National Centre for Flexible Electronics

Call for Expression of Interest

Gas Sensors

Background

Indoor air quality

Early disease detection

Technology Development for Flexible Gas Sensors

Food packaging: Spoilage

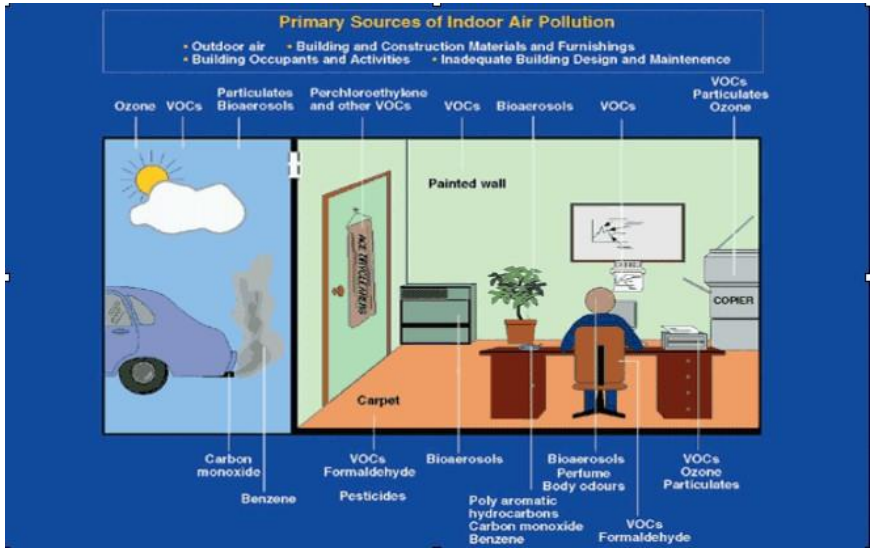
Safety/Environmental applications

Ref: Google images

Background

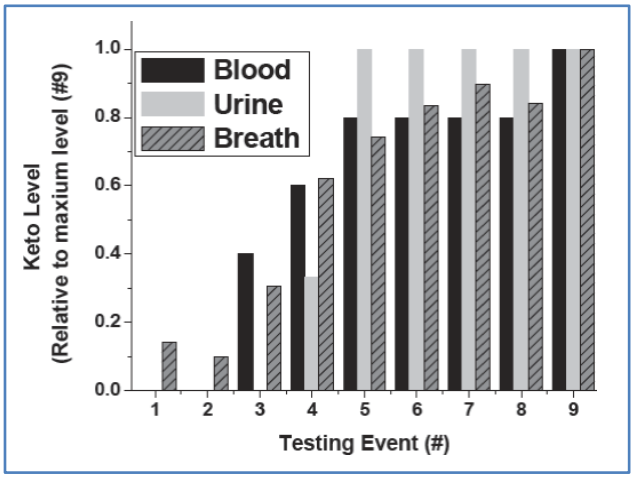
Google images

1. Indoor air quality



Various gases that affect human health need to be detected

2. Early disease detection

