

PROTOTYPE OF ELECTRIC ENERGY HARVESTING SYSTEM FROM PIEZOELECTRIC BASED MECHANICAL PRESSURE

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ABSTRACT

The development of an increasingly sophisticated era forces the world to always follow the necessary needs, one of which is the need for electricity. Currently, electricity is one of the basic human needs to support all daily activities. Most of the current electricity needs still use fossil energy fuels for the power generation system, so there is still a need for many innovations in the electricity sector, especially renewable energy. One of the innovations that can be done is to take advantage of the compressive force exerted by pedestrians. One of the devices that can be used to generate energy by compressive force is piezoelectric. In this research, a piezoelectric energy harvesting system is designed which is equipped with a 12x20 cm piezoelectric panel in series and parallel as well as an LTC3588 energy harvesting module and an MT3608 step-up booster module. The test results show the average stored electrical energy is Joule. The results show that a piezoelectric panel is pressurized with a weight of 52 Kg producing an output of 3.18 Volts, 0.02 mA and 0.26 mW of power, then at a weight of 64 Kg it produces an output of 3.9 Volts, 0.102 mA and 0.26 mW of power, while at a weight of 75 Kg it produces an output of 4.1 Volts, 0.12 mA and 0.5 mW power. So from the test results it was found that the heavier the load given to the piezoelectric panel, the greater the output obtained.

Keywords: *Piezoelectric, LTC3588 Module, Energy Harvesting System.*