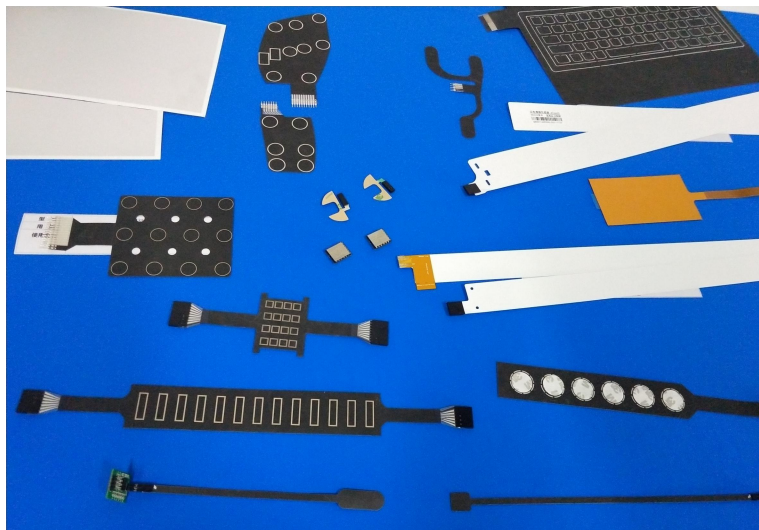




Beegor 压电薄膜传感器其核心是 PIEZOR 压电薄膜敏感材料。

Beegor 贝骨公司集合了材料学、电子学、计算机科学、器件等方面的专业人才，为客户提供 PIEZOR 压电薄膜的 ODM 定制服务。

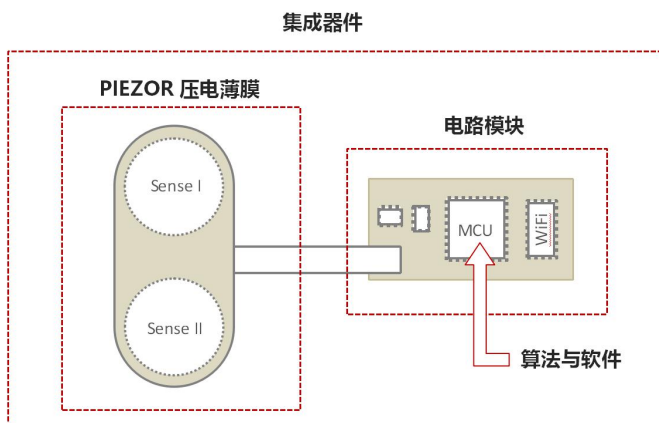
压电薄膜传感器 ODM 定制

压电薄膜——方形、圆形、异形均可，单个/多个感应区域

电路模块——阻抗匹配、放大滤波、AD、MCU、通讯、电源等

算法与软件——数据采集、处理、分析，转化为开关/数值信号

集成器件——压电薄膜与电路模块集成封装

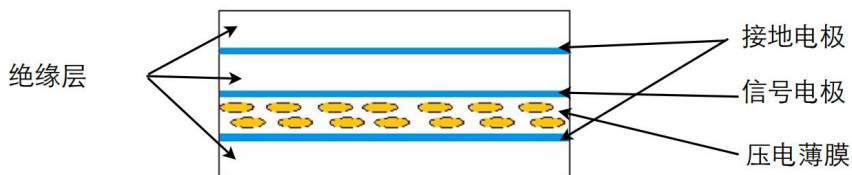


产品结构

PIEZOR 压电薄膜结构包含：

压电薄膜、绝缘层

信号电极、接地电极



技术参数

	单位 (Units)	数值 (Value)	误差(Error)
灵敏度 d_{33} (Piezoelectric Charge Constant)	pC/N	40-80	±5%
压力频率范围F (Force Frequency Range)	Hz	0.1 to 20k	
电容 C(Capacitance, at 1 kHz)	pF/cm ²	17	±5%
