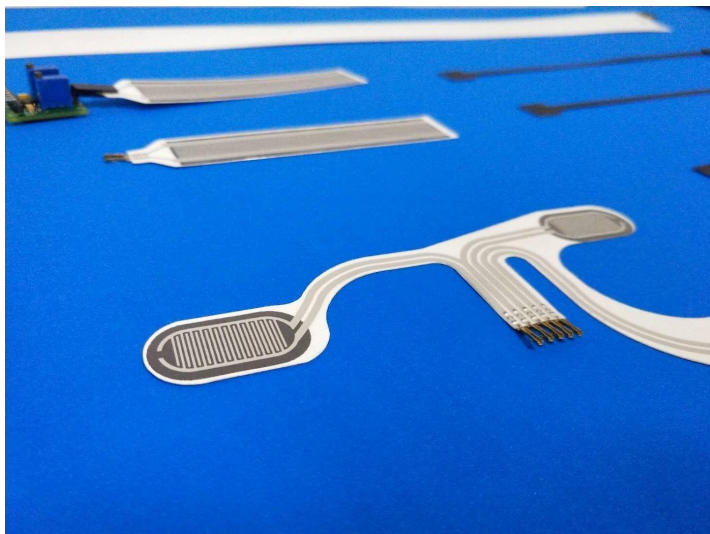




不同的应用决定了不同的压阻薄膜传感器产品，Beegor 贝骨公司集合了材料学、电子学、计算机科学、器件等方面的专业人才，为客户提供压阻薄膜传感器的 ODM 定制服务。