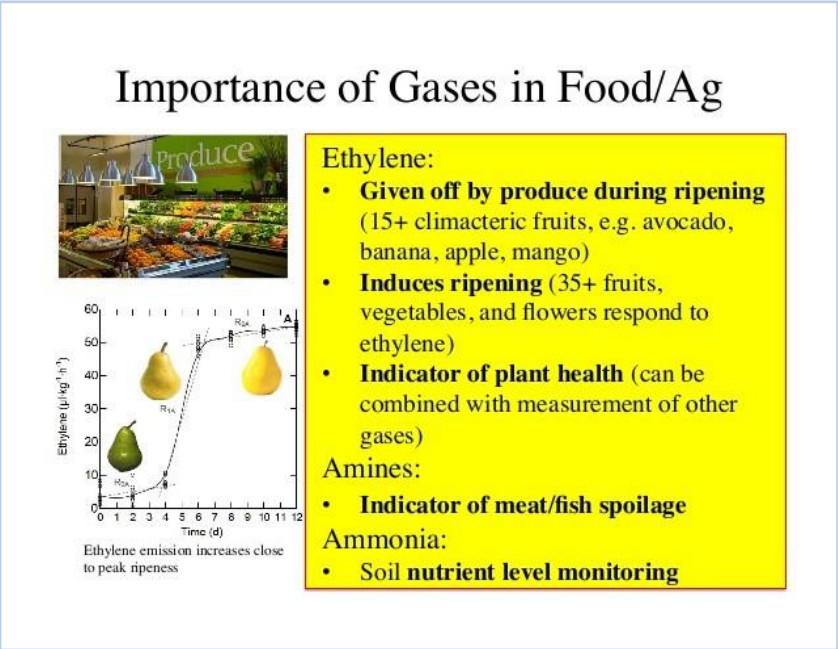


http://www.peertechz.com/Obesity-Diabetes-Metabolic-Syndrome/GJODMS-1-103. php

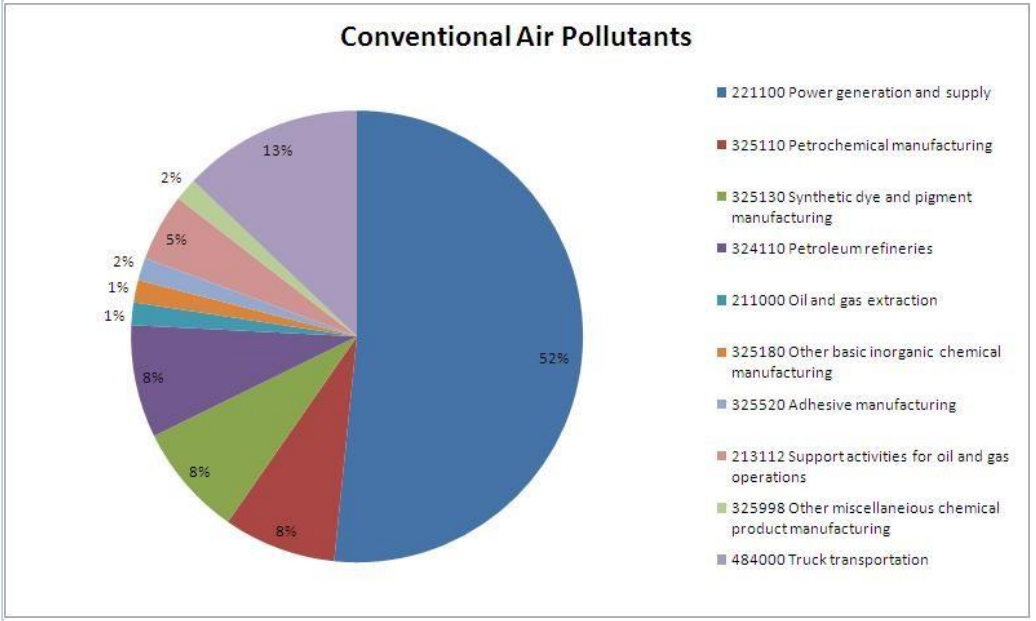
Gases in breath can be indicators of disease

Background

3. Food Packaging: Spoilage



4. Safety/Environmental Applications

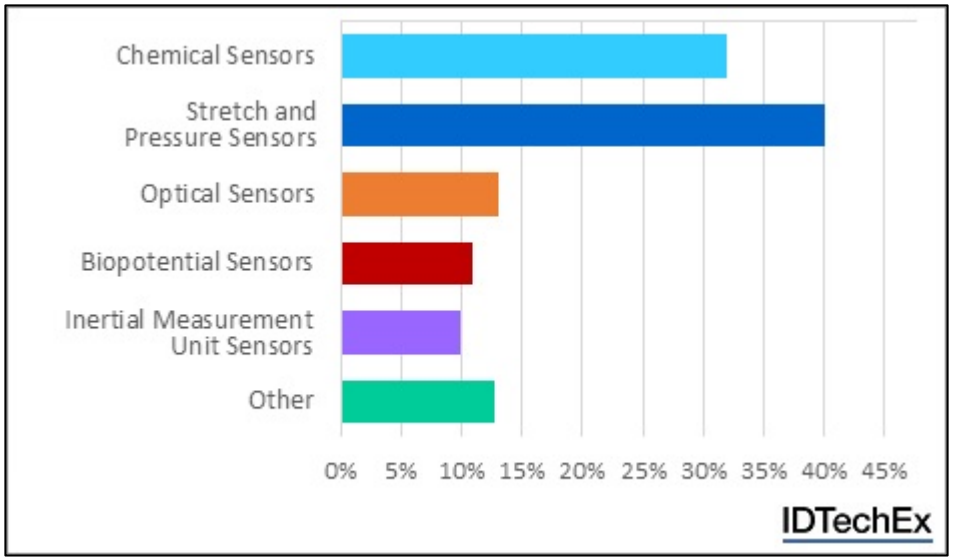


Google images

Indication of food spoilage by detection of characteristic emitted gases

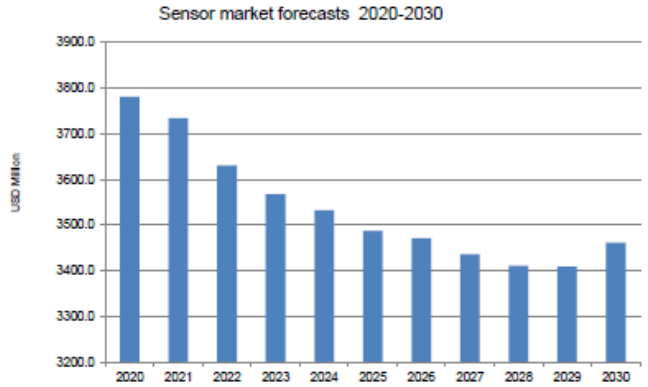
Hazardous and Pollutant Gases need to be detected

