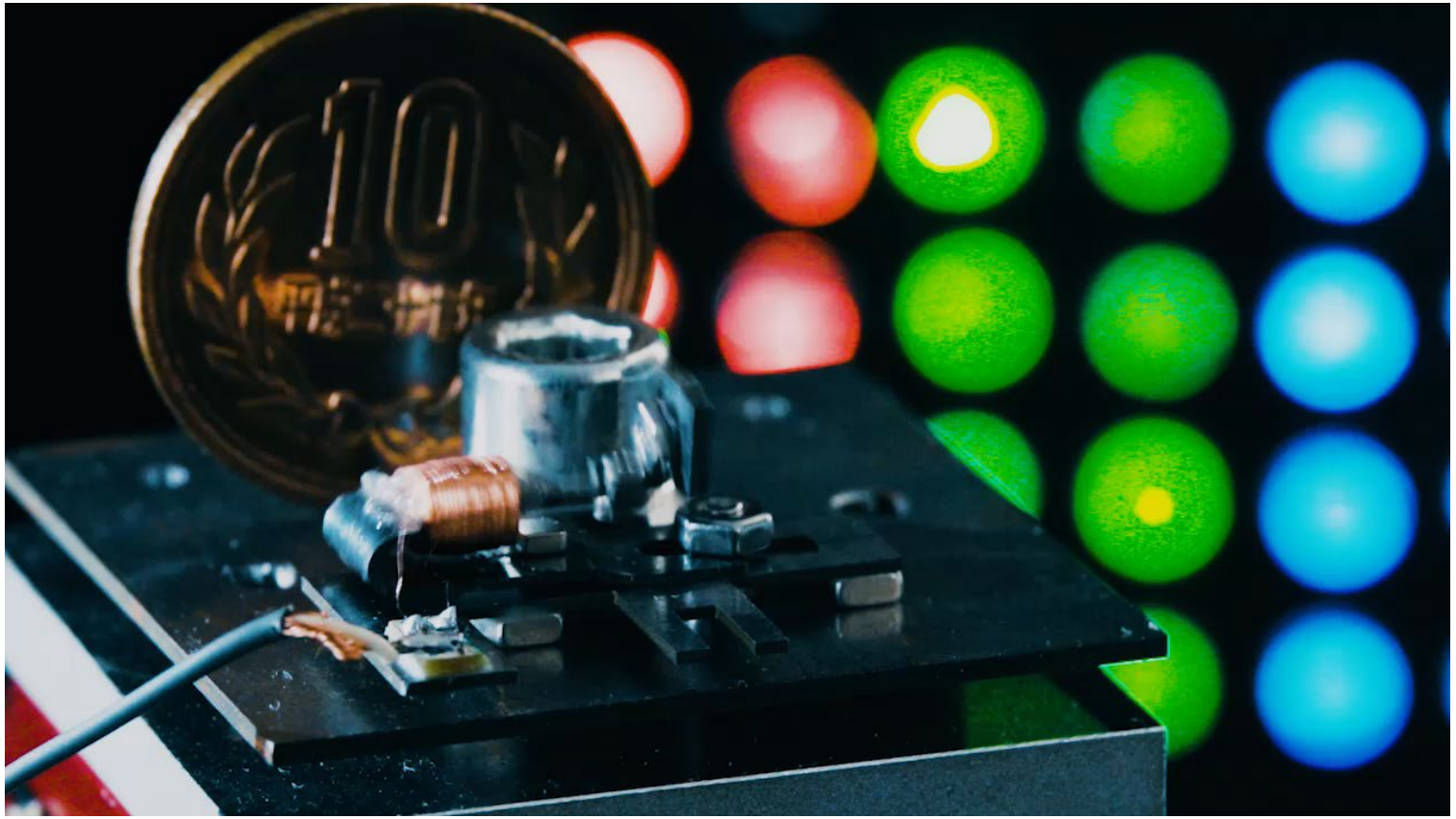
V-GENERATOR

微小振動を電力に変える技術

Harvesting Ambient Vibrations into Clean Power

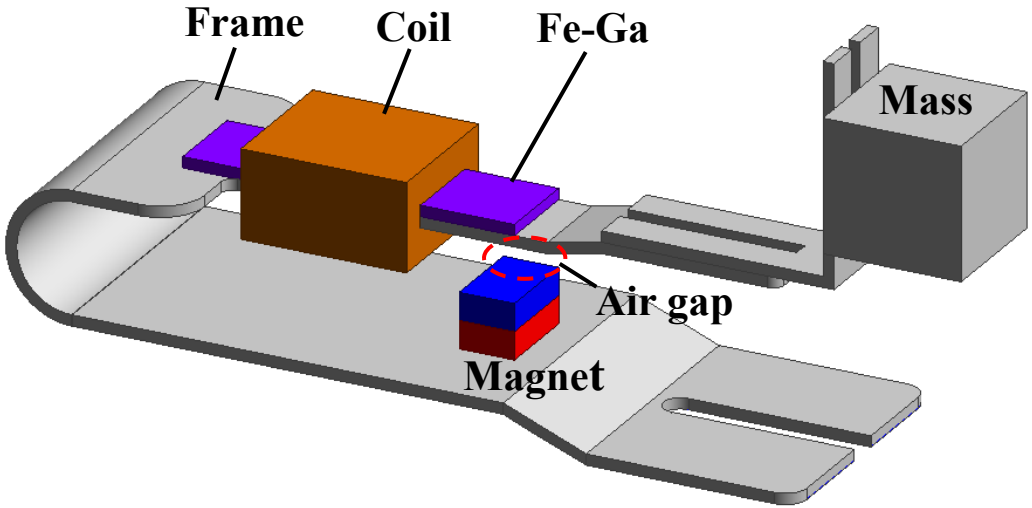
V-GENERATOR is creating energy from everyday vibrations such as highways, road bridges, machines in factories and plants, etc. This groundbreaking innovation relates to an electric power generation element that generates electricity from vibrations. Vibration power generation is environmentally friendly because it produces electricity from ambient vibrations without emitting carbon dioxide or requiring an external power source.

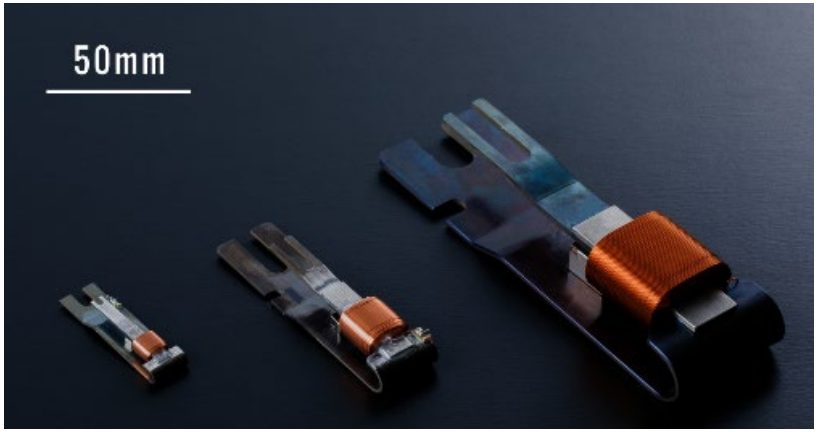


TECHNOLOGY

共振現象によりデバイスに振動が加わると、逆磁歪効果にて磁性材料の磁化が変化し、コイルから電力が発生する発電方式です。

This is a power generation method in which, when vibrations are applied to the device through resonance, the magnetization of the magnetic material changes due to the inverse magnetostrictive effect (Villari effect), generating electrical power from the coil.
Advantages: efficient at low frequencies, durable structure, low-cost materials suitable for scaling.
Differentiation: strong performance where piezoelectric harvesters struggle; adaptable design for various environments.
Issues addressed: reduces battery waste, enables autonomous sensors, and utilizes unused vibration energy.

