

R&D PROJECT

Title of the project

Carreteras inteligentes de seguridad avanzada gestionada por tecnología piezoeléctrica

Acronym

ROADZ

Content of the project

One of the main problems to be solved as a priority by the different administrations is to reduce the number of accidents on the roads. Despite current campaigns, there are still black spots. Currently, most of the systems dedicated to implementing passive protection measures on roads are based on external energy sources (wind energy, solar energy or connection to the general electricity grid). Recently, pilot projects have been carried out using kinetic energy harvesting technology with piezoelectrics on the road to generate energy for use in traffic management (tolls, radars, etc.). In the case of the ROADZ system, the differentiation lies in the fact that the energy collected will be used by power devices to reduce road accidents.

General objectives

The main objective of the project is to develop a new autonomous system for accident prevention using piezoelectric energy generated on the road by passing vehicles. To this end, the following technical objectives have been established:

- Electrical energy generation by means of low-damping mechanical devices.
- Development of a component allowing electrical management: stabilisation, transformation and storage.
- Development of an electronic component that manages energy according to boundary conditions.

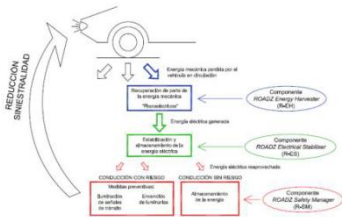
Results and conclusions

Once the prototype has been assembled, it can be affirmed that it works adequately, fulfilling the objectives for which it has been designed. The results obtained are as follows: the highest energy recorded is 2.309-10-4 J, and the highest efficiency obtained is 1.177-10-4 %.

Its main advantages are energy saving, easy implementation, low maintenance cost and finally, the most important one, the improvement of road safety.

After carrying out the necessary experiments, it can be established that it is much more cost-effective than conventional accident reduction measures.

Furthermore, the fact that the ROADZ system is based on a self-sufficient energy source will facilitate its commercialisation.



BUSSINESS AREAS
Infrastructure area
COMSA, S.A.

DURATION
2016-2018

BUDGET
498.735€

KEYWORDS
Piezoelectricity, autonomous system, pavement, safety, energy, accident rate

COORDINATOR
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EXTERNAL FUNDING

