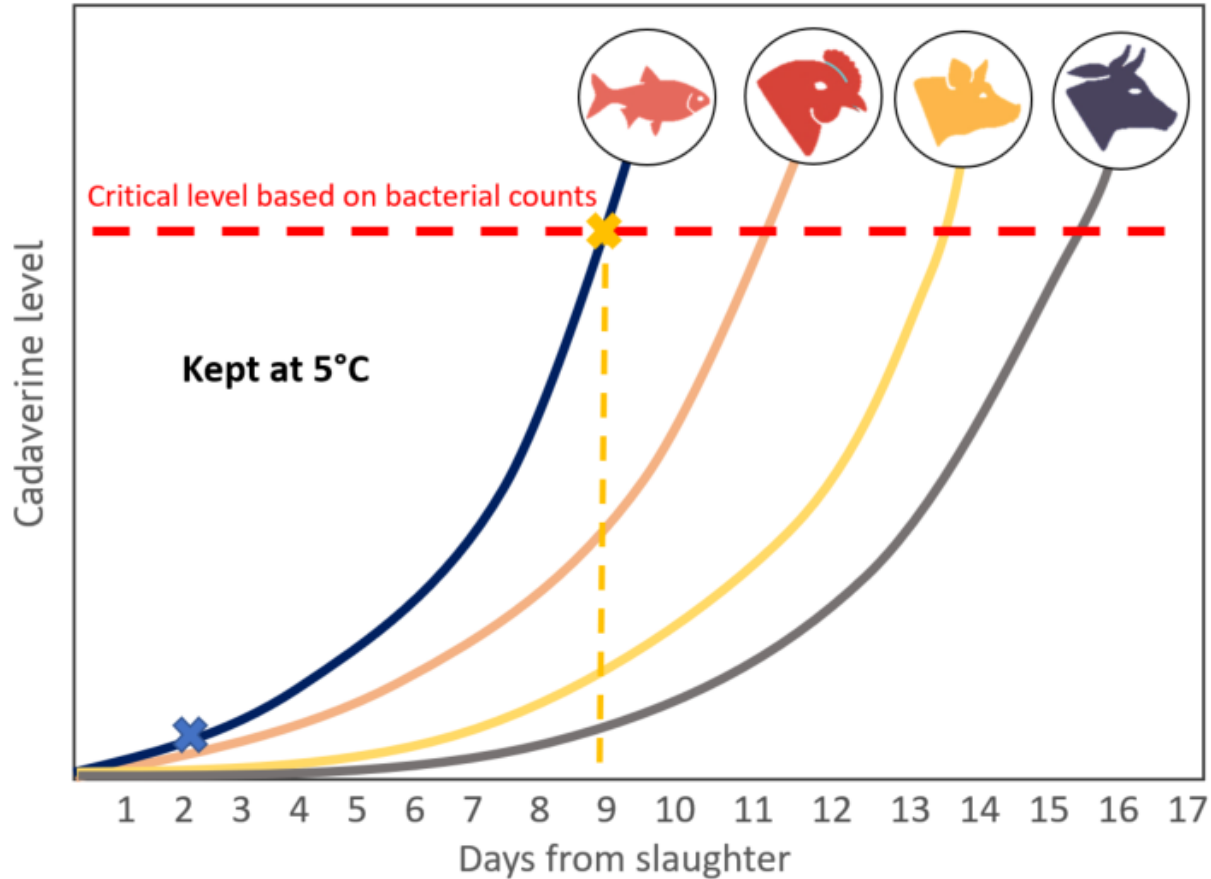
Meat freshness biomarker

Cadaverine:
Concentration increases