



**NVEE**



August 14, 2019

Nasdaq: NVEC

# Safe Harbor Statement

Statements in this presentation that relate to future plans, events, financial results or performance are forward-looking statements that are subject to certain risks and uncertainties including, among others, such factors as uncertainties related to the economic environments in the industries we serve, uncertainties related to future contract research and development revenue, uncertainties related to future stock repurchases and dividend payments, uncertainties related to the future impact of Federal tax reform, as well as the risk factors listed from time to time in our filings with the SEC, including our Annual Report on Form 10-K for the fiscal year ended March 31, 2019 and other reports filed with the SEC.”

## Spintronics



**SPINTRONICS:** A nanotechnology which utilizes electron spin rather than electron charge to acquire, store and transmit information

- Based on electron spin rather than charge
- Critical dimensions of 1 – 4 nanometers
- Smaller and lower power for the “Internet of Things” (IoT)



## NVE Highlights

- Revolutionary technology
- Best-in-class profitability
- \$1/qtr dividend (>\$90 million since 2015)
- \$75 million in cash and investments
- Supply agreements with Abbott/St. Jude and Sonova AG

## Fiscal 2019 (YE 3/31/19) Highlights

- Record \$2.99/shr net income, despite:
  - Q4 revenue headwinds
  - 11% increase in R&D expense, including Smart Sensor development
- Tax rate decreased to 18% from 32%
- Automotive quality conformance
- Several Smart Sensor product launches

## Strong Board

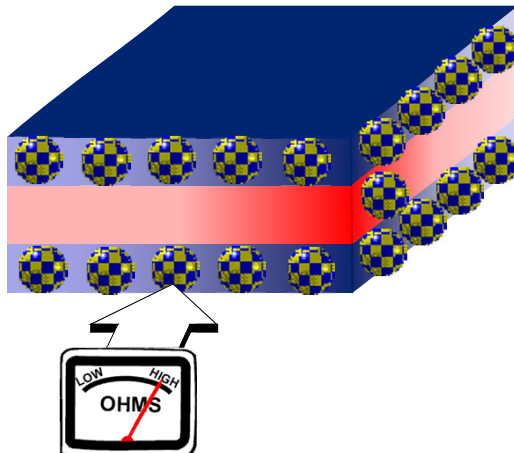
- Terry Glarner (Chair), highly-experienced director
- Daniel Baker, Ph.D., NVE President & CEO
- Pat Hollister (Audit Chair), Former CFO, FSI
- Gary Maharaj, Surmodics CEO
- Rich Kramp, Former CEO, Synovis; ATS



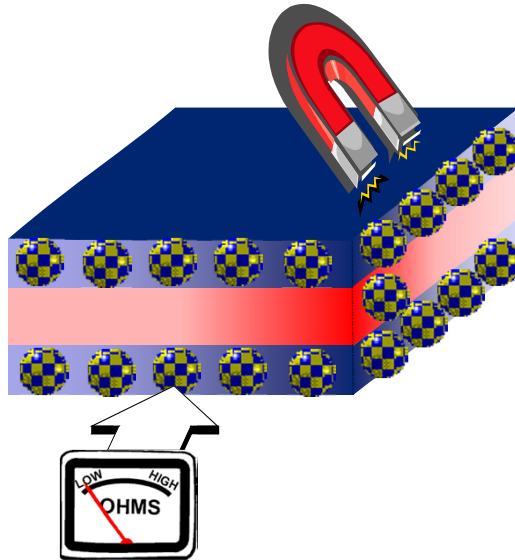
## NVE History

- 1989** – Founded with Honeywell technology
- 1995** – Motorola license option agreement
- 2000** – Coupler and sensor production
- 1990 - 2002** – Investments by MOT, NVP, CY, others
- 2003** – NASDAQ direct listing (\$7.85/shr.)
- 2006** – St. Jude partnership agreement
- 2009** – Sonova AG supplier agreement
- 2013** – Major expansion
- 2015** – 6 kilovolt couplers
- 2016** – Rotation sensors
- 2017** – Private-label partnership with major company
- 2019** – Smart Sensors