电极引出线 (Electrode Outlet)	2.54mm端子		定制
工作温度(Operating Temperature)	℃	-20 to 85	定制
湿度 (Humidity)		0 to 100%	
压强范围P (Pressure Range)	kPa	0.1 to 1000	
传感器规格			
长度L(Length)	mm	定制	±0.5%
宽度W(Width)	mm	定制	±0.5%
厚度D (Thickness)	mm	0.2~0.5	±1%
应用电路			
为了更好地应用，需要将Piezor压电薄膜传感器输出信号进行放大，已达到国家标准电气的输入要求。现提供与Piezor压电薄膜传感器匹配较好的电荷放大电路原理：如下图所示。			
计算公式： $V_{out} = 1/C \times d_{33} \times F_p$			
说明： d_{33} 为Piezor压电薄膜传感器的电荷系数；			
F_p 为作用在Piezor压电薄膜传感器的力；			
C 为电路中的反馈电容；R为电路中的反馈电阻，建议取100MΩ。			

医疗健康

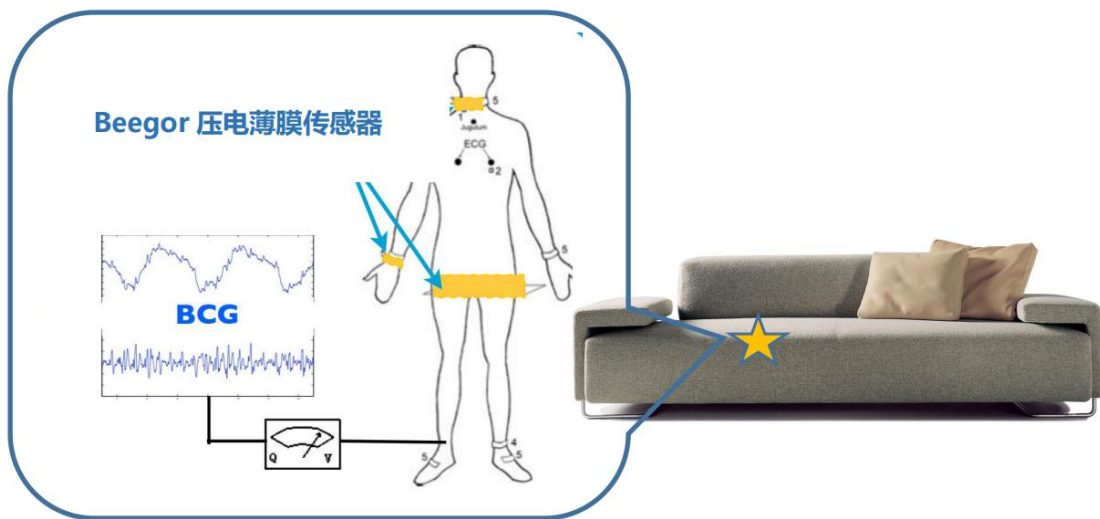


非佩戴监测仪——心律不齐、房颤、心衰、心率变异性、中枢性呼吸障碍、阻塞型呼吸障碍、睡眠障碍
长时间佩戴监测仪，使患者容易产生肌肉僵硬，严重影响其睡眠与行动，使精神状况欠佳。