in a predictable way

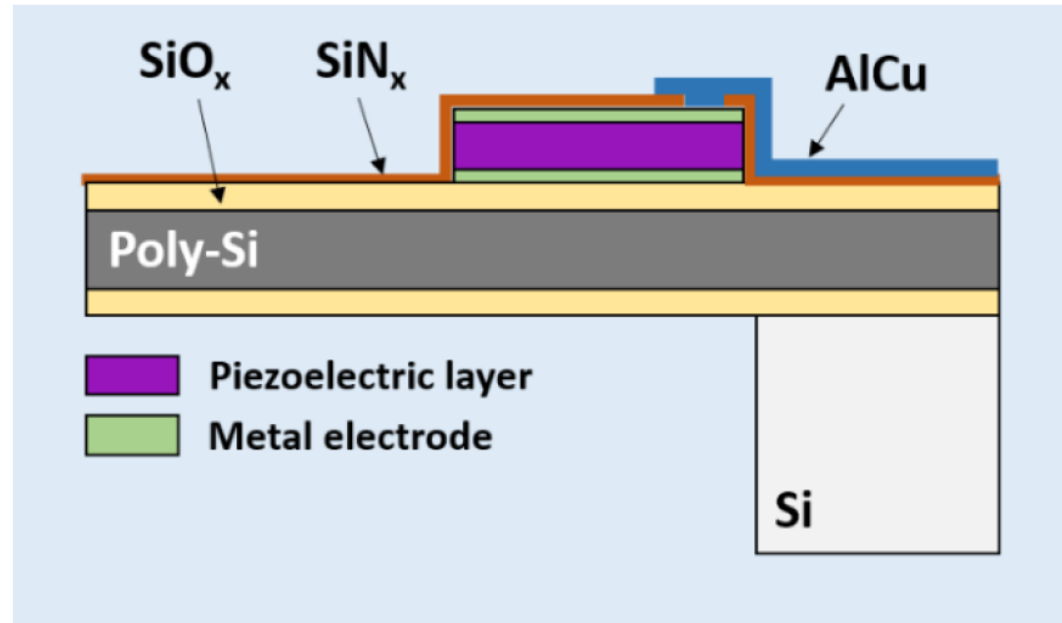
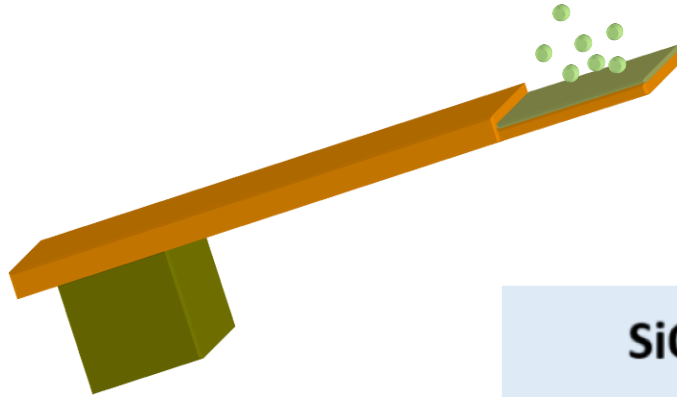