## Spintronic Giant MagnetoResistor

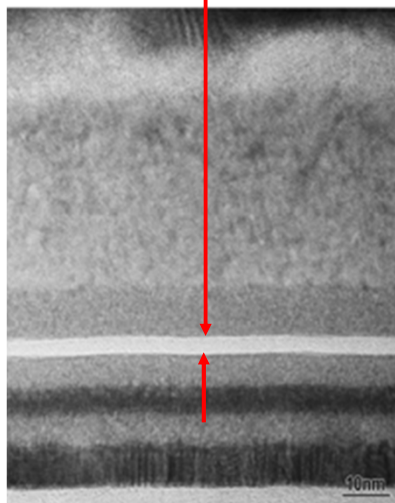


## Spintronic Giant MagnetoResistor



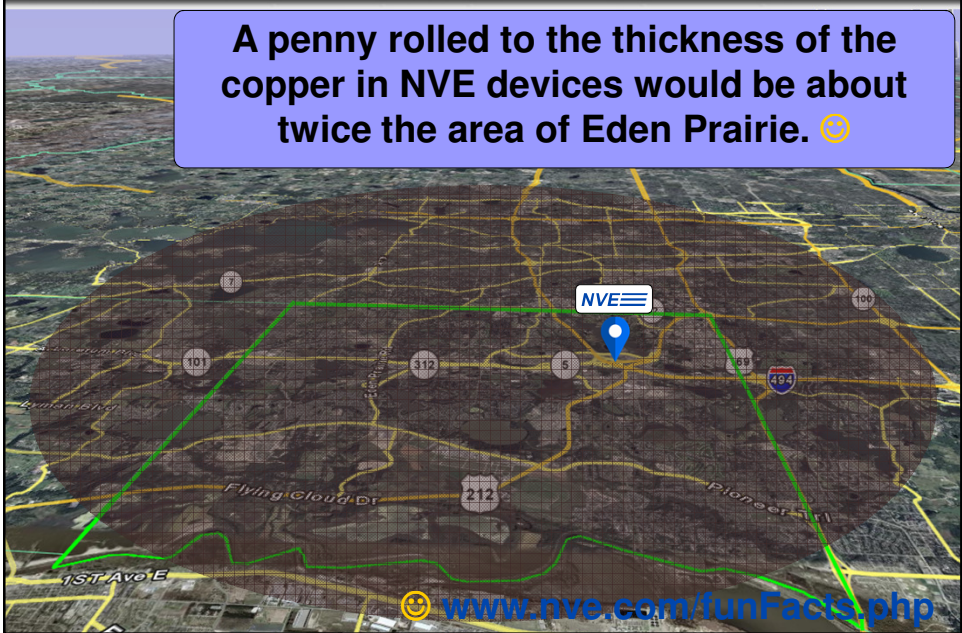
## Spintronic Tunnel Junction Critical Dimensions

**3.5 nm**  
(8 atoms  $\pm$  1 atom)



## Nanoscale Critical Dimensions

A penny rolled to the thickness of the copper in NVE devices would be about twice the area of Eden Prairie. 😊



## NVE Overview

- 48 employees
- >50 issued U.S. patents
- >100 patents issued, pending, or licensed
- Unique spintronics factory



## The Four “Bs” of NVE Spintronics



**B**oxes—Miniaturization of medical and other devices



**B**ullet-proof—Reliable; proven in medical and space








**B**atteries—Power as low as nanowatts



**B**rain—Smart sensors for the Internet of Things

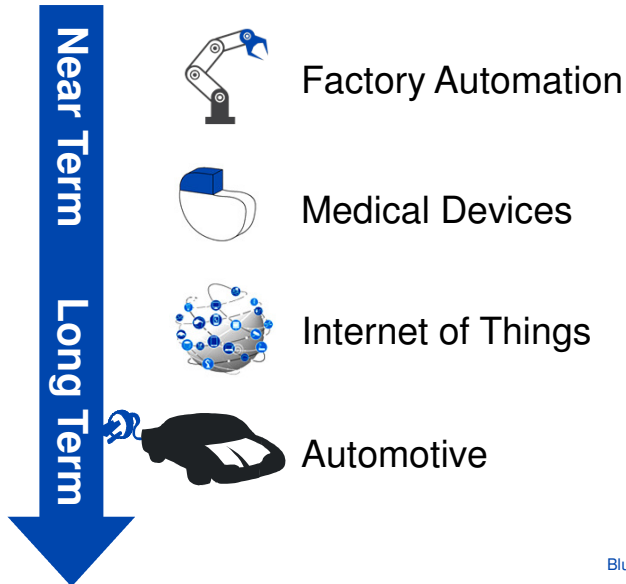
## Smart Sensors

Part	Proximity, Current, or Angle	Technology	Accuracy	Speed (Samples/s)	Features
SM124		GMR	5%	10,000	Low Cost
SM225		TMR	1%	10,000	High Accuracy / Spd
SM324		TMR	0.3%	300	High Accuracy
ASR001		TMR	0.5°	2,500	High Accuracy
ASR002		TMR	2°	12,500	High Speed





