

BeFC: the organic energy solution for low-power electronics



About us

BeFC make electricity from papers and enzymes. Our company offers an eco-friendly and sustainable energy solution for low-power electronics. We have developed a series of breakthrough innovations that allow the use of enzymes with carbon paper electrodes to generate useful amounts of energy through biocatalysis. A result of decades of pioneering research into the bioenzymatic processes and properties of paper materials, the intellectual property is protected by a 6-patent portfolio. BeFC is located in the heart of the Alps, Grenoble, with R&D, prototyping and pilot production facilities. Since our creation in 2020, BeFC has raised 6 M€ of investment, and is now developing the next generation of connected devices with our partners for multiple market sectors including IoT, logistics, medical, agriculture, and smart packaging.

Opportunity

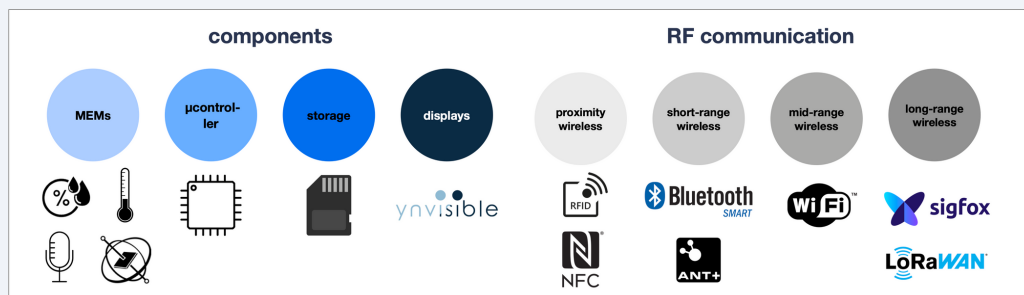
There is a growing trend towards wearable and single-use/single-patient medical devices, connected packaging and IoT sensor solutions. Typically, these devices are powered by coin or button cell batteries. The problem: an average of 97% of miniature batteries typically end up in landfill or are incinerated. For many applications the battery presents additional cost and complexity to the collection, recycling, and disposal. BeFC has a strong commitment to sustainability, with the goal of replacing conventional batteries in disposable electronic devices with our paper-based biofuel cells, as well as providing new opportunities for innovation in emerging markets.

Technology

Our solution is a biofuel cell that uses enzymes to convert sugar and oxygen into electricity. Our products are both metal-free and plastic-free. Being paper-based results in thin and flexible devices that are particularly suited for wearable sensors. The device can be activated using either a patented integrated liquid reservoir, or a tiny volume of biological or environmental liquid (e.g., tap water, urine, sweat). Once activated, energy is produced within a few seconds. Our paper fuel cells are capable of producing up to a few milliwatts per square centimeter, enough power for most modern sensors and low-power wireless transmitters for periods of minutes to months, depending on the mode of operation. BeFC also develops custom digital platforms optimised to our technology, allowing us to provide a complete electronic solution for our customers.

Customer Benefits & Possible Applications

- Reduced costs of recycling / disposal
- Environmentally friendly & non-toxic
- Biosourced materials
- Ultra-thin & flexible
- Lightweight
- Metal-free
- Plastic-free
- Sustainable fuels
- Safe (no risk of auto-combustion)
- Form factor adjustable to application



Together, power the future with nature.©