

# Brain Computer Interface Implant

## What's the context?

Estimates suggest that as many as **500,000 people around the world are suffer new spinal cord injuries each year**. The overwhelming majority are faced with life-changing conditions such as paralysis and quadriplegia limiting their ability to live comfortable and independent lives.

## What did we do?

Starting in 2015, Expleo began work with Clinatec on a project that would empower quadriplegics by giving them back their independence, allowing them to once again walk and directly interact with their environments. By placing **two implants directly on a patient's brain, patients can directly control neuro-prosthetics such as a wheelchair or an exoskeleton via the power of thought**. Expleo has provided the test bench for all the electronics and developed firmware for the implant, as well as training programmes to help patients learn to use the implant.

## What's the impact?

Thanks to the dedicated exoskeleton, patients have been able to walk and use the arms of the exoskeleton to pick up objects for the first time since their injuries. This technology has **the power to give patients with severe motor function limitations greater autonomy to live independent, fulfilling lives**.

## What's next?

Development of the implant is ongoing and soon enters a new phase of clinical trials with two new patients. Expleo continues to work with Clinatec to fine-tune the software to improve the fluidity of motion when working with the exoskeleton, enabling more complex actions. Plans are in place to enable **direct interaction with connected home devices such as TVs, heating systems and more**. A new interface is being developed to allow paraplegic patients to use the exoskeleton.

