RFID-based traceability system for architectural concrete

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Abstract

The main objective of the project described on this paper is to develop a traceability system for architectural concrete panels. The system should enable the traceability, both downstream, allowing to know the origin of the panels and which processes were followed for any panel installed in a building, and upstream, so it is possible to further analyze the processes followed by the panel to be installed. Therefore, the planning can be performed for optimizing processes and resources, and achieving an appropriate distribution of the timing, costs, etc. Techniques based on Radio Frequency Identification (RFID) are used for the tracking, we will develop a system customized for the product, so that, radiofrequency tags can be attached or embedded in concrete. The system has been implemented by means of using passive RFID tags in UHF band, specifically developed to work on architectural concrete. Besides, the design for a portable RFID reader with storage capacity and communication of the information obtained from the panels is proposed, as well as the integration of sensors for their geographic location, essential for the storing tasks in the factory.