



Miniaturizing gas sensors for a new generation of IoT & wearable devices

FaradaIC Sensors GmbH
HQ in Berlin, Germany

Gas sensing is the next wave in the Sensor Revolution

2010

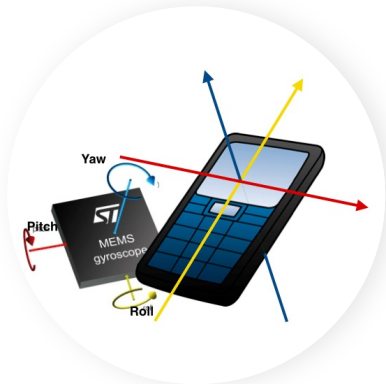
2014

2019

Today

Motion sensors

>10B
used worldwide



Touch sensors

>10B
used worldwide



Optical sensors

>10B
used worldwide



Gas sensors

<1B
used worldwide



>1B gas sensors needed in IoT applications here

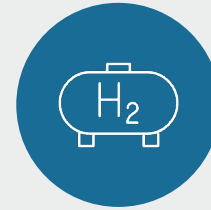
Current technology is insufficient



Breath Monitoring



Food Logistics



Hydrogen economy



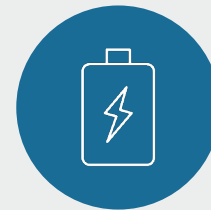
Power distribution



Oil & Gas



Indoor farming



Energy storage



Environment

>300M oxygen sensors needed here!

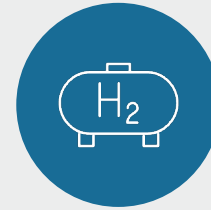
We have the technology to do it



Breath Monitoring



Food Logistics



Hydrogen economy



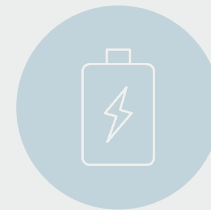
Power distribution



Oil & Gas



Indoor farming



Energy storage



Environment

Here is the PROBLEM

Oxygen sensors are too EXPENSIVE and LARGE for the IoT devices our customers are making!



Current
technology

\$50-\$300

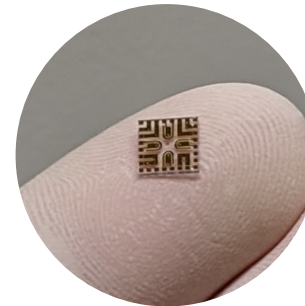
Old markets



Needed
technology

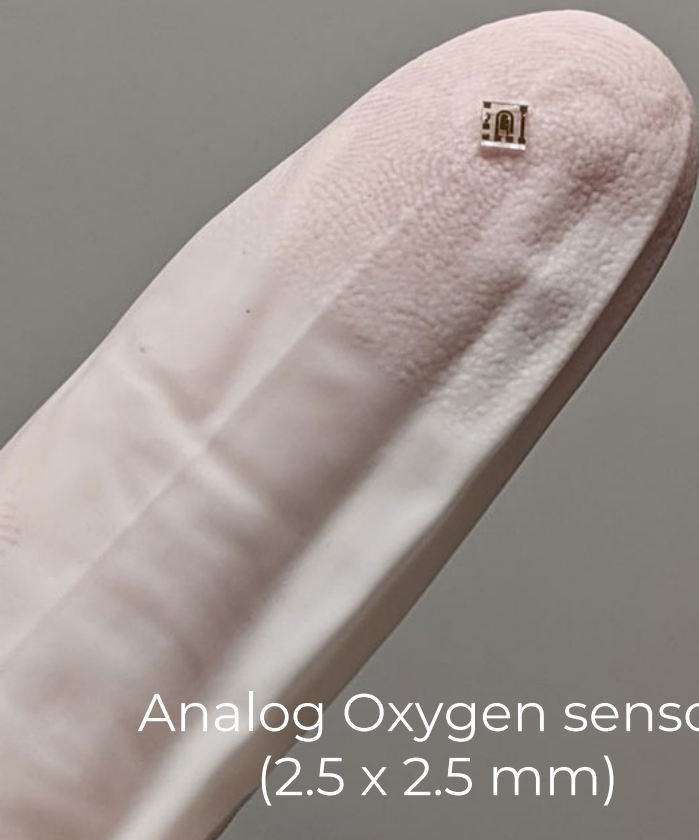
\$5-\$35

New markets



Our Solution

Faraday-Ox - The world's smallest oxygen gas sensor ever made



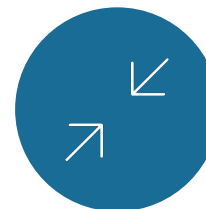
Analog Oxygen sensor
(2.5 x 2.5 mm)

