The Design and Testing of an Ankle Induction Coil to Charge Devices During Movement

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Electricity plays an enormous part in our everyday life and in our communities. Electricity is used to charge electrical devices or appliances, heating, cooking and for lighting. These appliances, devices and lighting have become a need to society and the entire population. Electricity is a scarce resource to some individuals and something as simple as ensuring your phone is charged or your children have light to study are significant concerns, especially in undeveloped communities in rural areas. As a result people are left without power to charge their devices or for lighting. This paper details a plausible solution to help with the above mentioned problems; with regards to charging of devices (especially cell phones) or to provide light. The solution makes use of induction coils powered by neodymium magnets. The energy is stored and then can be accessed later when needed for charging of a cell phone or a USB LED light. In essence, the more an individual walks, the more energy can be harvested. Individuals may be encouraged to exercise and reap more energy and thus improving the individual's health through exercise. In addition after moderate deconstruction of the system, efficiencies of the modules was determined and iteratively optimised. Furthermore this is the first development in this field to be used to power external outputs.

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