# MATERIAL SCANNING USING NEXT GENERATION OPTICAL SENSORS

Uula Kantojärvi CTO, Spectral Engines

FiiF, 21.3.2019

# COMPANY



**FOUNDED: 2014** 



**PERSONNEL:** 25



**REVENUE: 1.4 M€** 



OWNER: 75% Nynomic AG 25% Founders



**HEADQUARTERS:** Helsinki, Finland

OTHER LOCATIONS:
Oulu, Finland

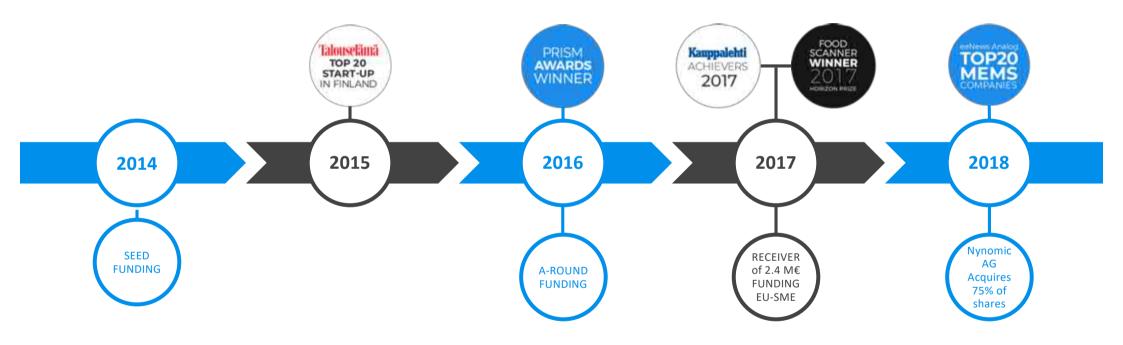


**DISTRIBUTORS IN:** 

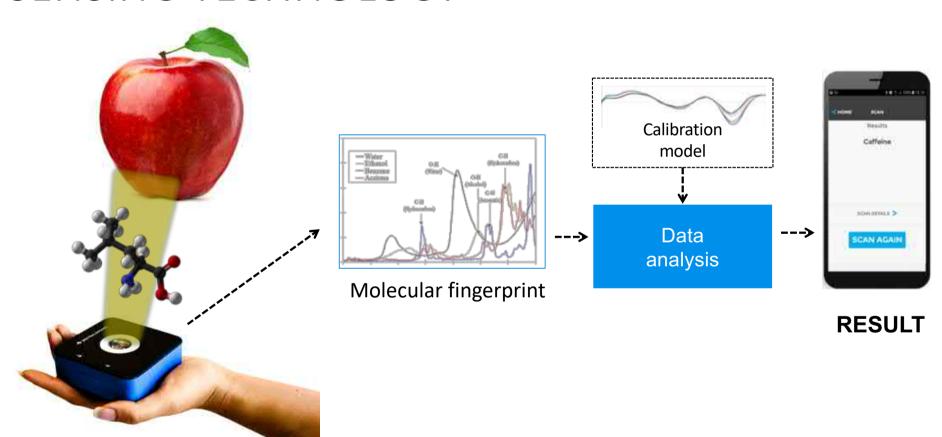
US & Germany (sales offices)
China (strategic partner)
Distributors (18 countries)



