Network-Based Piezoelectric System for Self Defense Shoe Mechanism

Asim, Muhammad Ayan (School: Scarsdale International School)

The purpose of the project is to help people worldwide that are affected by street violence to be able to defend themselves. Women safety is a big issue worldwide and there are self defense items available but you have to be skilled enough to use them and they can easily be used against you as well, you also have to keep them charged in order for them to work. People also often don't carry a taser or a pepper spray as they don't expect anything to happen. The project attempts to harvest the energy generated from pressure through piezoelectric shoes while walking and use that energy to light up a taser mounted on the tip of the sole of a shoe. The piezoelectric shoe sole is activated from a wireless remote button connected to the shoe, it is hidden and equipped with a safety lock, when pressed it can send a non lethal jolt of electricity from the shoe to the person it is in contact with, giving enough time to escape. Since piezoelectric materials only generate a small amount of energy thus it takes some time in order to build up that energy for it to be sufficient enough to power a low voltage taser. a few hours of walking with the piezoelectric system gives enough power to test the taser. Though an average human walks for around an hour in a day so the energy being stored will be enough for the taser to be charged and ready to be used. This project idea should be able to provide safety to women who tend to travel alone at night or who generally live in places where sexual assault or any other kind of assault is common.

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