An electronic nose to measure cadaverine levels could predict expiration dates

Determining expiration dates



Cantilever-based gas sensing



Cantilever-based gas sensing

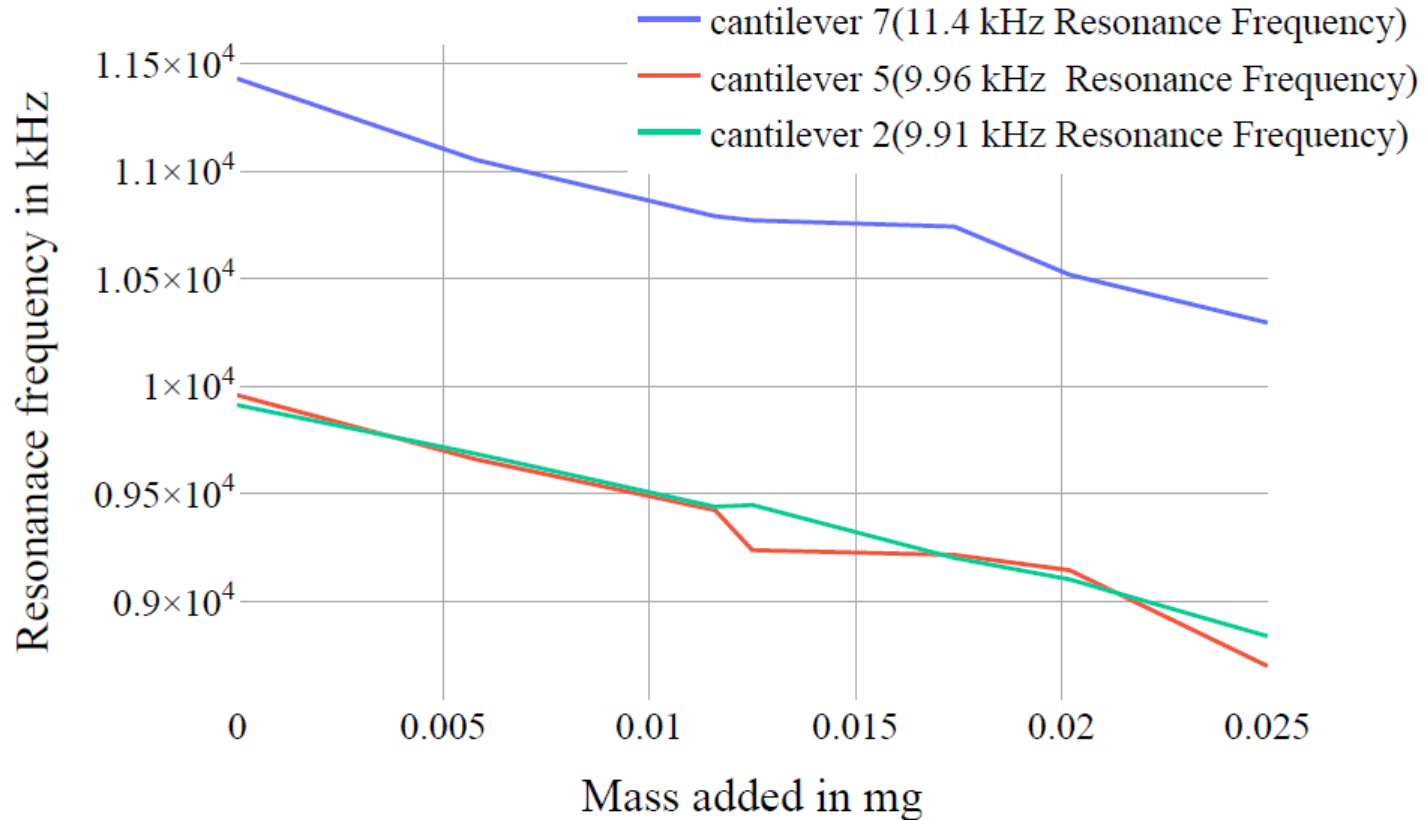


Figure 11. Change in resonance frequency with mass added to three different cantilevers.