## MAIN MILESTONES



# SPECTROSCOPY AS MATERIAL SENSING TECHNOLOGY



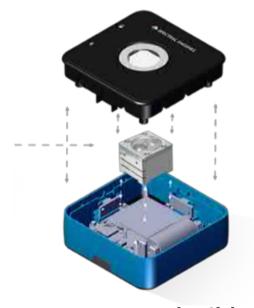
Copyright © 2019 Spectral Engines

**SPECTRAL ENGINES** 

# OUR PRODUCTS



## **GROUNDBREAKING SENSING SOLUTION**



Mass producible hardware



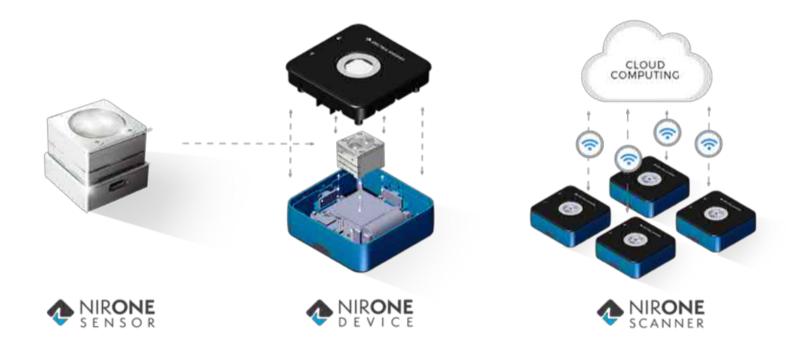
Cloud infra and fleet management



Applications and machine learning algorithms



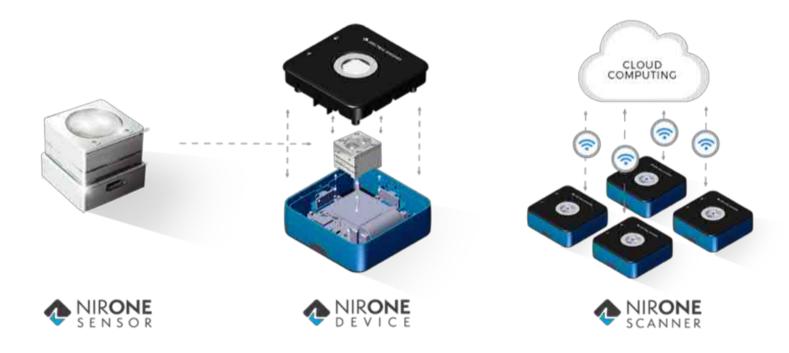
# **NIRONE Sensors**



NIR**ONE** Sensors for system integrators to create leading products based on our technology



# **NIRONE Device**



NIR**ONE** Device provides a more complete material sensing solution in an integrated package.

# **NIRONE Scanner**





NIR**ONE** Scanner offers ready-made and modular building blocks to speed up market-entry

**SPECTRAL ENGINES** 

# **BENEFITS**



High performance



Cost-efficient



Fast



Compact



Smart and connected

# OUR MARKETS



## PRACTICAL APPLICATIONS

#### now or in the near future



#### SMART AGRICULTURE

Quality control of raw materials and optimization of resources

Grains, tea, cocoa, coffee, feed etc. (moisture, fat, sugar, protein)



#### SMART INDUSTRY

Optimized performance and production, digitalization of supply chain

Solid powders or liquids in process industry, composition of plastics, nutrients, pharmaceuticals, ethanol, food, feed, beverages (moisture, sugar, protein, alcohol, drugs)



#### **SMART** HOMES

New applications for the digitalized homes

Concepts include textile sensing and automated washing machines, food scanning, smart refrigerators etc.



# PORTABLE DEVICES

Easy on-site analyzers for non-experts

Inexpensive narcotics screening device for police, hand-held quality inspection tools, anti-counterfeit detector for pharmaceuticals, explosives identification

Copyright © 2019 Spectral Engines

### **Smart Homes: Fabric Classification**

- Textile classification and washing machine program selection
- Customer: Bosch-Siemens-Hausgeräte GmbH (BSH)



# Smart Farming: Grain Analysis

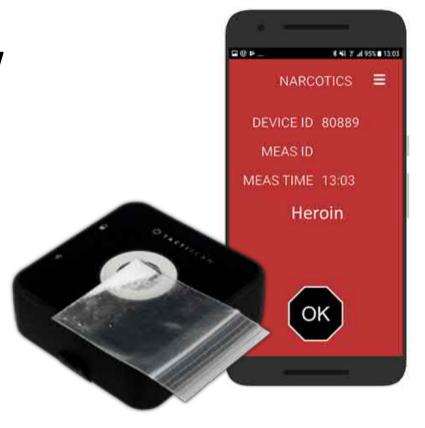
- Portable grain analysis for farmers
- Customer: Branscan, UK





# Portable Devices: Drug Detection

- Narcotics screening device for law enforcement
- Portable heroine, cocaine and methamphetamine analysis



# Smart Industry: Ethanol Measurement

- Ethanol measurement in Chinese wine production
- Customer: Hanon



# Thank you!

#### **CONTACT**

SPECTRAL ENGINES OY (Headquarters)

Kutomotie 18, 00380 Helsinki, Finland

Uula Kantojärvi, uula.kantojarvi@spectralengines.com

WWW.SPECTRALENGINES.COM





It makes sense.