智能床垫/睡眠监测器——上/下床、监测睡眠、心率、呼吸、打鼾

床垫、卧室家电、灯光、空调需要更加聪明的明白主人的意图。

智能家居



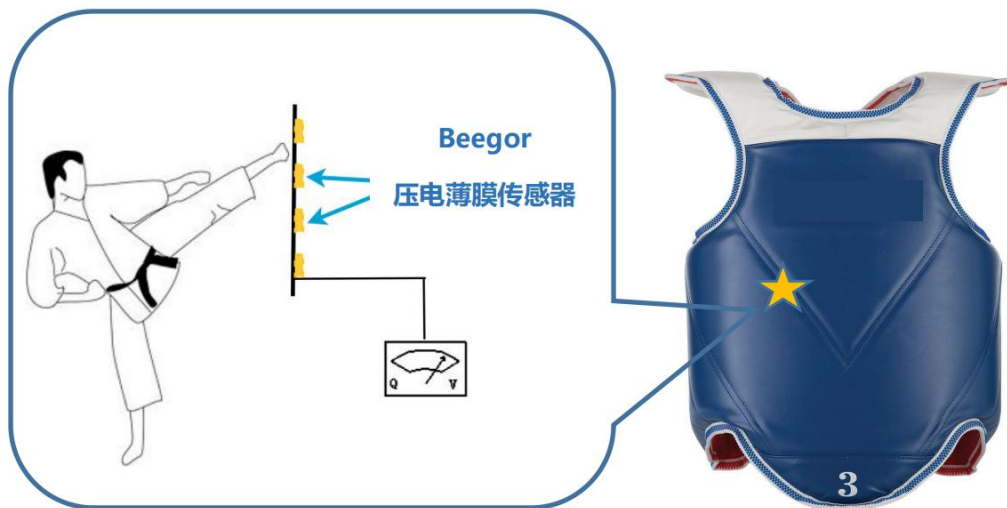
智能沙发/座椅——久坐、坐姿、心率

儿童不合理的坐姿会影响脊椎的发育。。

智能地毯/地板——室内定位、摔倒

独居老年人在无人看管情况下，需要对紧急情况予以及时响应。

运动健身



智能鞋/鞋垫——脚底压力、运动触发

运动与游戏结合，健身更有趣。

智能护具/拳击手套——击打位置、力量测量

搏击运动不光是表演，力道很关键。

压力触控



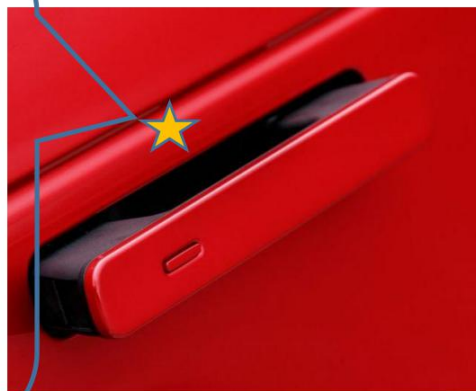
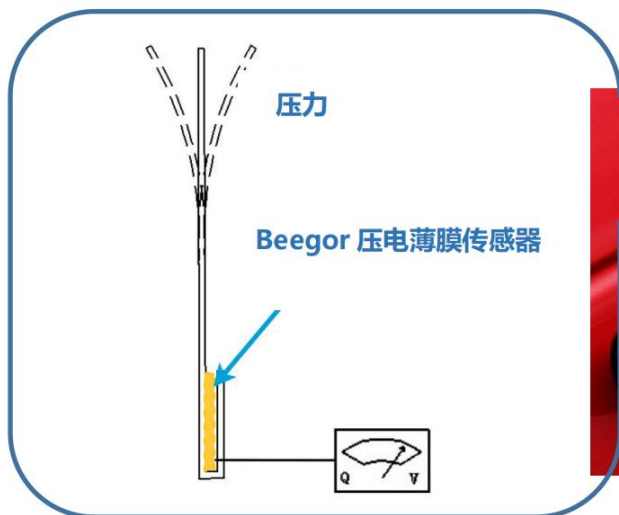
手机——表面/侧面/背面，压力/挤压触控

