CIRCULAR KNIT
STRECH SENSOR

The stretch sensing is due to the structure of the conductive yarn which is made up of lots of short steel fibers mixed with polyester or laine. Even without knitting the yarn into a structure you can use it as a stretch sensor by simply pulling it taught or relaxing it. But the yarn is not very strong and tears easily. The knit structure allows you to accumulate more yarn and thus more resistance in less length and also by combining the conductive yarn with regular yarn you can gauge the sensitivity of the sensor by choosing a thicker or thinner yarn - thicker yarn gets more in the way of the conductive yarn making extra contact through the knitted loop structure. Plus knitting creates the stretchy structure giving you some natural tangible feedback as well as strengthening the sensor so that you will not tear the conductive yarn. The length of the knit sensor is roughly 10cm long and the resistance across the length of the sensor will vary from 2K Ohm when relaxed to 200 Ohm when stretched.

More info >> *www.kobakant.at/DIY/?p=2108*

Circular knitting machines and spool knitters

These machines targeted at children range from 20-250 US$ in price and differ in diameter, number of needles and spacing of needles. Spool or wire knitters have only four needles and resemble manual knitting dolls, while the knitting machines resemble manual knitting wheels or looms.

>> *circular knitting machines: http://www.kobakant.at/DIY/?p=1144*

Conductive yarn

It is hard to come by in reasonable quantities because the manufacturers only sell in huge amounts. The conductive yarn used in this sensor is called Nm 20/2 30% Inox steel fiber, 70% laine wool. It is manufactured by the New Zealand company Wera Tech. The Austrian company Schoeller Wool produces a very similar yarn Nm 50/2 20% Inox steel fiber, 80% PET. The conductive yarn (gray) is mixed with a regular (white) yarn.

>> *resistive yarn: http://www.kobakant.at/DIY/?p=1978*

Instructions

How to make a circular knit stretch sensor from scratch:

>> *www.instructables.com/id/Circular-Knit-Stretch-Sensor*

If you have any questions about this sensor please contact:

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