



# DMS (Driver Monitoring System)



## Outline



- **SR(Smart Rubber)Sensor** can be built into a seat. It is made of the **special elastic material** which is **soft** and **conductive**.
- It can detect **heartbeat**, **breathing** and **body motion** which are from the pressure changes sensed by SR sensor
- By the measuring results, it can estimate an occupant's condition (**fatigue**, **drowsiness**, **sudden illness etc...**). Then you can **connect to advanced services** such as alerting a driver, actuating an driver-assistance systems and calling in the outside.



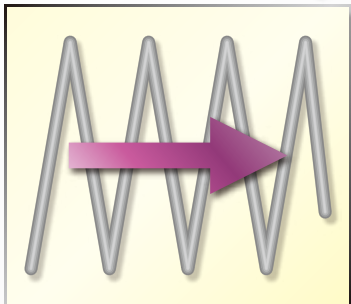
# What's SR ?

SR(Smart Rubber)is our new developed **elastomer** which is **soft and conductive**. It maintains the electrical conductivity even if it is stretched.

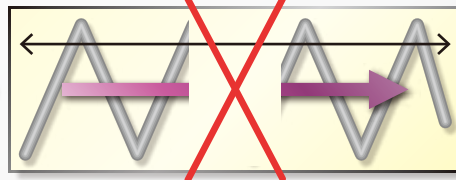