ODM 定制包含 INKSOX 压阻薄膜、电路模块、算法与软件、集成器件。

压阻薄膜传感器 ODM 定制

INKSOX 压阻薄膜

方形、圆形、异形均可，单个/多个感应区域

电路模块

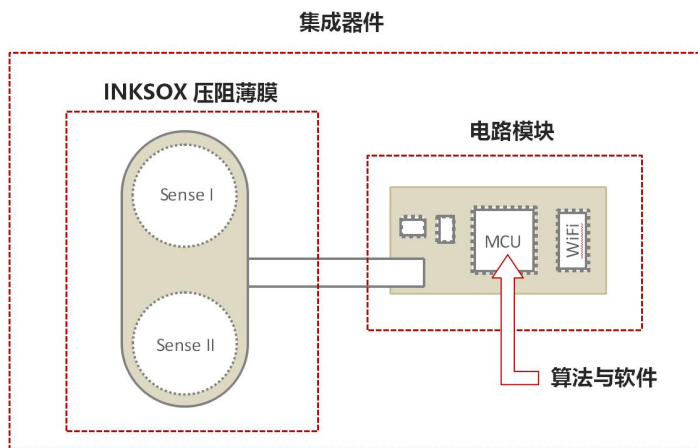
阻抗匹配、放大滤波、AD、MCU、通讯、电源等

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

INKSOX 压阻薄膜与电路模块集成封装

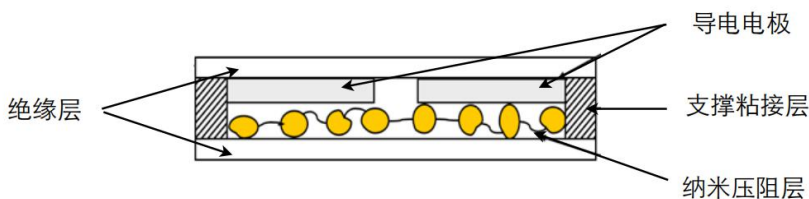


产品结构

Beegor 压阻薄膜传感器结构包含：

纳米压阻层、导电电极

支撑粘接层、绝缘层



技术参数

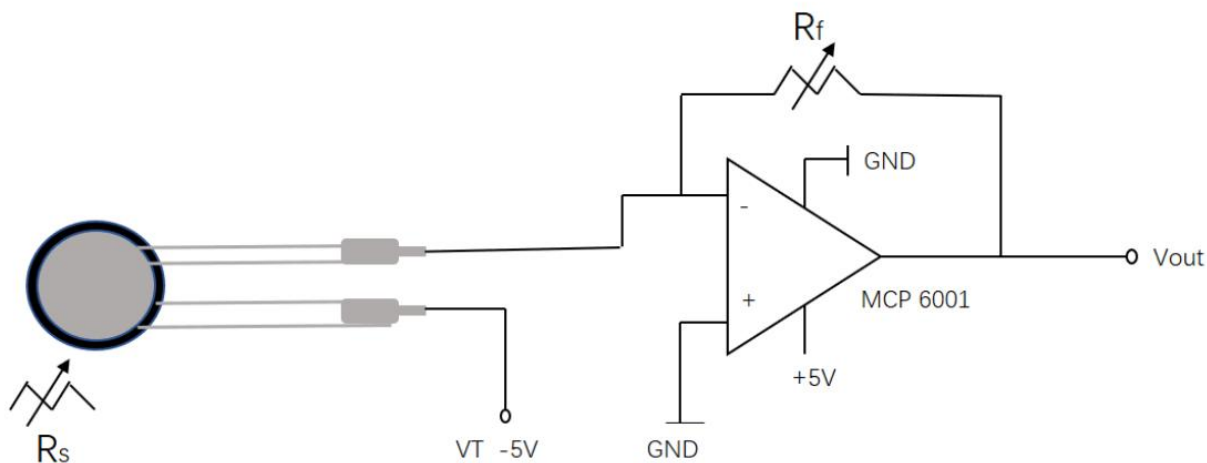
	单位 (Units)	数值 (Value)	误差(Error)
最小触发力(Trigger Force)	N	0.2	±5%
压力频率范围 (Force Frequency Range)	Hz	0 to 1	
压力范围(Pressure Range)	N	0.2 to 500	定制
响应时间 (Response Time)	mS	<10	
飘移 (Drift, 2.5kg, 24h)		-5%	
电极引出线 (Electrode Outlet)	2.54mm端子		定制
工作温度(Operating Temperature)	℃	-40 to 80	
湿度 (Humidity)		0 to 80%	
耐久性 (Durability, 1kg, 4Hz)		>1000 ,000	

传感器规格

长度L(Length)	mm	定制	±1%
宽度W(Width)	mm	定制	±1%
厚度D (Thickness)	mm	0.25	±1%

应用电路

要得压力变化，需要对Inksox压阻薄膜传感器进行电路处理：匹配电路即可获得电压－压力变化曲线，如下图所示。



计算公式： $V_{out} = -V_t \cdot (R_f / R_s)$;

说明： Inksox压阻薄膜传感器的电阻为 R_s ;

参考电阻 R_f 建议在 1k~100k 欧之间;

