



UNIVERSITY SYSTEM  
*of* MARYLAND

## **Agenda Item 2**

**Featured Start-Up –**

**N5 Sensors, Inc.**

SUMMARY OF ITEM FOR ACTION  
**INFORMATION** OR DISCUSSION

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**TOPIC:** Featured Start-up – N5 Sensors, Inc. (information item)

**COMMITTEE:** Economic Development and Technology Commercialization

**DATE OF COMMITTEE MEETING:** January 26, 2017

**SUMMARY:** N5 Sensors, Inc., a University of Maryland spin-off incorporated in 2012, was founded by a former UMCP faculty member. The company is commercializing high-performance sensors and detectors for various applications, utilizing technology licensed from UMCP. Notably, N5 Sensor's novel chemical sensor architecture can produce sensors whose selectivity can be precisely tuned to any small set of chemicals through nanocluster design, which is currently not possible with any other technology. Potential applications include environmental monitoring, consumer electronics, toxic chemicals release detection, and industrial safety. The founder and president, Dr. Abhishek Motayed, also had a joint appointment with NIST and has been successful in winning several SBIR awards.

**ALTERNATIVE(S):** This item is for information purposes.

**FISCAL IMPACT:** This item is for information purposes.

**CHANCELLOR'S RECOMMENDATION:** This item is for information purposes.

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COMMITTEE RECOMMENDATION:

DATE:

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BOARD ACTION:

DATE:

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SUBMITTED BY: Tom Sadowski / Suresh Balakrishnan (301) 445-2783

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# **Committee on Economic Development and Technology Commercialization**

**Featured Start-Up- N5 Sensors, Inc.**

**January 26, 2017**





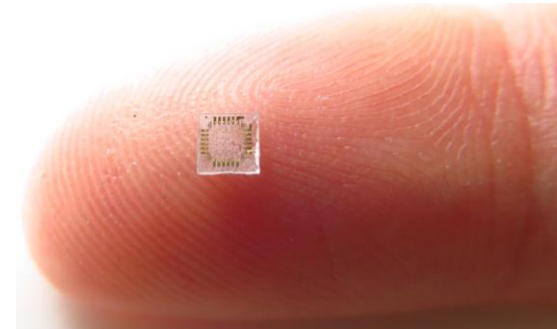
# N5 Sensors, Inc.

