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| Portes ouvertes virtuelles de l'INSA Toulouse | Graphite Strain Gauge coupled to an electronic circuit | |
|  | | General features  * Passive * Angle displacement measurement * Easy-to-use and produce * Open source * Low cost and Low tech * Detection of inward deflection * Detection of outward deflection * Bluetooth connection * OLED display |
| General description The sensor consists in a strain gauge designed on a piece of paper with a graphite layer (graphite particles stick to the paper). Those particles create a conductive layer where a current, based on the tunnel effect and proportional to the distance between particles, can flow.  So, any deflection or contraction of the distance between the particles leads to a difference of the resulting current. The resistance is measured and displayed thanks to:   * an electronic circuit including a transimpedance operational amplifier * a HC-05 Bluetooth interface which allows to connect a phone to the device * an OLED which displays the values measured   This resistance, which leads to the deformation, is different according to the quantity of graphite leaved behind on the sensor. | | |
| Mechanical Specifications  * Life Cycle: < 100 * Height: 60 um * Temperature Range: 0°C – 40°C | | Electrical Specifications  * Supply: 5V * Sensor resistance: 2- 500 MOhm * Sensor voltage: 0 – 4,99 V * Power rating: 0,5.10^-9 – 12,5.10^-6 W |
| Dimensional Diagram – Stock Flex Sensor | | |
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