Advantages



10x-50x

lower cost for
customer



>100x

more compact



10x-50x

lower power
consumption

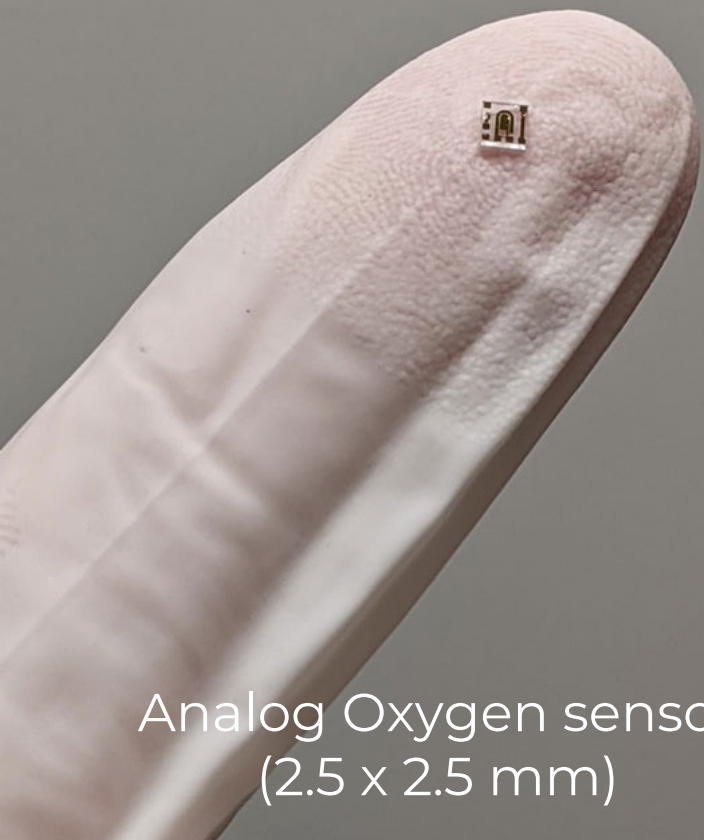
Our **current** production capacity =
3M sensors/year



Patent pending (100% FaradaIC owned)

Our Solution

Faraday-Ox - The world's smallest oxygen gas sensor ever made



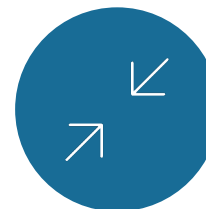
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Multigas sensing planned



Hydrogen



Carbon
Monoxide












CO₂



Hydrogen
Sulfide

Competition – by technology

		 	 	 	 
Technology	MECS	MOX	Infrared	Electrochemical	Photoacoustic
Miniaturized	✓	✓	✗	✗	✗
Cost-effective	✓	✓	✗	✗	✗
Selective	✓	✗	✓	✓	✓
Ultra low power	✓	✗	✗	✓	✗
		✗ Cannot detect O ₂ ✗ Limited application space	✗ Cannot detect O ₂		✗ Cannot detect O ₂

Our chips

MECS Technology™ (Micro-electro-chemical-systems)

