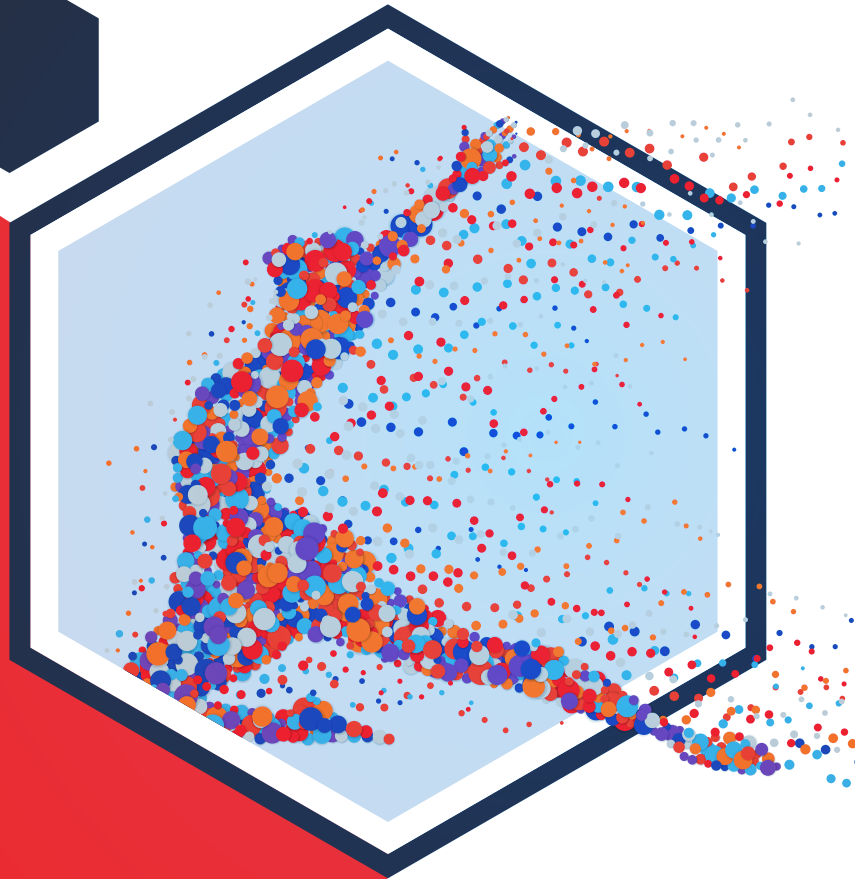




WEARABLE STRAIN SENSORS

# OVERVIEW

*Strain sensors could be useful for the detection and monitoring of movement-based signals, such as heartbeat and respiration rate.*



Wearable strain devices should be lightweight, reliable, flexible and stretchable to match the mechanical properties of human skin. Slintec has developed strain sensors with high stretchability that are capable of measuring linear resistivity at a low cost.

## ***SENSORS THAT ARE ACCURATE*** ***SENSORS THAT ARE WEARABLE***

### *What can you measure?*

- Bending of joints
- Expansion of objects
- Compression and impact of a substrate
- Stretchability of an object



*Increase in Demand for Immersive Virtual Reality is Driving VR Market Growth. After VR screen and optics, hand interaction is the next most important technology in VR/AR development pipeline*



## **AR / VR APPLICATIONS**

### **VR/AR Glove Controllers (~5 sensors / glove)**

Provide an immersive experience in virtual environments without use of cameras

### **Motion Capture Suit (17 sensors)**

Translatse real-world movements in real-time into virtual world



# SPORT APPLICATIONS

There is a potential \$30 BILLION market from increased use of sensors by professional and amateur athletes.

**Motion tracking suits (17 sensors)**

Monitor / correct form for yoga, martial arts, throwing, catching and shooting

**Respiration monitoring tops (3- 10 sensors)**

For more effective training / physical therapy

**Muscle activity monitoring tops (3-10 sensors)**

Measurement of muscle growth by measuring stretchability

**Smart leggings (4-10 sensors)**

For gait recognition / correction

**Shoe insoles (2-6 sensors)**

For foot pressure monitoring

*US professional sports teams are already implementing smart garments and big data to collect and analyse player's biometric data, and track player performance*

*Professional Sports Leagues (NBA, NFL, NHL, MLB) lose \$200-700 million per year due to player injuries*



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# HEALTHCARE

Wearable soft-sensors can be applied to a variety of medical conditions and implemented stand alone. Garment embedded sensors can improve patient outcomes AND decrease costs to healthcare providers.

- **Respiration**
- **Physical Therapy**
- **Worker Safety**  
Hospitals, Construction, Manufacturing (preventable injuries due to overexertion, slip and falls)
- **Telehealth / Remote Patient Monitoring**

*Wearable stretch sensors can be implemented to monitor patients suffering from Asthma, COPD, Emphysema, Lung Cancer, Cystic Fibrosis, etc. for both institutional and at-home improvement in care.*



# FASHION

Wearable fashions and accessories that are equipped with special sensors provide an opportunity to use situational targeting to influence purchase behaviour. Wearable tech is making waves in e-commerce for proper online sizing.

- Correct sizing for consumers
- Smart Suit (17 stretch sensors)  
For consumers to properly size clothing before making online purchases
- Smart Sock (4 sensors) for proper shoe sizing

*USA E-Commerce Fashion Market is projected to be ~\$122 billion by 2020. ~60% US consumers shop for Fashion Products Online (~125,000,000 people)*





# **INVENTIONS**

BEYOND THE HORIZON 