电源电压可根据运放供电进行选择。

医疗健康



平衡与步态分析——左、右步态平衡分析

牙齿咬合力——牙齿咬合热图

足底压力分布——压力分布热图

骨骼矫正与假肢——受挫的骨骼与身体机能的匹配

康复手套——手部训练

智能家居



智能床垫——睡姿监测、压力分布曲线

根据睡姿，动态调整床垫的软硬度，更好的支撑人体。

智能沙发/座椅——坐姿，压力分布热图

根据坐姿，动态调整座椅的软硬度。

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。

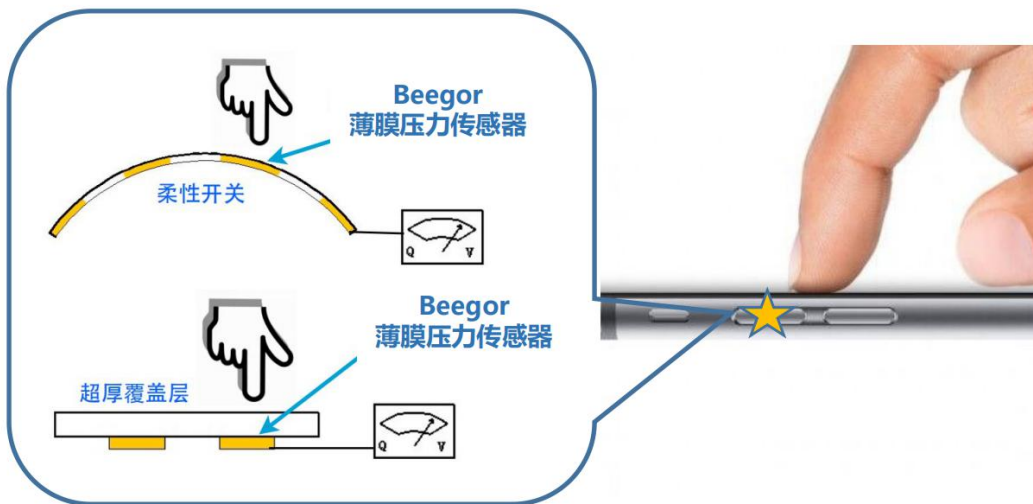
运动健身



智能鞋/鞋垫——脚底压力曲线，定制鞋

VR 手套——真实触感

压力触控

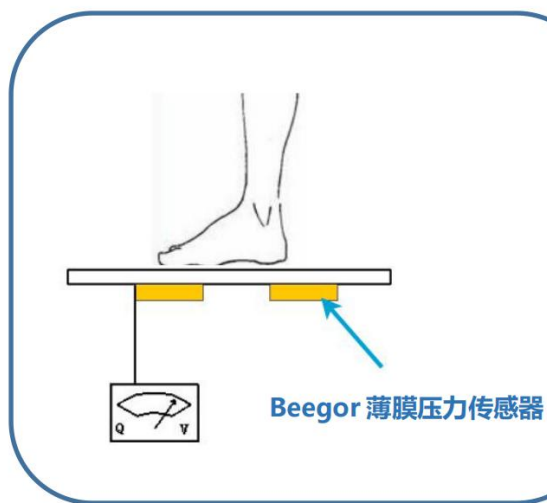


手机——表面/侧面/背面，压力/挤压触控

全金属键盘——洗碗机、油烟机、咖啡机、冰箱压力触控

游戏手柄按键——根据压力大小作出反应

智能汽车



座椅——坐姿识别、开启舒适模式或个性化安全模式

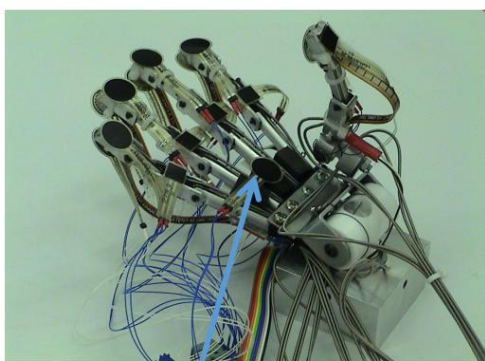
中控——压力式触控、整体式设计更美观

地毯——自动感应上下车、高级功能开启

方向盘——握力感应、替代方向盘按键

后备箱开关——触控、轻碰开启

机器人

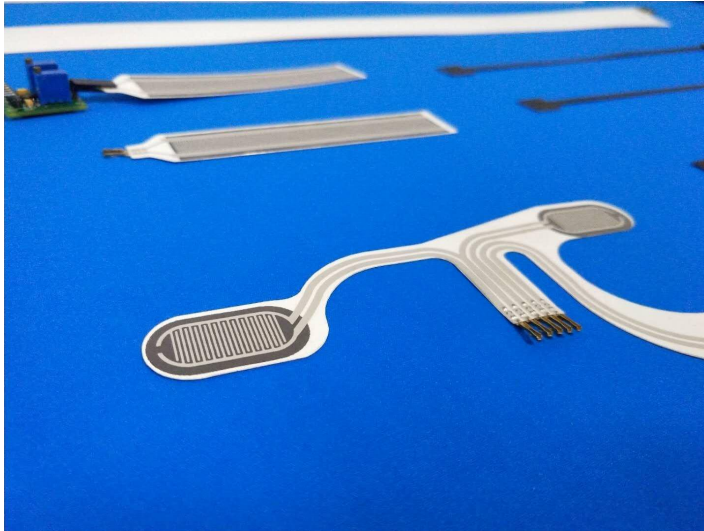


Beegor 薄膜压力传感器



机器人皮肤——曲面布设多个阵列压力感应点

触觉系统——触摸、碰撞、压力与反馈系统



Different applications determine different pressure film sensor products. Beegor Bay brings together professionals in materials, electronics, computer science, devices and other fields to provide customized ODM services for thin-pressure film sensors.

ODM customization includes INKSOX pressure-resistive film, circuit module, algorithm and software, integrated devices.

