

# **New fuzzy-Based Process Control System for a Bag-filter in a Cement Manufacturing Plant**

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## **Abstract**

During the last years, in industrial process control, requirements for Continuous Emission Monitoring (CEM) have increased significantly. Most plants are investing in CEM systems in order to burn waste, obtain ISO 14000 and 18001 certification to protect operator's life. In this work, our approach describes development of a novel internet and fuzzy-based CEM system (IFCEMS). This system contains operator's stations for the bag filter's automation system and monitored using Internet.

The object of the present installation consists of a suction ventilator, a bag filter and a system for collecting and evacuating the dust. To optimize the running of the bag filter workshop and ensure continuous control, the process based on one of the most powerful Artificial Intelligence techniques which is fuzzy logic involves the removal or filtration of smoke from the kiln and/or cement mill with control of temperature and pressure of the fumes.

## **Keywords (12 font)**

Fuzzy logic, Automation process control, Continuous Emission Monitoring, Cement plant.

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## **Biography**

**Hanane Zermane** is an engineer in computer science since 2003, Master in 2011 and a PhD student in Industrial Engineering in University of Batna-Algeria. He has published journal and conference papers. His research interests include manufacturing, simulation, manufacturing, automation, process control, fuzzy logic and expert systems.

**Hayet Mouss** was born in Batna, Algeria, in 1954. She received the B.Sc. degree in Electrical Engineering, in 1979, from the National Polytechnic School of Algiers, Algeria; the M.Sc. degree in Electrical and Computer Engineering, in 1982, from the ENSERB, France; and finally the Ph.D. degree in Electrical and Computer Engineering, in 1985, Bordeaux University, France. After graduation, she joined the University of Batna, Algeria, where she is an Associate Professor of Electrical and Computer Engineering. Pr. Mouss is a member of New York Science Academy. She is the head of Automatic and Computer Integrated Manufacturing Laboratory. Pr. Mouss current research interests include industrial Diagnosis of production system using the artificial intelligence techniques in the LAP Lab (Laboratoire d'Automatique et Productique) at Batna, Algeria.