A Real Time Monitoring System of the Supply Chain Conditions, Products and Means of Transport

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Abstract : Real-time monitoring of the supply chain conditions and procedures is a critical element for the optimal coordination and safety of the deliveries, as well as for the minimization of the delivery time and cost. Real-time monitoring requires IoT data streams, which are related to the conditions of the products and the means of transport (e.g., location, temperature/humidity conditions, kinematic state, ambient light conditions, etc.). These streams are generated by battery-based IoT tracking devices, equipped with appropriate sensors, and are transmitted to a cloud-based back-end system. Proper handling and processing of the IoT data streams, using predictive and artificial intelligence algorithms, can provide significant and useful results, which can be exploited by the supply chain stakeholders in order to enhance their financial benefits, as well as the efficiency, security, transparency, coordination, and sustainability of the supply chain procedures. The technology, the features, and the characteristics of a complete, proprietary system, including hardware, firmware, and software tools - developed in the context of a co-funded R&D programme- are addressed and presented in this paper.