

Knitting With Conductive Yarn

Knitting is a really versatile and flexible way to integrate sensors and other conductive material directly into fabric. Depending on the kind of pattern, and the type of yarn that you use, knitted textiles can be used to integrate directly into stretchable, conformable fabric:

- stretch sensors
- switches
- pressure sensors
- capacitive touch sensors

At the CCI we have a range of conductive yarns and threads that can be used that have variable conductive and textural properties. We have a Silver Reed knitting machine that is suitable for knitting 2-3ply yarn, and can be used programatically with the DesignaKnit software.

Typically, the conductive yarn is used along with a carrier yarn, that adds structural stability, colour, and texture to the knit.

In general, knitted textiles should not be used to conduct any current greater than 100mA or so, as they can risk getting hot, and because of their form (and the potential for shorts) in general my advice would be to consider them primarily as sensing rather than conductive material.

This page isn't a tutorial on the Silver Reed (please email Agnes if you would like one), but an overview of options for making conductive knitted textiles at the CCI.

Knitted Stretch Sensor

Knitted fabrics that integrate conductive yarn typically have some in-built resistance, which will change depending on

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