

### **3453. THE S.R.T. PROJECT: MOBILE ROBOTS FOR INSPECTION IN NUCLEAR POWER PLANTS**

The use of mobile robots is becoming increasingly widespread in industry in general, and in the nuclear industry in particular, in order to reduce exposure to radiation and increase load factors. Until recently general application mobile robots were adapted to meet the requirements of nuclear power plants and be able to carry out specific tasks, concentrating basically on potential and real emergency situations. Nevertheless, the robots available on the market at reasonable prices presented serious deficiencies in regard to remote control and the possibility for recurrent pre-programmed operations.

For this reason, ENDESA and IBERDROLA, the two major Spanish utilities with nuclear interests, set up an R&D project together with two major Spanish equipment manufacturers: CASA, from the aeronautics field, and ENSA, from the nuclear services field, and Spanish R&D centres: CEIT and CIEMAT. The objective of this project was to design, construct, and commercialize at low cost a family of mobile robots designed specifically for use in nuclear power plants. The first phase has been dedicated to surveillance and inspection tasks, while a second is foreseen for remote manipulation developments.

The following products have been achieved from the initial phase:

- ROBCAR: rail-guided carriage for standardized inspection head.
- ROBICEN: pneumatic suction cup-based wall climber for tank and pipe inspections.
- ROBMOC: compact steel-tracked vehicle for standardized inspection head.
- ANAES: Leakage or equipment failure detection system based on spectral analysis of ambient noise.

A detailed description of these products and of the experience gained in their use in Spanish nuclear power plants is included in this presentation.

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