

## CA2 Report Part 3: Sustainable Design (15%)

**Sustainable design** is the approach to creating products and services that have considered the environmental, social, and economic impacts from the initial phase through to the end of life.

What change can be made to your design to make it more environmentally sustainable?

Some design Considerations/Principles are included here:

- Use non-toxic, sustainably produced, or recycled materials.
- Use energy efficient processes.
- Make product last longer.
- Design for reuse and recycling. (e.g. easy to disassemble)
- Consider product life cycle.
- Shift from personal ownership to shared ownership.
- Buy from nearby

Discuss and document the modification in design or substituting of certain parts of the product or any other ideas that your team has made. You may include pictures and sketches to aid in the explanation

Changes made could be made on the are used to wrap the electrodes such as the wristband to be made from Tefabloc TPE instead of regular TPE. TPE are harmful to human health as it contains phthalates which can cause hormone disruption and reproductive problems and even cancer. TPE are made from man-made synthetic material hence it is not natural and is not sustainable and not biodegradable.

However, for tefabloc TPE, it is a type of thermoplastic elastomer (TPE) plastic. Unlike conventional TPEs, it contains up to 50% renewable raw material. The renewable ingredient acts as a substitute for harmful plasticizers and fillers. This can include by-products from the other industries, such as wood powder from the furniture industry, oyster shell powder, recycled material or bio-based resin. It can be tailored to specific requirements.