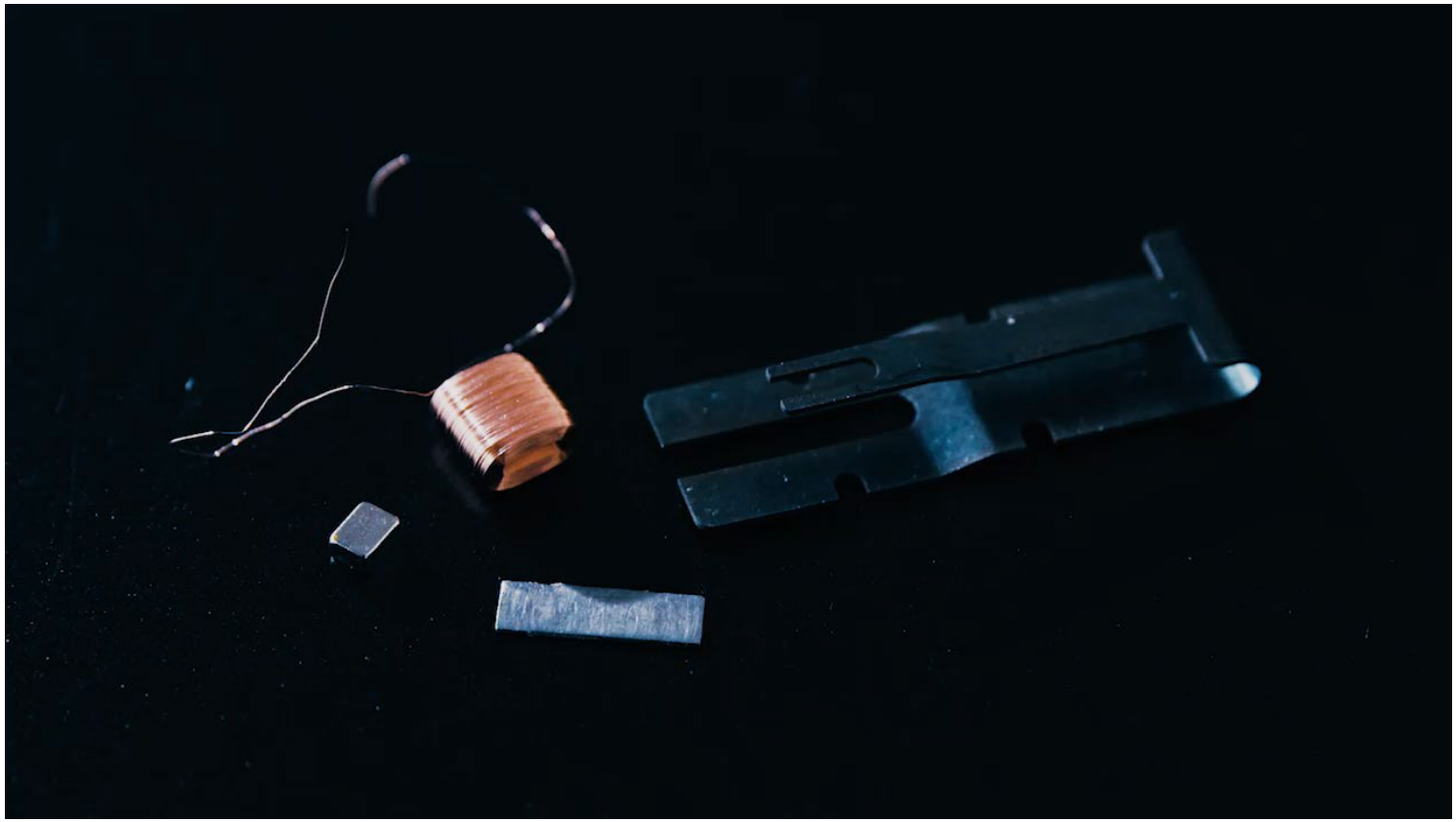




ADVANTAGE

シンプルで堅牢、組み立てが容易
Simple Structure and Long Lifespan

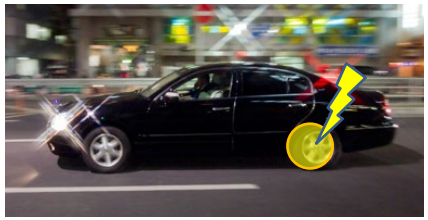
The advantages include its easy processing and cost-effective mass production capabilities due to its frame yoke and magnetostrictive material-centered structure. Furthermore, the magnetostrictive material is fatigue-resistant, resulting in a long lifespan and adaptability to harsh environments. Since it requires no power source and is maintenance-free, it can operate autonomously for extended periods.



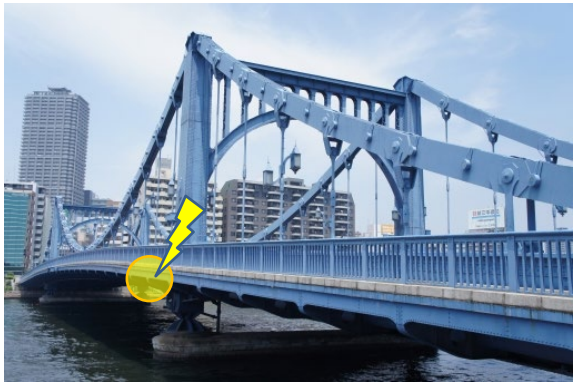
APPLICATION

IoTデバイスの電源
Power Source for IoT Devices

The main applications of this technology include devices that generate electricity from minute vibrations in bridges, roads, and railways, vibrations from factory equipment and motors, vibrations from people walking and moving, and environmental vibrations in home appliances and buildings. By driving autonomous IoT sensors and wireless tags, it can be used for monitoring