

## SOLUTION FOR AN EQUIPMENT OF RAILWAY BRIDGE MONITORING

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**Abstract.** *This paper presents a solution for the railway bridges monitoring based on the use of already existing equipments in the railway installations and some new equipments based on photo-elements, as well. This kind of equipments can function in continue and discontinuous regime, means of them tracking down if the bridge piles suffered movements by different reasons. This aspect can put in danger the safety of the circulation on that bridge.*

**Keywords:** Safety of the railway circulation, muff, optical fiber, track circuit, relay

### 1. Introduction

In practice, the piles of a railway bridge can suffer displacements if they are coming in collision with big objects, like ships or because of the lack of the quality of the execution. This is a very dangerous situation which can lead at disasters, railway – naval accidents.

This equipment can be used as supplementary way to detect the bridge pile bridge displacement. In practice this is detected with two methods:

- using specialized sensors, like accelerometers, inclinometers;
- using trained personnel with safety of the railway circulation, which can monitor, in some situations, already mounted TV cameras.

*Safety of the railway circulation* is primordial, all the measures must be taken, for minimize the probability apparition of an accident.

There are situations in practice when the trained personnel can't be sent outside to check, that's why detection equipment is required.

Such an accident took place in the US and caused a lot of human victims.

In the *figure 1* it is a picture caught at the accident's place.

The mechanism of the accident was as follows: a big naval ship entered in collision with one of the bridge piles, thing which loosed the resistance of the bridge, but the railway line remained intact, but with bending. The train derailed on the bridge and the locomotive and some carriages reached into water. [1]

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