PIEZOR 压电薄膜全方位的压力触控，会让手机更聪明。

家电、键盘——洗碗机、油烟机、咖啡机、冰箱压力触控

防水、防尘、耐用正是我们在做的。

智能汽车



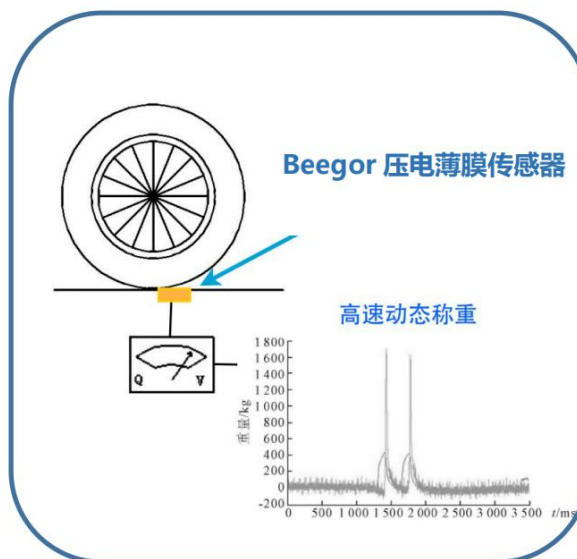
隐藏式门把手——压力触控

超薄、低功耗、安全可靠。

安全座椅——坐姿分布

全方位的座椅调节，是行车安全性和舒适性俱佳的体验。

智慧交通

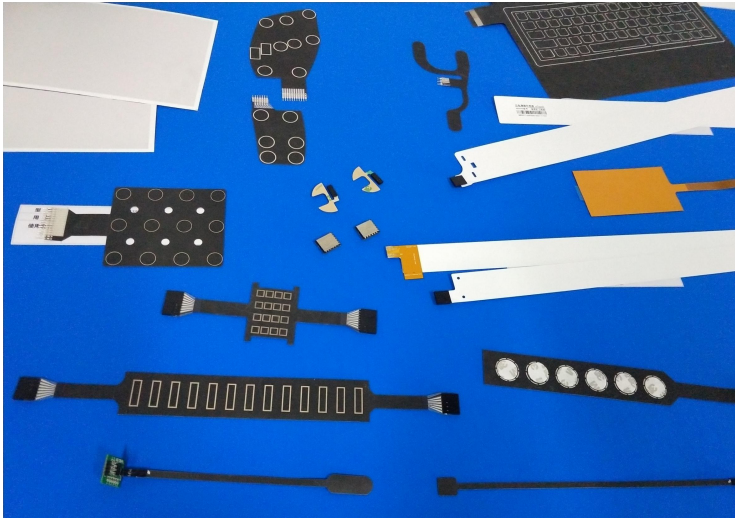


智慧交通——动态称重、流量监测、智能减速带

因为超薄，轻质，内嵌与掩埋更便捷。

安防周界——地埋式振动、压力报警

地埋式隐藏式报警装置 更灵敏



The core of Beegor piezo film sensor is PIEZOR piezo film sensitive material. Beegor Bay has brought together professionals in materials, electronics, computer science and devices to provide customized ODM services for PIEZOR piezo films.

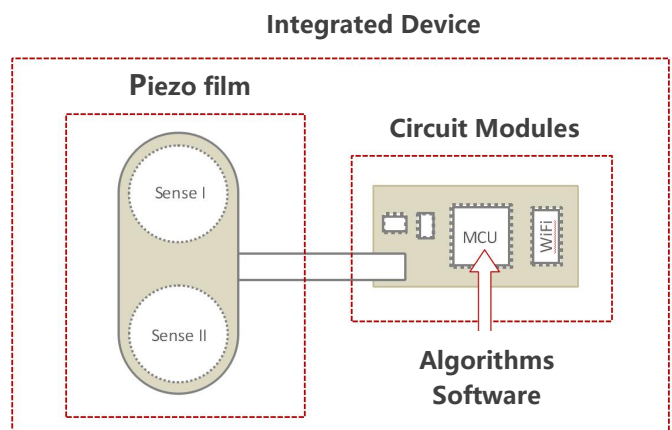
ODM of Piezo Film Sensor

Piezo film - square, circular and irregular shape, single/multiple induction region

Circuit Modules - Impedance Matching, Amplification and Filtering, AD, MCU, Communication, Power Supply, etc.

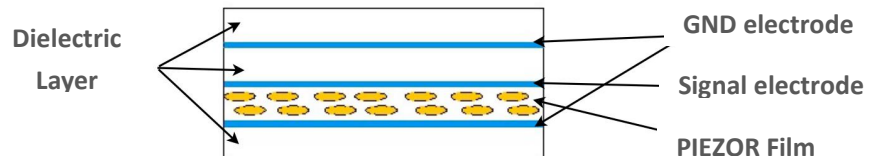
Algorithms and Software -Data Acquisition, Processing, Analysis, Conversion to Switch/Numeric Signal

