Idea Exploration

Idea 1 : Wearable smart E-textile belt to track bio-signals :

Tracking of bio signals through wearable bands. Bio signal interfaces provide important data that reveal the physical status of a user, and they are used in the medical field for patient health status monitoring, medical automation, or rehabilitation services.

Overview:

Most of the clothing materials we wear day-to-day are made of flexible textile fabrics that are either woven or knitted out of linear textile structures known as threads and yarns consisting of one of more types of natural or man-made fibres . The basic characteristics of textile materials are that they are soft and flexible materials that are able to drape the curves of our body nicely. The fundamental requirements for them are their capability to ensure psychological of wearer. At the same time, they should be washable to meet the users’ desire for reuse. However, these requirements are negatively interfered with when hard and non-washable electronics and electric materials are assembled with textile materials

The idea of the below sketch is to depict and explore the build of fabric stretch sensor for this project that would be glued to the belt to measure the breathing rate.

The sketch underneath shows the explored view of the internal working of the fabric stretch sensor

Below figure is the gathered list of materials that would be needed with the demonstration in 15 X 15 frame.

Idea 2: Wearable E-textile Arm band

This could play a great role in old age people and people with physical or mental ilness to easily track the bio signals in their body by regularly monitoring their bloor pressure and pulses now and then. This would in turn works by highlighting and signalling any of the abnormalities present to other people around them.In this way we could easily monitor their health and take actions in terms of emergency.

Idea 3: Wearable E-textile towel that responds to your eating patterns

Objective:

Monitoring of food and nutrition intake is becoming more digitized every day. Wearables have potential to support people in their diet and lifestyle without having to spend an excessive amount of time in just typing all the consumed food into an app or notebook.

Working Principle:

There are a lot of metal tools and utensils around your house that are likely conductive. One way is to test is by using eating utensils [9]. With an Arduino circuit which would analogRead the values of the sensor, an e-textile placemat could be designed that responds to the eating patterns. So the idea is when the user places the spoon on the the E-textile placemat, each time it senses and tracks it which could be used as a tool to track eating pattern.