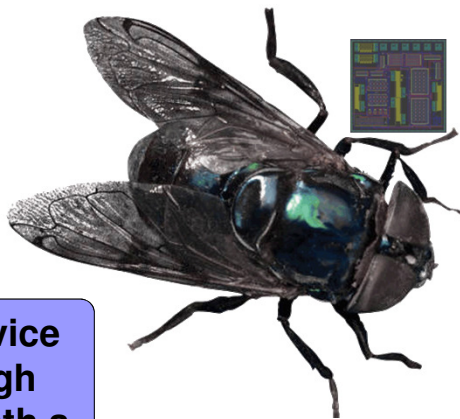
## NVE Markets



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## Spintronic Medical Sensors

**NVE Medical Device  
Sensor die weigh  
less than one-tenth a  
typical housefly. 😊**



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# Spintronic Medical Sensor



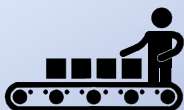
## “Internet of Things”—the 4<sup>th</sup> Industrial Revolution



**1<sup>st</sup> Wave**

**1770**

**Mechanization;  
Steam Power**



**2<sup>nd</sup> Wave**

**1870**

**Mass  
Production;  
Electricity**



**3<sup>rd</sup> Wave**

**1970**

**Robotics;  
Computers**



**4<sup>th</sup> Wave**

**Now**

**Industrial IoT;  
Ubiquitous  
Sensors**

# The Burgeoning Internet of Things

- By 2020 for every human there are expected to be 26 smart devices (200 billion connected things)<sup>1</sup>
- The *Industrial Internet of Things* will have a \$14.2 trillion impact on the global economy by 2030.<sup>2</sup>
- IIoT market to expand to \$933 billion by 2025 at a CAGR of 27.8%<sup>3</sup>
- [IoT] growth is likely sufficient to drive sensor growth to a trillion units by 2025.<sup>4</sup>

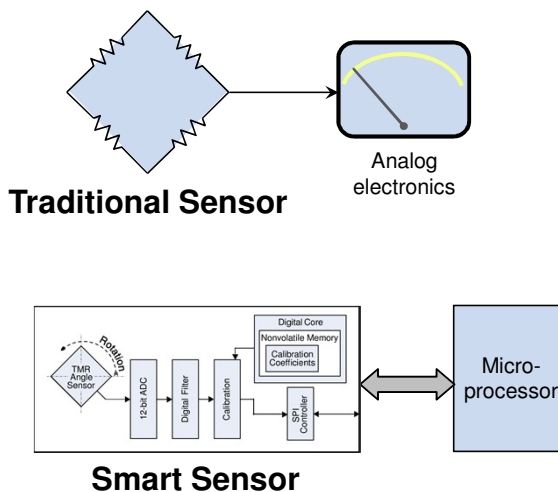
<sup>1</sup>Intel, forecast *New Electronics*, 9/10/18

<sup>2</sup>Accenture via *Visual Capitalist*, 1/9/18

<sup>3</sup>Million Insights via *Design Engineering*, 3/11/19

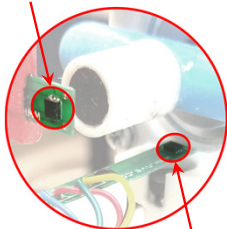
<sup>4</sup>Sensors, 7/3/18

## Traditional Sensor vs. Smart Sensor

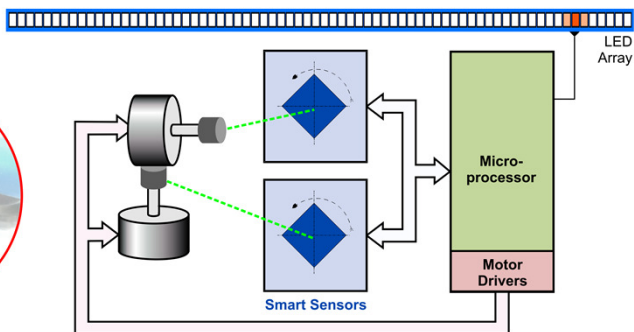


# Smart Sensor Robotics Demonstration

Elbow / Pitch  
Smart Sensor



Waist / Yaw  
Smart Sensor



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# Smart Sensor Robotics Demonstration

## ASR002 Smart Angle Sensor



youtube.com/NveCorporation

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## Use Case: Smart Tape Measure



### Application:

Production garment inspection

### Key Component:

NVE ASR002 Smart Angle Sensor

### Benefits:

- 3 months from concept to production
- Accuracy and sensor speed
- Fast prototyping using demo board and sample software

## Strong Balance Sheet

Cash plus	
Marketable Securities	\$ 74,651,170
Total Assets	\$ 83,505,696
Shareholders' equity	\$ 82,111,683



## Why NVE?

- **Revolutionary technology**
- **World-class customers and partnerships**
- **Best-in class margins**
- **Historic market opportunity**

closing