temperature, humidity, stress, and displacement, infrastructure health monitoring, smart buildings and smart factories, wearable healthcare devices, self-generation using walking vibrations, and sensing of biological movements.

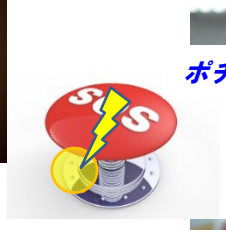






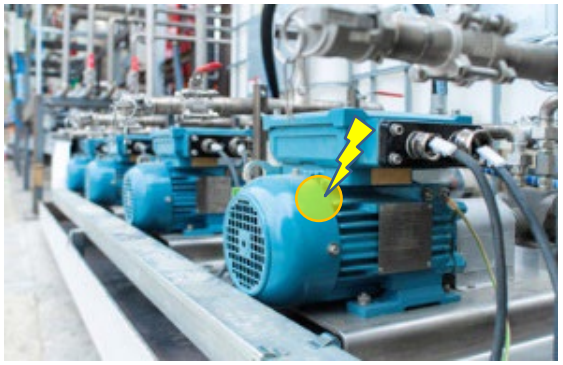












FUTURE possibilities

●アジア・中東・アフリカなど、インフラ監視や産業設備の保守が課題となる地域で、
電池レス IoT センサの普及を大きく後押しできます。

●送電網・水道・橋梁・工場設備などの状態監視に応用することで、
事故防止・保守コスト削減・省エネ化に貢献できます。

●WIPO GREEN を通じた国際連携により、材料開発・デバイス設計・実証プロジェクト
などの共同研究が促進され、グリーンイノベーションの国際展開が期待されます。

●未利用エネルギーの活用により、長期的には環境負荷低減・持続可能な経済発展に
寄与できます。

●Enables widespread deployment of battery-free IoT sensors in Asia-Pacific, the Middle East, and Africa.

●Enhances safety and efficiency in infrastructure monitoring, reducing maintenance costs and preventing failures.

●Facilitates international collaboration through platforms like WIPO GREEN, accelerating global green innovation.

●Contributes to long-term environmental sustainability by utilizing unused vibration energy.