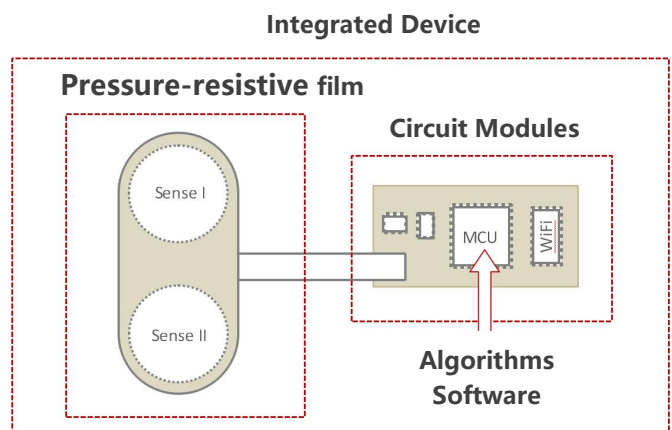
ODM of pressure film sensor

INKSOX pressure-resistive film-Square, circular and irregular shape, single/multiple induction region

Circuit module-Impedance matching, amplification and filtering, AD, MCU, communication, power supply, etc.

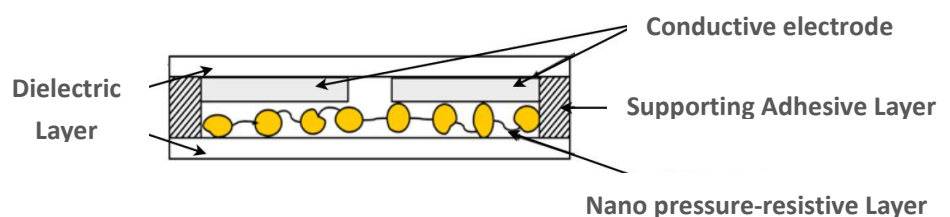
Algorithms and Software-Data acquisition, processing and analysis, converted into switch/numerical signals

Integrated device-INKSOX pressure-resistive Film and Circuit Module Integrated Packaging

