

PAVEGEN PLATES AS AN ALTERNATIVE ENERGY SOURCE

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In our fast-moving world modern high-tech solutions can assistance to receive useful electricity from kinetic energy. The kind of energy thus obtained can be used to meet the different needs of humankind: autonomous lighting, gaining access to the global network using Wi-Fi, and using the simplest robotic devices. This seemingly specific method of obtaining a power source in an urban environment can become the basis for the creation of autonomous areas of local use of electricity for public needs. Consider, for example, a method for converting a simple movement of a material body into an alternative source of energy. And with the right technological equipment, it can be collected, transformed and used for reasonable purposes: with a single step of thousands of people, you can accumulate enough electricity to light up the same section of a public place [1].

This principle is well demonstrated by the paving slabs of the Pavegen Systems – a UK technology company that developed interactive floor tiles to convert footsteps into small amounts of electricity, data insights, and engagement points for businesses, global brands, and governments. The 60 cm by 45 cm plates can be installed on any horizontal surface: ground, pavement, etc. These plates work by absorbing kinetic energy and converting it into electrical energy. The flexible water-resistant stuff of the plates bends by 5 mm when pressed, the pitch kinetic energy is redeployed to the electromagnetic lithium generators, which are placed directly under the plate. They are capable of producing from 4 to 7 watts of autonomous energy in one step of a person.

Five Pavegen panels are capable of supplying night-time public lighting. The tile can also transmit data wirelessly, through the power of the steps, and hence can be integrated into smart city systems. Designed for maximum power return and data collection, durable and easy to install. It can be built into any place as a decentralized source for the purpose of power supply [2].

The surface consists of composite tiles and electromagnetic generators. When a person steps on it, their weight causes a vertical displacement of the upper surface by 5 to 10 mm, which creates pressure on the generators below, causing the electromagnetic mechanisms to rotate to produce current and data.

Pavegen system tiles have a built-in API wireless detector that transmits data on-line, providing insight into peak hours at the installation site, predicting people's movement trends and creating heat maps of the most visited locations (in case of laying large areas), track the location of people and the number of steps they took.

References

1. Тротуарная плитка, генерирующая электроэнергию [Электронный ресурс] / Повный А. – Электрон. Тестовые дан.: [б. и.], 2008. – Mode of access: <http://elektrik.info/main/news/1138-trotuarnaya-plitkageneriruyuschaya-elektroenergiyu.html>. – Date of access: 11.03.2023.

2. Официальный сайт разработчиков технологий и учёных [Electronic resource] / Mode of access: <https://www.wevolver.com/wevolver.staff/pavegen.v3> – Date of access: 11.03.2023.