Conventional

Breakdown of the  
conductive paths

compressed



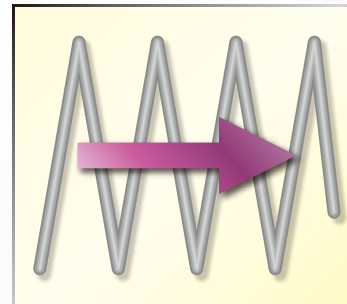
stretched



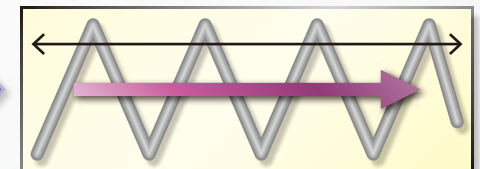
SR

Conductive paths are  
maintained

compressed



stretched

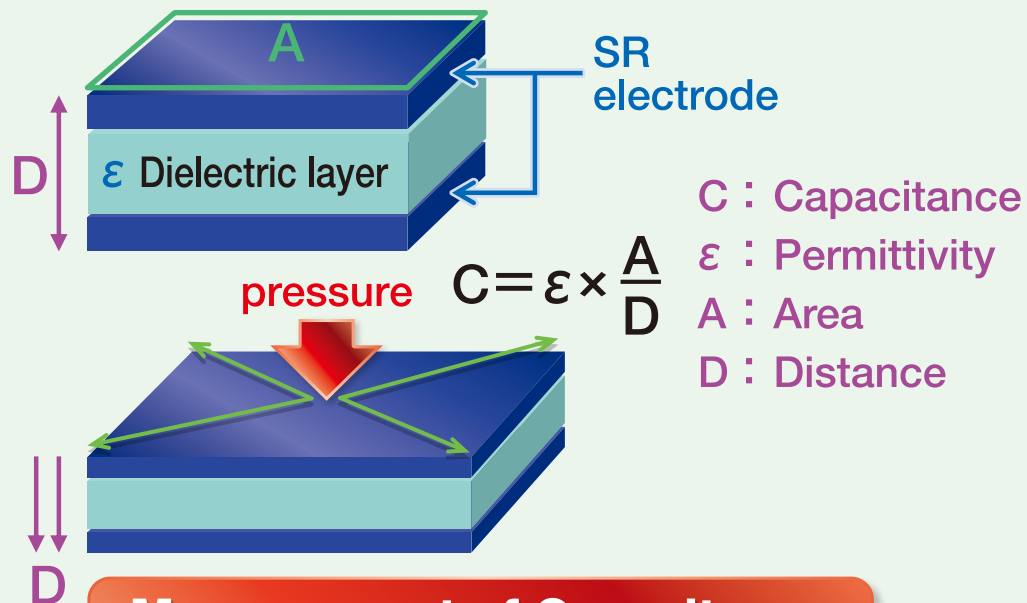




# Principle of Sensing

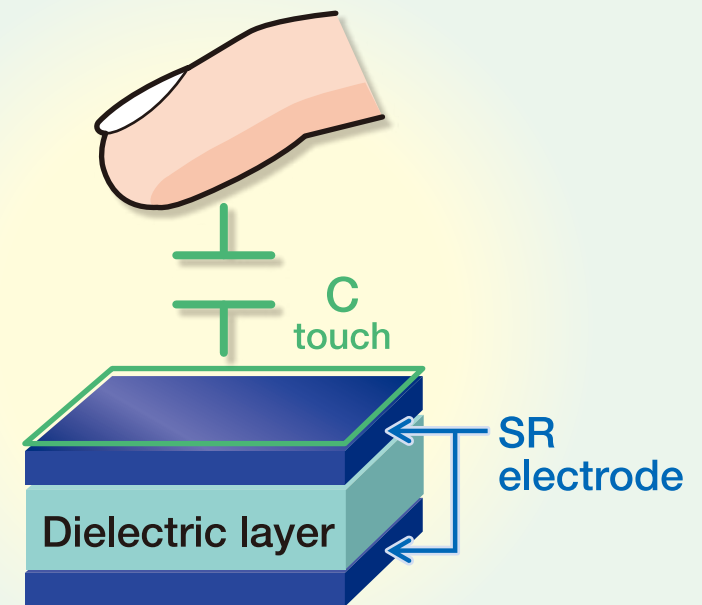
Electrostatic capacitor all made of elastomer

## ◎ Principle of **Pressure sensing** (applied to this built-in sensor)



Measurement of Capacitance  
between the electrodes

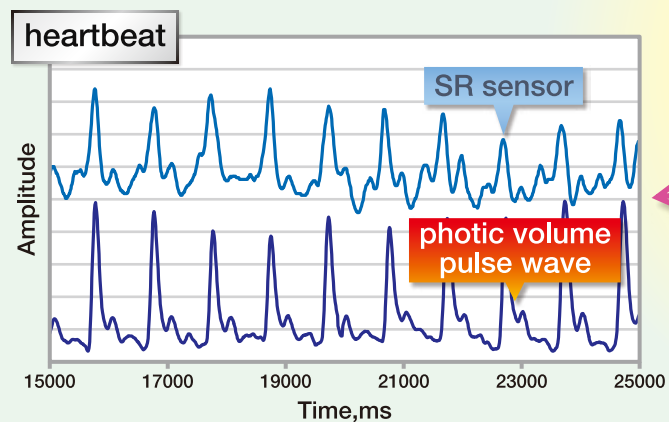
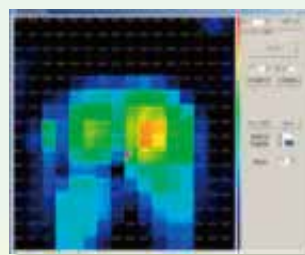
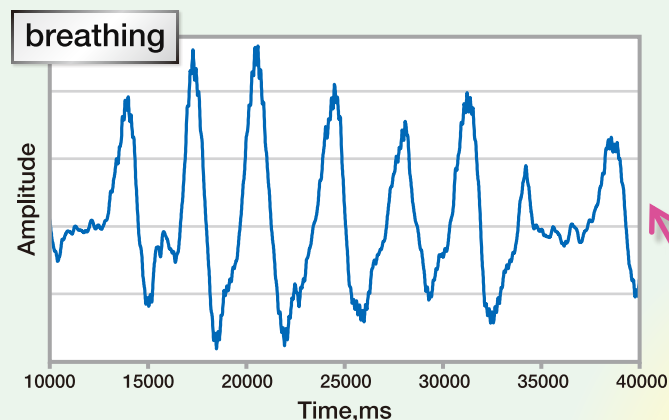
## ◎ Principle of **Touch sensing**



Measurement of Capacitance between  
a finger and the upper electrode



# Vehicle application



**built-in  
SR Sensor**