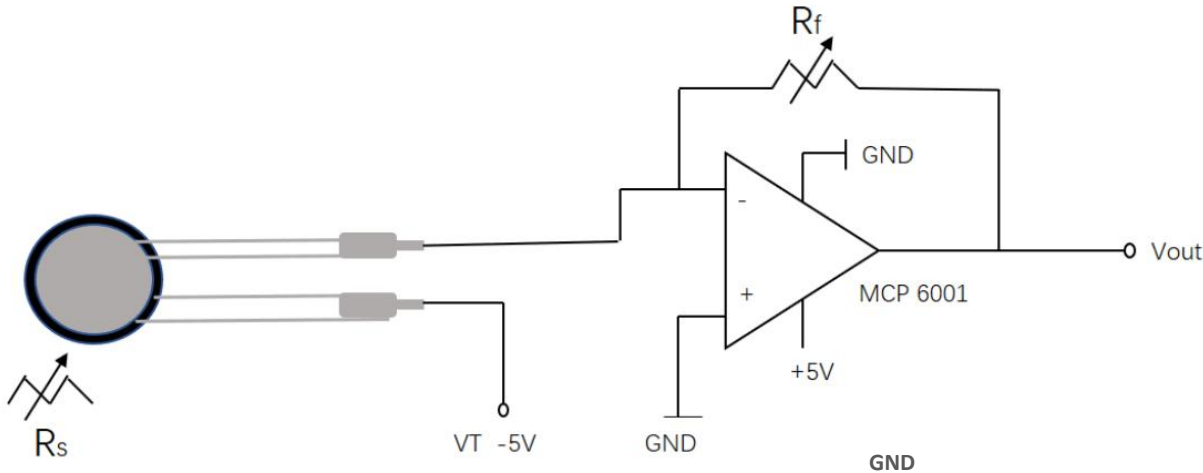


Cross Section

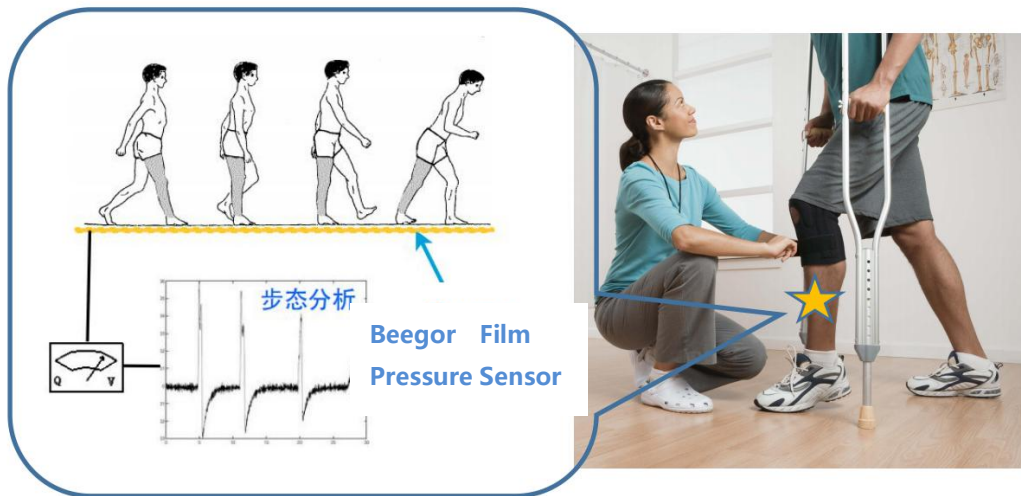
Beegor pressure film sensor structure includes: Nano pressure-resistive Layer, Conductive Electrode, Supporting Adhesive Layer, Dielectric Layer



Technical Parameter

	单位 (Units)	数值 (Value)	误差(Error)
最小触发力(Trigger Force)	N	0.2	±5%
压力频率范围 (Force Frequency Range)	Hz	0 to 1	
压力范围(Pressure Range)	N	0.2 to 500	Customized
响应时间 (Response Time)	mS	<10	
飘移 (Drift, 2.5kg, 24h)		-5%	
电极引出线 (Electrode Outlet)	2.54mm Terminal or FPC		Customized
工作温度(Operating Temperature)	°C	-40 to 80	
湿度 (Humidity)		0 to 80%	
耐久性 (Durability, 1kg, 4Hz)		>1000 ,000	
传感器规格 (Sensor Specifications)			
长度L(Length)	mm	Customized	±1%
宽度W(Width)	mm	Customized	±1%
厚度D (Thickness)	mm	0.25	±1%
Application Circuit			
			
Formula	$V_{out} = -V_t \cdot (R_f / R_s);$		
	RS-resistance of pressure film sensor		
	RF- reference resistor. It is suggested that the resistance should be between 1K~ 100k.		
	Vt-power supply voltage.		