Integrated Device-Piezoelectric Film and Circuit Module Integrated Packaging

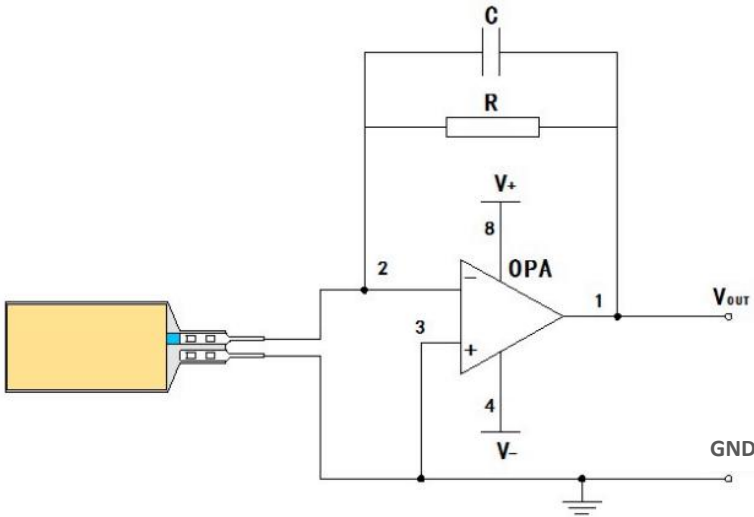


Cross Section

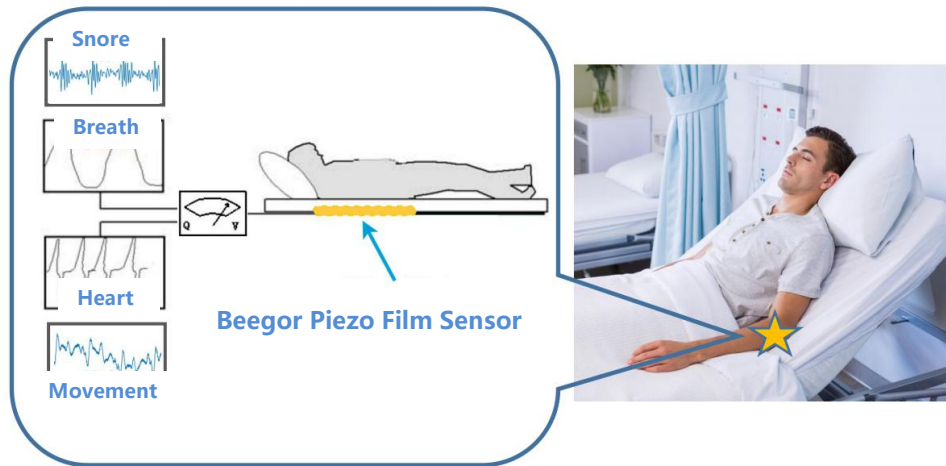
PIEZOR piezo film structure includes:
Piezoelectric Film ,Insulation Layer,
Signal electrode ,grounding electrode



Technical Parameter

	单位 (Units)	数值 (Value)	误差(Error)
灵敏度 d_{33} (Piezoelectric Charge Constant)	pC/N	40-80	±5%
压力频率范围F (Force Frequency Range)	Hz	0.1 to 20k	
电容 C(Capacitance, at 1 kHz)	pF/cm ²	17	±5%
电极引出线 (Electrode Outlet)	2.54mm Terminal or FPC		Customized
工作温度(Operating Temperature)	℃	-20 to 85	Customized
湿度 (Humidity)		0 to 100%	
压强范围P (Pressure Range)	kPa	0.1 to 1000	
传感器规格 (Sensor Specifications)			
长度L(Length)	mm	Customized	±0.5%
宽度W(Width)	mm	Customized	±0.5%
厚度D (Thickness)	mm	0.2~0.5	±1%
Application Circuit			
			
Formula: $V_{out} = 1/C \times d_{33} \times F_p$			
d_{33} -Piezoelectric charge constant			
F_p -Force applied to film			
C -Feedback Capacitance in Circuit; R is the feedback resistance in circuit,suggested by 100M.			

