THE APPLICATION OF PIEZOLECTRIC ENERGY AS CHARGING STATION CUSTOM BUILT TO PHILIPPINE JEEPNEY

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ABSTRACT

Piezoelectricity also known as pressure electricity is a renewable energy which is beneficial, as this energy for innovations will not risk harming the environment. Jeepneys, being categorized as the king of the road which has a lot of passengers riding in and out makes it more suitable for the said device due to its accessible to the public. The device is able to produce electrical power by the pressure of every footstep and weight of a person when seated when applied to piezoelectric devices installed in jeepney chairs and floor that is to be stored in a 12V battery. The construction of the mechanism consists of two seats that are supposedly joint and has a rolling mat. This is where the piezo transducers are placed, then followed a procedure in order to ensure that the mechanical energy which will be turned into electrical energy is enough to generate the charging station. The harvested energy from the piezoelectric generated seats and rolling mat was converted into electrical energy. The charge controller was used for the regulation of the generated voltage by the piezoelectric mechanisms before charging the battery in order to have management in the battery bank. The size of the piezoelectric rolling mat was considered in order to provide a better power generation output. The construction of the mat with regard to the comfort of the passengers was taken into great account. For the charging test of the seats, the average input battery percentage for the piezo battery measure is 4.67%. For the charging test of the mat, the researchers had three trials of exerting pressure through footsteps for one hour each for the accuracy and precision of the data. The average input battery percentage for the piezo battery measured 1.67%.

Piezoelectricity, Jeepney, Charging Station