

FSR 센서와 PVDF 필름을 이용한 촉각센서 설계 및 개발

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주제어 : Tactile sensor(촉각센서), Force Sensitive Resistor(힘 측정 저항체), PVDF(압전 필름), Intelligent robot(지능로봇), Texture(질감)

This paper shows the development of a tactile sensor using FSR(force sensitive resistor) and PVDF film to measure pressure distribution and slippage when an object was contacted. The tactile sensor with the size of 100 mm x 100 mm was consisted of two parts, FSR sensors with 8x8 array and a PVDF film sensor. The FSR sensor(Co. Techstorm) can measures normal force in the range of 0.1 N - 20 N and presents the pressure distribution of an object. On the other hand, PVDF film sensor was covered by a thin rubber with a knob structure, similar to human's skin hair, to detect the slippage easily. The two sensitive layers are separated by a soft foam layer transforming knob deflection into local stretching of the PVDF film. By signal conditioning, slippage induced oscillations could be detected by characteristic spike trains. The tactile sensor will be able to intelligent robots such as service robot and healthcare robot, which require the function of communication with external environment through tactile sensation.

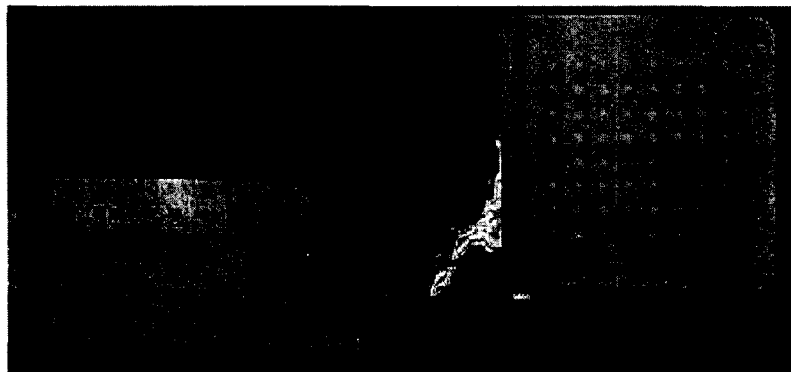


Fig. 1 A sensor system for measuring pressure distribution and slippage detector.