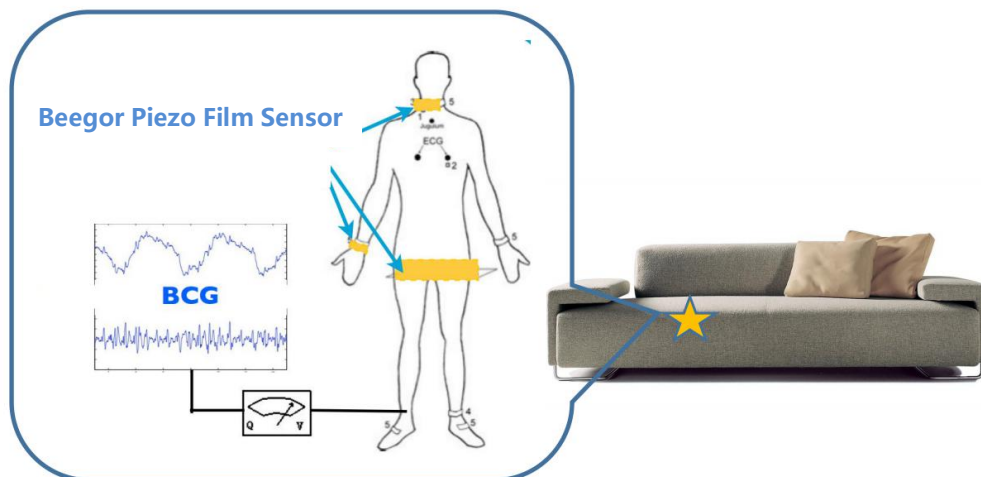
Health Medical



Non-wearable monitors-arrhythmia, atrial fibrillation, heart failure, heart rate variability, central respiratory disorder, obstructive respiratory disorder, sleep disorder

Smart Mattress/Sleep Monitor-Up/Out of Bed, Sleep Monitoring, Heart Rate, Breathing, Snoring

Smart home



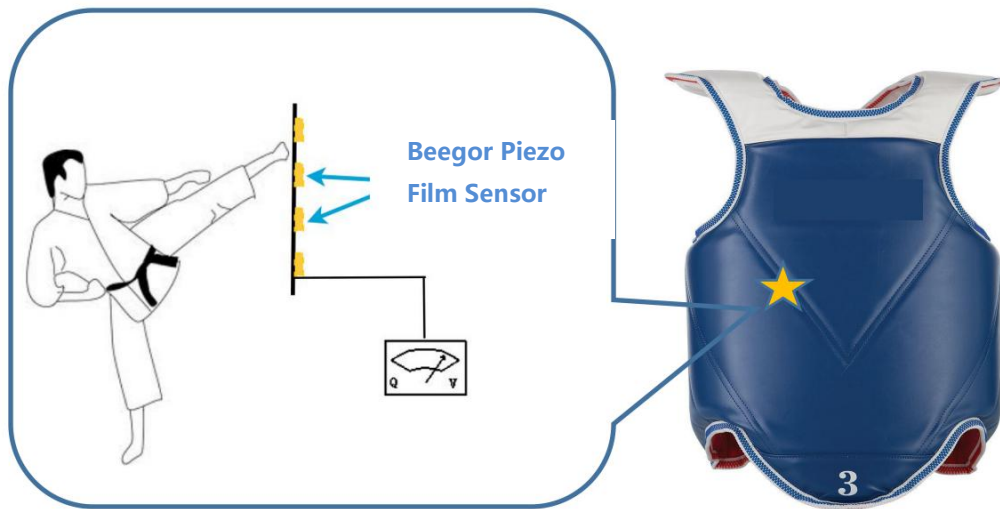
Intelligent sofa/seat-sedentary, sitting posture, heart rate

Children's unreasonable sitting posture can affect the development of the spine.

Intelligent Carpet/Floor-Indoor Positioning and Falling

In the absence of custody, the elderly living alone need to respond to emergencies in a timely manner.