Health Medical



Equilibrium and Gait Analysis-Left and Right

Gait Equilibrium Analysis

Teeth Bite Force-Teeth Bite Thermogram

Plantar Pressure Distribution

Skeletal Correction and Prosthetic Limb

-Matching of Frustrated Skeleton and Body Function

Rehabilitation Gloves-Hand Training

Smart home



Intelligent Mattress-Sleeping Posture Monitoring and Pressure Distribution Curve

Intelligent Sofa/Seat-Sitting Posture, Pressure Distribution Thermal Map

Intelligent Carpet/Floor-Indoor Positioning and Falling

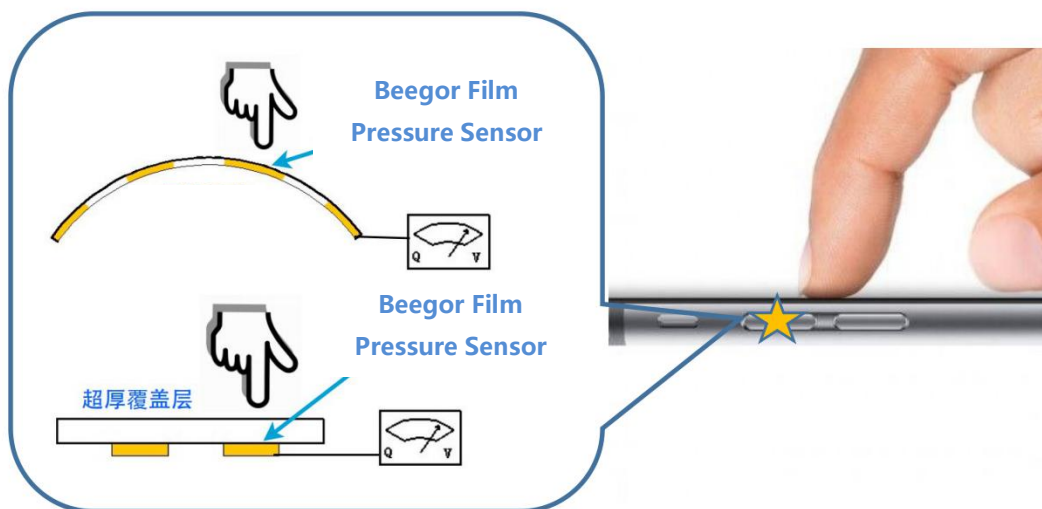
Sports Exercise



Smart shoes/insoles-sole pressure curve, customized shoes

VR Gloves - Real Touch

Force Touch

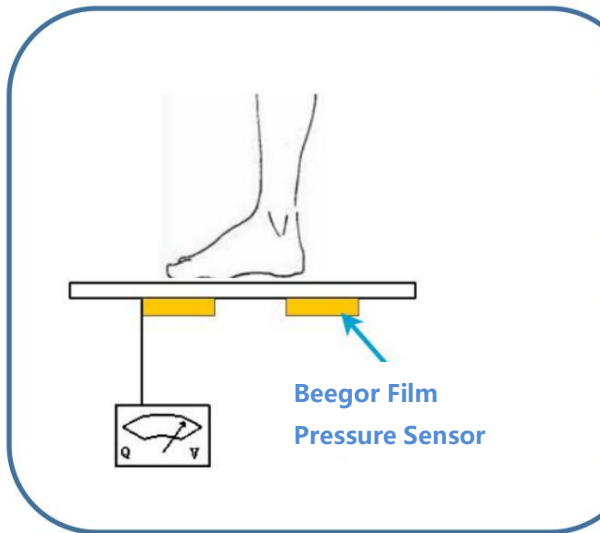


Mobile Phone - Surface/Side/Back, Pressure/Extrusion Touch

All-metal keyboard-dishwasher, lampblack machine, coffee machine, refrigerator pressure touch

Game Handle Keyboard - Response to Pressure Waterproof, dustproof and durability are exactly what we are doing.

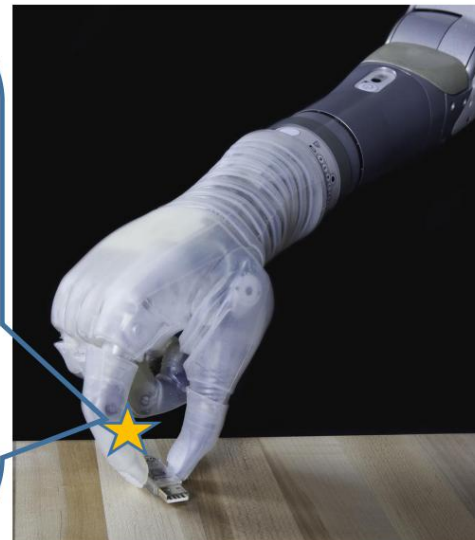
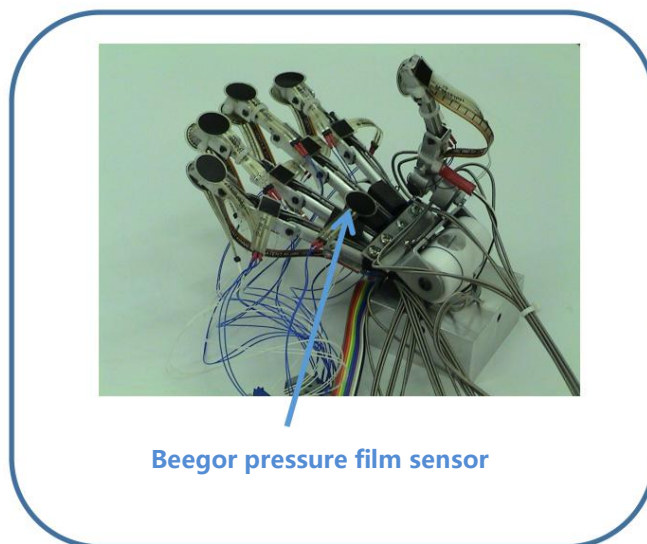
Smart Car



Seat-Recognition of Sitting Posture,
Central Control-Pressure Touch
Carpet - automatic induction boarding

Steering wheel-grip force induction
Backup Switch-Touch Open

Robot



Robot Skin-Surface Layout of Multiple Array Pressure Sensing Points
Tactile System-Touch, Collision, Pressure and Feedback System