Sensor response upon meat exposure

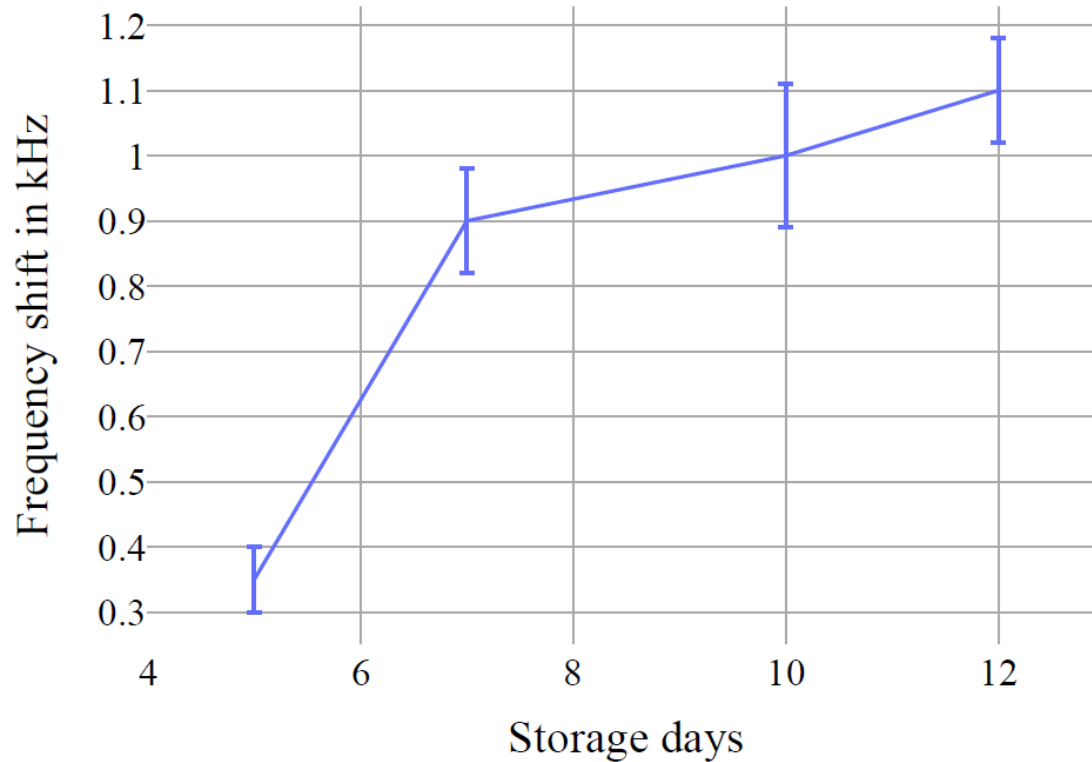


Figure 12. The shift in resonance frequency when exposed to tuna pieces with different ages, the error bars denote the shift in standard deviation.

Development timeline

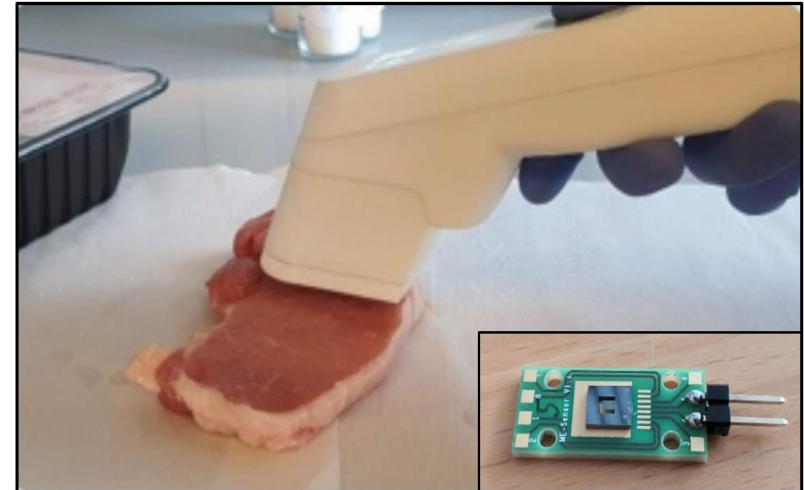
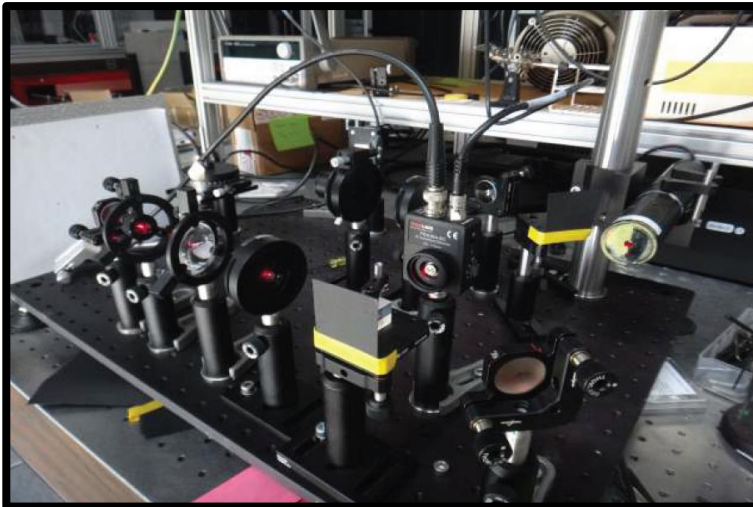
AmiNIC found the market need and had an idea

Student project with SDU: proof of concept

Experts in teams prototype

Miniaturization, calibration, standardization

Hand-held device for 4 meat/fish types



Development timeline

Project Precise will:

- Develop reliable sensing elements,
- Construct databases for 11 meat/fish types
- Implement advanced expiration date AI algorithms
- Launch a tool for restaurants and supermarkets for PRECISE determination of product freshness



Sensor demonstration



Addressing food waste

Expected savings in cross-border region



25.000 tons/year

50.000
tons CO₂/year



4.000.000
€/year