Sports Exercise



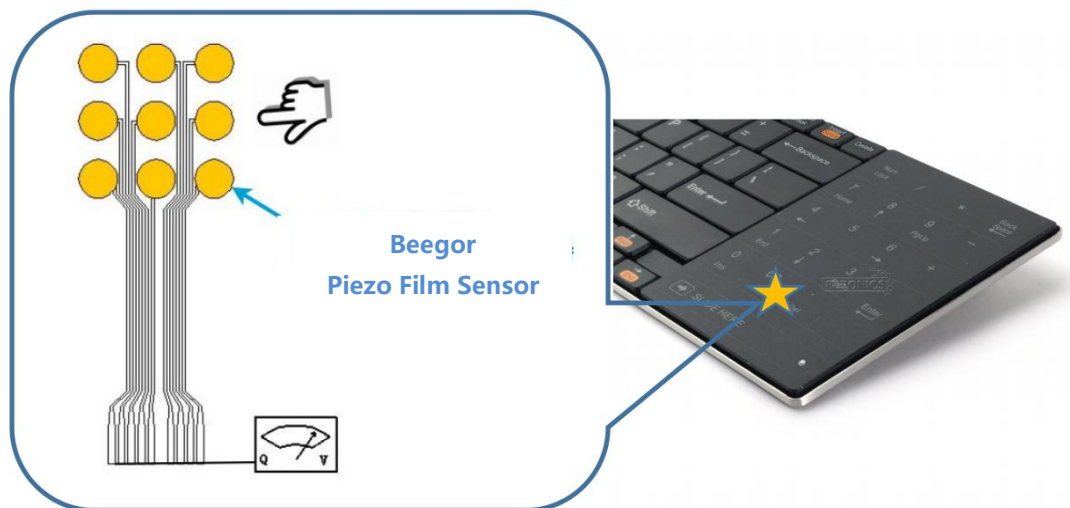
Smart shoes/insoles-sole pressure and motion trigger

Combining sports with games makes fitness more interesting.

Intelligent Protector/Boxing Glove-Measurement of Hitting Position and Strength

Fighting is not only a performance, but also a key force.

Force Touch

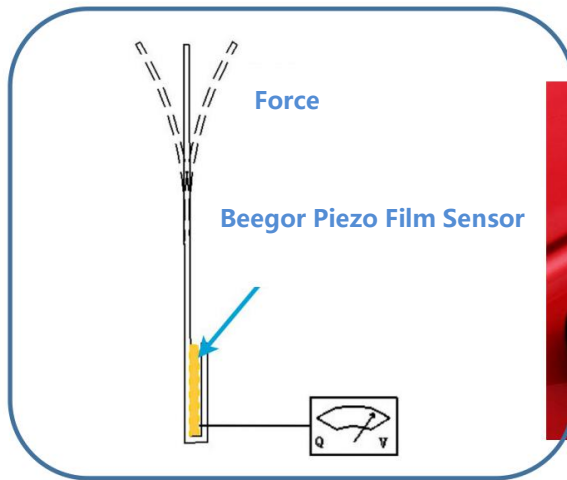


Mobile Phone - Surface/Side/Back, Pressure/Extrusion Touch

PIEZOR piezoelectric film can make the mobile phone smarter by omni-directional pressure touch.

Household appliances - dishwasher, lampblack machine, coffee machine, refrigerator pressure touch

Smart Car



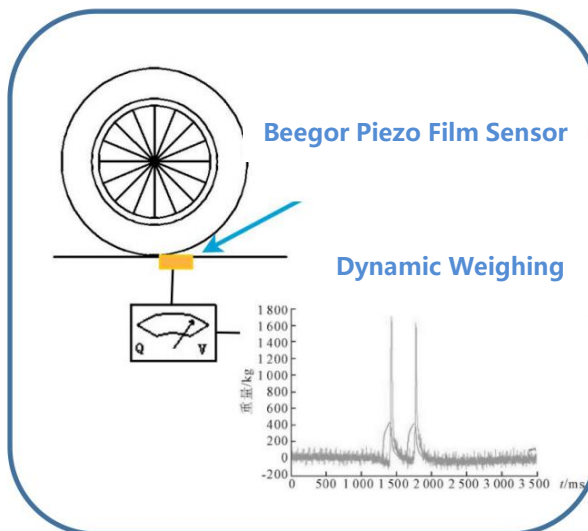
Hidden Door Handle-Pressure Touch

Ultra-thin, low power consumption, safe and reliable.

Safety Seat-Sitting Posture Distribution

Full range of seat adjustment is an experience with good driving safety and comfort.

Smart Traffic



Intelligent Transportation-Dynamic Weighing, Flow Monitoring, Intelligent Deceleration Belt

Because of its ultra-thin, light weight, embedded and buried more easily.

Security Perimeter-Buried Vibration and Pressure Alarm

Buried hidden alarm device, more sensitive.