

## Energy Harvesting Device

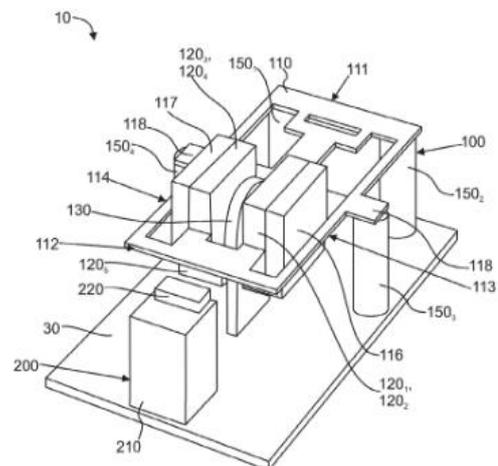
Wide-band and efficient vibrational energy harvesting device for powering ‘Internet-of-Things’ devices.

### THE TECHNOLOGY

Battery power, the conventional choice of powering ‘Internet-of-Things’ (IoT) devices, has a number of drawbacks such as limited energy density over the years, expensive replacement costs and chemical hazards. Vibrational energy harvesting (VEH) offers an alternative to battery power.

Basic VEH devices are linear, only producing maximum output at the resonance frequency so response drops drastically if there is any shift in frequency which often occurs in a practical setting. Wideband non-linear mechanisms are thus essential to enable efficient vibrational energy conversion over a greater frequency range.

Researchers at the Tyndall National Institute have developed and patented an innovative wide-band non-linear VEH device. The device incorporates monostability and bistability into a single electromagnetic transduction system to generate power over a very wide-band region, much wider than a sole monostable or bistable system. Combining both in a single system narrows/lowers down the intermediate potential barrier and eases the large amplitude inter well motion and produces high power and wider frequency response.



**Fig. 1**

**Figure 1** – a perspective view of a first embodiment of a vibrational energy harvesting device according to the invention.

**PCT/EP2016/063940** filed in June 2016, US and EP patents pending.

### ABOUT THE TYNDALL NATIONAL INSTITUTE

The Tyndall National Institute, a research flagship of University College Cork, is a leading European research centre in integrated ICT hardware and systems. Central to our mission is delivering economic impact through research excellence. We work with industry and academia to transform research into products in our core market areas of electronics, communications, energy, health, agri-food and the environment.

#### FIELDS OF APPLICATION

Applications include internet of things, wearables, smart agriculture, food safety/security, advanced manufacturing, resource-efficient and safe transport, medical sensors, health monitoring- human, animals, physical structures, surveillance, etc.

#### OPPORTUNITIES

- Licensing
- Research collaboration

#### CONTACT

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