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Intelligent waste management system for metalwork-copper industry

P. Aivaliotis[a], I. Anagiannis[a], N. Nikolakis[a], K. Alexopoulos[a]*, S. Makris[a]

[a]*Laboratory for Manufacturing Systems & Automation, University of Patras, Rion Patras, 26504, Greece*

* Corresponding author. Tel.: +30 2610 910160; fax: +30 2610 997744. *E-mail address:* alexokos@lms.mech.upatras.gr

Abstract

The circular economy paradigm requires new methods to design and operate manufacturing processes. In a production facility, reducing waste as well as optimizing waste management is of fundamental importance for companies aiming at adopting circular economy practices. This paper presents the concept of an intelligent waste management system for the efficient collection and recycling of industrial wastes, focusing on the metalwork-copper industry. The proposed approach facilitates the optimization of resource management in the waste collection process through the elimination of waste and the minimization of process variation, while, along with waste monitoring, consists of steps towards the creation of circular economy ecosystems. A software platform is proposed for receiving and storing waste data from the production, comparing them with expected statistical values and identifying abnormalities and/or deviations from pre-defined thresholds.

Keywords: Waste management; Circular economy; Platform; Sustainable production; Industry 4.0; Circular economy ecosystems;