smart sensors for a safer world

## Chip-Scale Gas Sensors for Wearables and IoT Applications

Abhishek Motayed, Founder, CEO

January 2017



# Meet The Team



**Dr. Abhishek Motayed**

**Founder and CEO**



**Dr. Ratan Debnath**

**Director of Engineering**



**Dr. Baomei Wen**

**Manufacturing**

## **Advisors**



**Steven Chen**

**Member, Blu Venture Investors**  
**Former CEO of an Intel Capital Portfolio company**



**Chad Lucien**

**Senior Vice President, Sales and Marketing at Hillcrest Labs**

# The Missing Information



## Tablets



## Smart Phones



# Smart Home Monitoring



## Wearables

## Accelerometer

## Gyro

## E-Compass

## Barometric Pressure Sensor

## Heart Rate Sensor

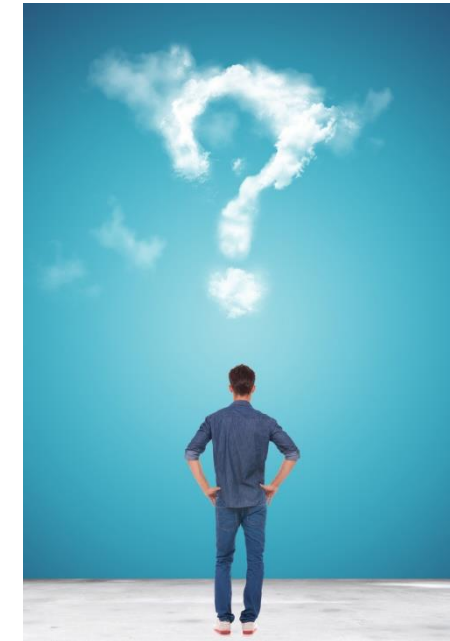
## Proximity Sensors

## Hall Sensors

## GPS

## Camera

## Temp/Humidity

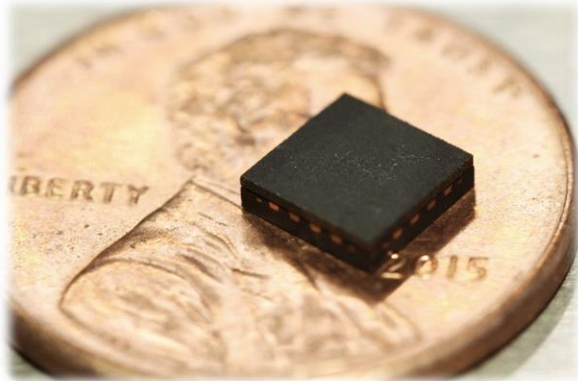


## What's in the air?

## Monitoring Trends and Activities

Sleep, Athletic, Heart Rate,  
Energy Usage, Safety

# N5's Smart Gas Sensor Chips



**Manufactured by N5 in Maryland**  
National Institute of Standards and Technology

**UMD Patented Design**  
Licensed by N5

**One of the Smallest Gas Sensors in the Market**  
Significant R&D utilizing Federal SBIRs

**Robust and Reliable**  
N5's State-of-the-Art Test Facility in Rockville

# Products and Services Enabled by N5's Technology

## Smart Homes



Customer – 2<sup>nd</sup> Largest Consumer Electronics Manufacturer

## Wearables



Customer – Large Semiconductor Chip Manufacturer

## Industrial and First-Response

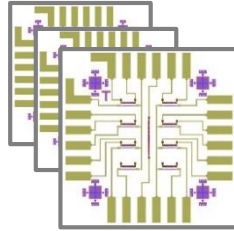


Customer – 3<sup>rd</sup> Largest Industrial Gas Detector Manufacturer  
US Dept. of Homeland Security  
NASA  
Environmental Protection Agency  
DoD