Market Size and Potential



IDTechEx Report

Printed and Flexible Sensor Market Forecast 2020-2030
$ Millions



	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Sensors (USD Million)	3780.5	3734.1	3630.7	3567.2	3533.1	3487.6	3472.0	3436.7	3411.1	3409.2	3461.8
% Printed	99.0	99.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0
% Flexible	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

CAGR by sensor type 2015-2025. *Source: IDTechEx Research report "Wearable Sensors 2015-2025:*

Current Available Options

- Metal oxide based sensor
- Operating temperature: >300 ^{0}C
- Cost: > INR 6000/-

- Several platforms
- Alcohol detection
- Cost: > INR 10000/-

Indoor air quality management system

Early disease detection

Some of the representative but not exhaustive options

- Not yet commercialized
- Development of wireless ethanol sensing tag for food packaging

- Metal oxide based sensor
- Operating temperature: >300 ^{0}C
- Cost: > INR 6000/-

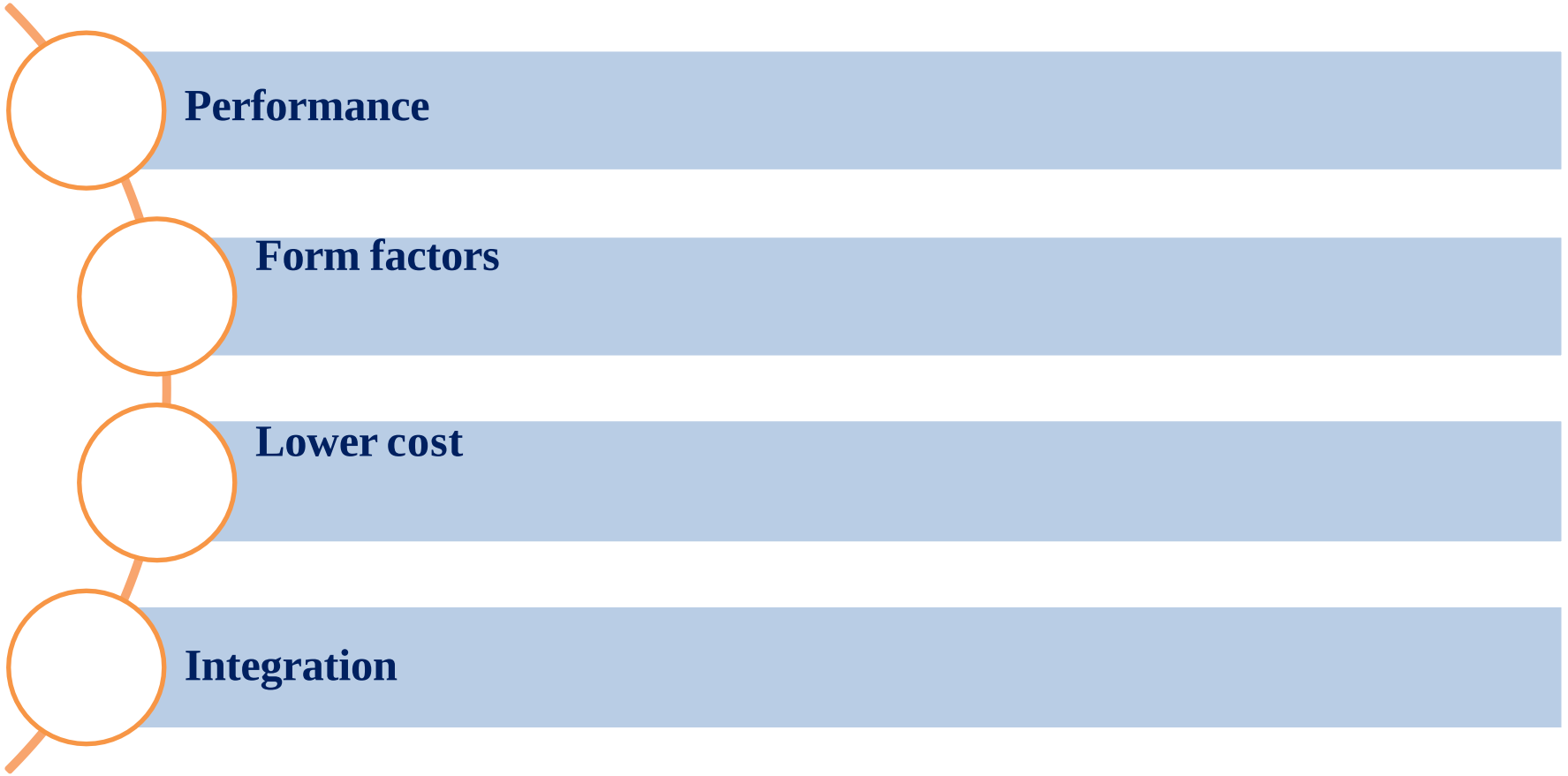
Food packaging: Degradation status of food