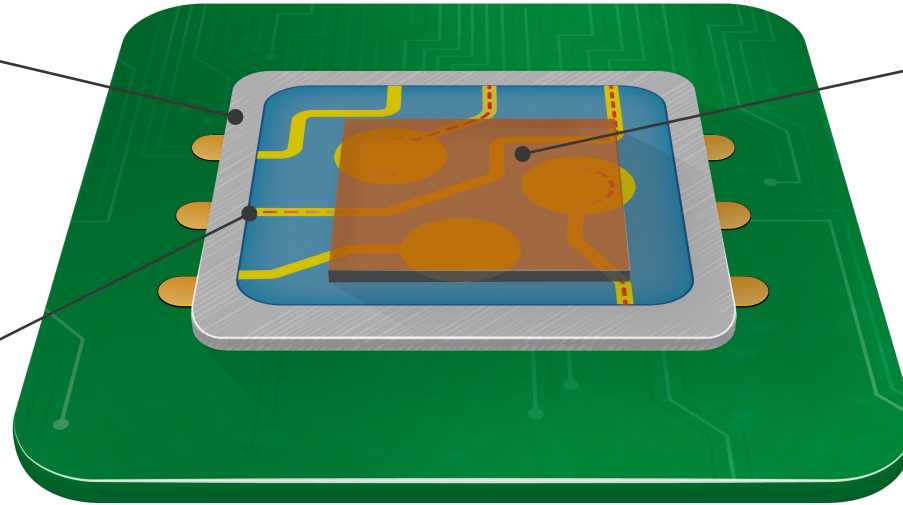
Design



**Proprietary
Advanced
Materials**



Algorithm

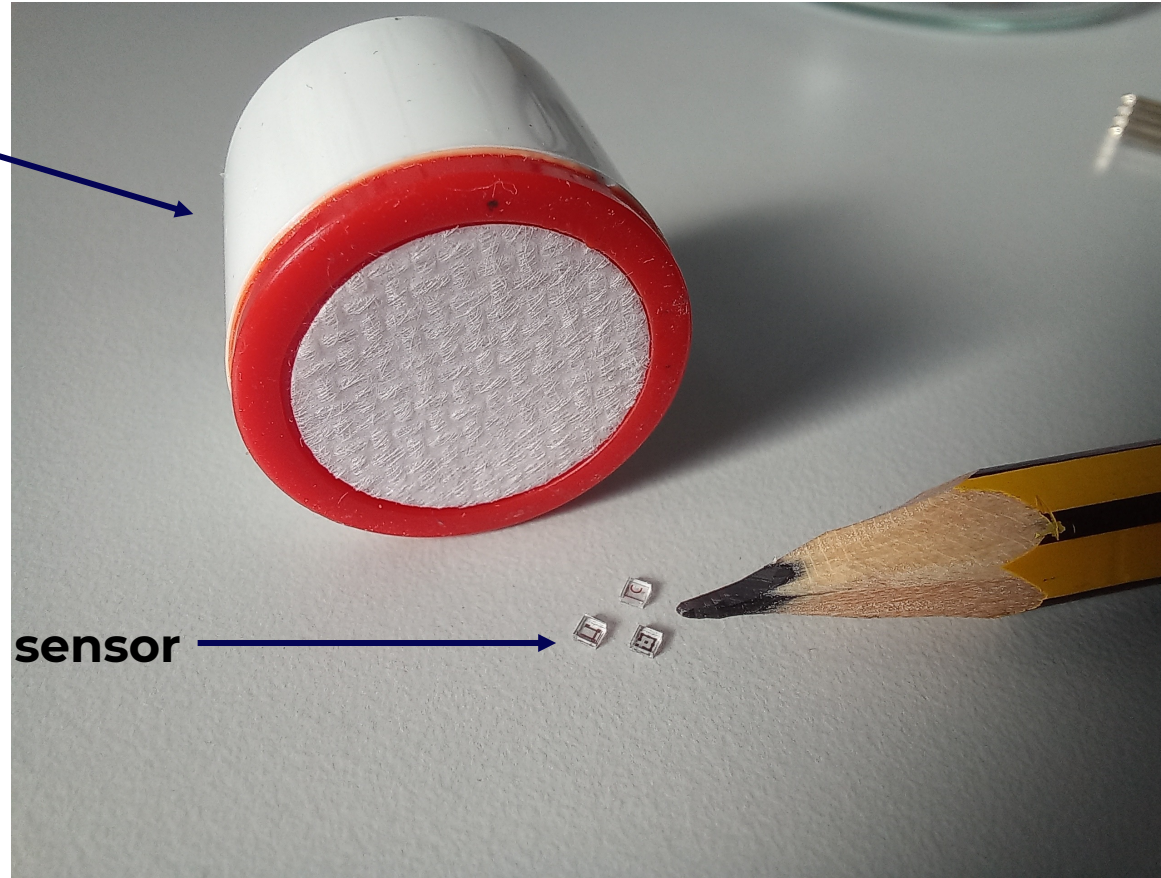


MECS Technology™ miniaturizes the electrochemical gas sensor

**Analog O₂ sensor
from competitor**

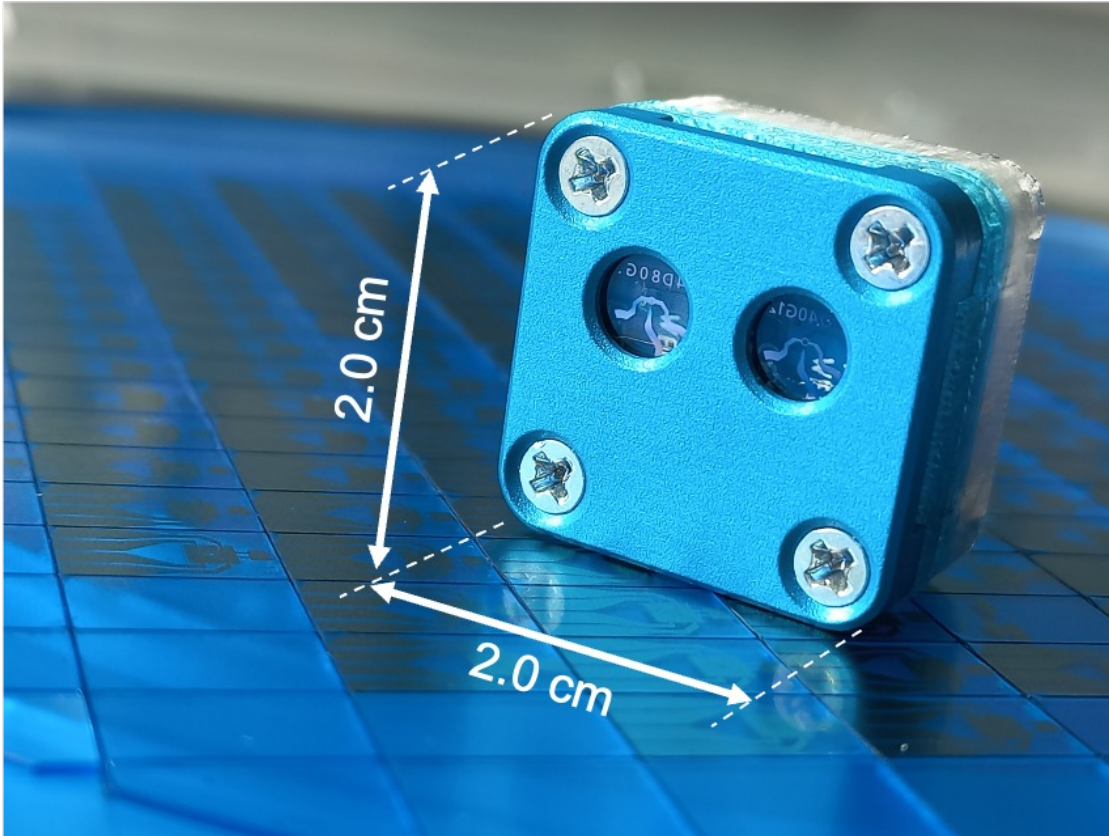
FaradaIC analog O₂ sensor

- ✓ Longer lifetime
- ✓ Faster response
- ✓ Operates in 0% humidity



First Products

We build small devices & modules that provide T, RH, and O₂ data for our customers



Preliminary technical information:

- 0 → 25% O₂
- Accuracy: ~0.1%
- Humidity: 0 → 100%
- Average supply current: ~5 µA
- Temperature range: up to 85°C

Eval-Kit with two O₂ sensors for customer evaluation

Our current customers need >1M oxygen sensors



**>20 LoIs+
requests to
test product**

- Breath monitoring
- Hydrogen Economy
- Food Logistics
- Sensor/semiconductor



**Sold >10 Eval-Kits to
world's largest
companies with
large-volume needs**



**High-margin
opportunities for
our product**

Executive Team

Founders



Dr. Ryan Guterman

CEO, Co-founder

- >10 years experience in chemistry and business



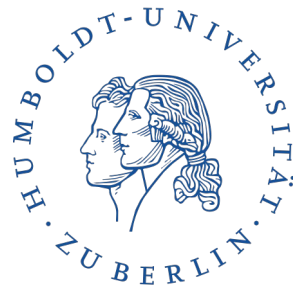
Dr. Alexey Yakushenko

CTO, Co-founder

- >10 years industry and product-creation background



- **Team of 20 expert scientists, engineers, and business developer from around the globe**
- **Awarded the EIC Accelerator; €2.5M grant**
- **~€1M in private investment; Investors from US, Germany, and UK**
- **Chips Manufactured in Europe**



European
Innovation
Council



Key Advisors



Peter Hsi

Founder of RAE Systems
(sold to Honeywell)



Craig Ensley

Former SVP – Cirrus Logic
Former CEO - Atomica



Ralf Christian

Former CEO Siemens Energy
Management

Let's work together



Codevelop technology to create custom solutions



Build new products to capture growing markets



Strategic investment



Connections with device makers & solution providers



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