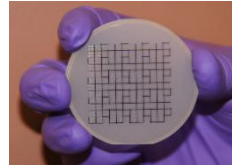


# N5's Key Activities

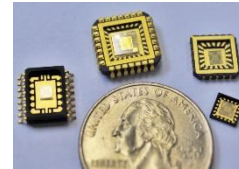
Design



Manufacturing



Packaging



Testing



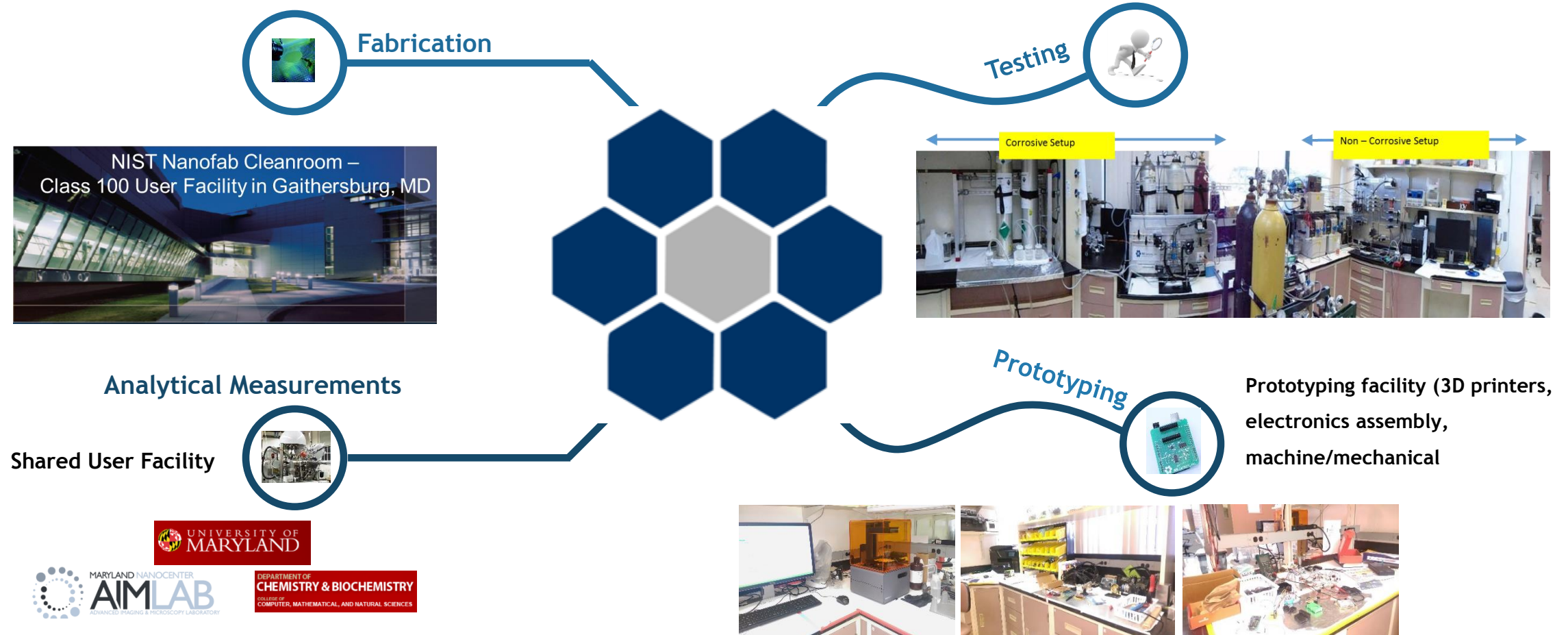
System Development



# Facilities and Resources

20,000 sq. ft class 100 clean room with state-of-the-art Semiconductor Fab Tools

350 sq. ft sensor test laboratory in Rockville, MD



# Our Story



2012

Founded by Dr. Motayed

2013

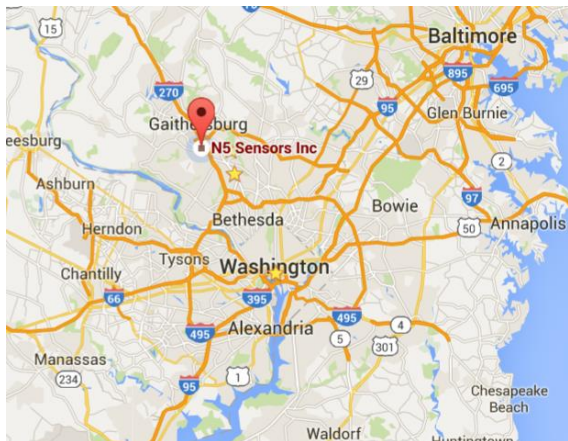
Received MD TEDCO's MII Phase 3 Award, 1<sup>st</sup> Full-Time Employee

2014

- ❑ N5 Licensed UMD IP (US Patent 9,476,862)
- ❑ Received 3 SBIR Phase I Awards from EPA, NSF, and DHS for Sensor R&D
- ❑ Received Maryland Industrial Partnerships Award
- ❑ Started Using NIST Cleanroom for Sensor Manufacturing
- ❑ Established Sensor Test Lab in Rockville
- ❑ 4 Full-Time Employees

2015-2016


- ❑ 2 Phase II SBIR/STTRs from DHS and NASA (\$1.5 M in R&D Funding)
- ❑ Received additional JTTI and NSTEP Awards from TEDCO (~ \$ 300 K)
- ❑ 6 Full-Time Employees
- ❑ 4 UMD Interns through Co-Op Program
- ❑ Commercial Sales
- ❑ Raised \$ 250 K from Blu Venture Investors



# Get in Touch

Dr. Abhishek Motayed  
9610 Medical Center Dr.  
Rockville, MD 20850

 [amotayed@n5sensors.com](mailto:amotayed@n5sensors.com)

 301-257-6756