Safety application: Industrial pollution

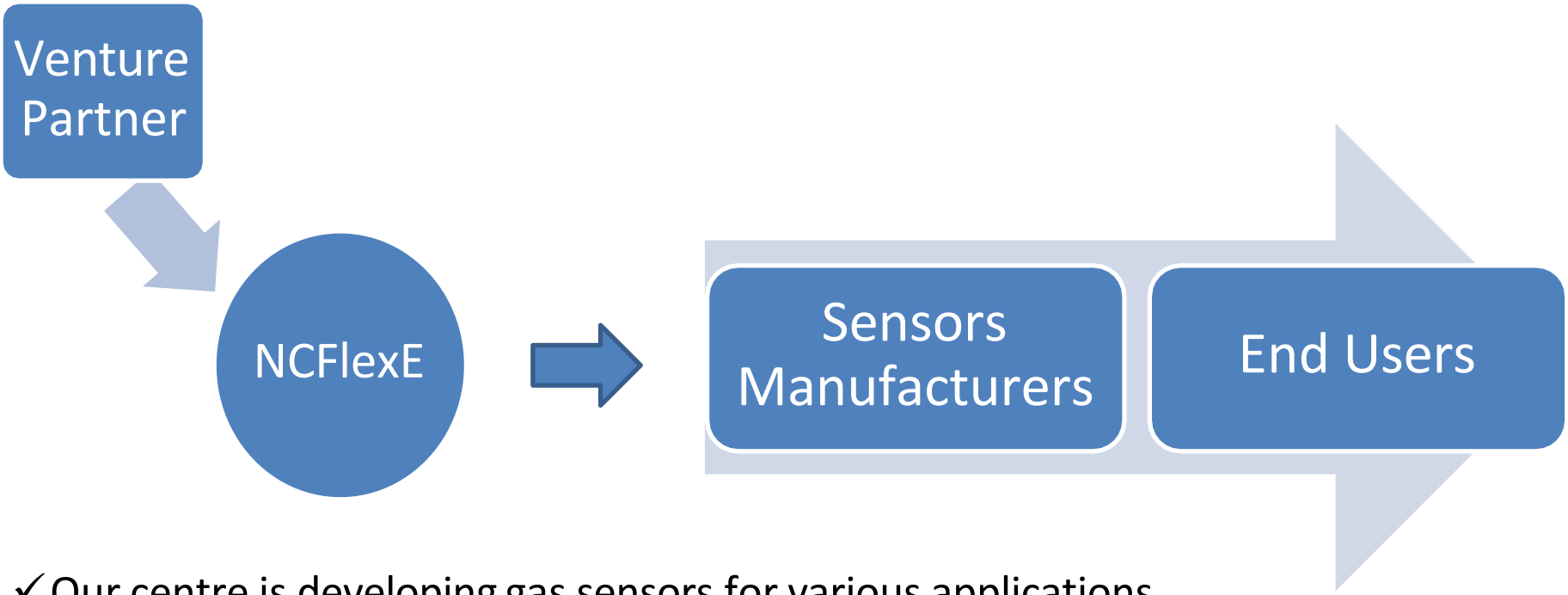
Proposed Approach

1. Functional sensing materials
2. Tunable selectivity and high sensitivity
3. Sensor array – multianalyte detection
4. Flexible platform
5. Communications protocols – application specific

Advantages of Proposed Solution



Call for Partners



✓Our centre is developing gas sensors for various applications

✓We are seeking partners across the value chain shown above

✓We are looking for partners to enable the scaling and manufacturability of the developed processes

✓Preferential terms for early partners

Contact Information

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Also visit our webpage for more details on partnership models and other technology domains: www.ncflexe.in

FlexE
National Centre for Flexible Electronics