Agenda Item 2

Featured Start-Up –

N5 Sensors, Inc.
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.

COMMITTEE RECOMMENDATION: 

BOARD ACTION: 

SUBMITTED BY: Tom Sadowski / Suresh Balakrishnan (301) 445-2783
Committee on Economic Development and Technology Commercialization

Featured Start-Up- N5 Sensors, Inc.

January 26, 2017
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

- Accelerometer
- Gyro
- E-Compass
- Barometric Pressure Sensor
- Heart Rate Sensor
- Proximity Sensors
- Hall Sensors
- GPS
- Camera
- Temp/Humidity

Smart Phones

- What’s in the air?

Smart Home Monitoring

Wearables

Monitoring Trends and Activities

- Sleep, Athletic, Heart Rate,
  Energy Usage, Safety
N5’s Smart Gas Sensor Chips

- Manufactured by N5 in Maryland
- 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

UMD Patented Design
Licensed by N5
Products and Services Enabled by N5’s Technology

Smart Homes

- Customer – 2nd Largest Consumer Electronics Manufacturer

Wearables

- Customer – Large Semiconductor Chip Manufacturer

Industrial and First-Response

- Customer – 3rd 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

Fabrication

Analytical Measurements

Shared User Facility

Testing

Corrosive Setup

Non-Corrosive Setup

Prototyping

Prototyping facility (3D printers, electronics assembly, machine/mechanical)
Our Story

2012

- Founded by Dr. Motayed

2013

- Received MD TEDCO’s MII Phase 3 Award, 1st 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