Practice Abstract

Resilient data-driven and IoT-based services for improved tracing and tracking

Description

The digital transformation of many sectors, including agriculture and supply chain management, has significantly relied on the proliferation of IoT devices and the increasing availability of data-driven services. The complexity of those systems, however, can pose challenges in ensuring reliable and resilient tracing and tracking capabilities of the transported commodities. Leveraging IoT technologies through a data-driven framework that is capable of handling unexpected events with accurate and timely information is an essential design principle. Watson proposes two basic key components:

1. Implementation of the WATCHER component that:
    a. Establishes the Message Queuing Telemetry Transport (MQTT) connectivity. It is responsible for establishing and maintaining connection with the MQTT server.
    b. Enables subscription to the topics. It is responsible for the subscription to specific MQTT topics where IoT sensing devices publish their data.
    c. Performs data collection. It is responsible to identify and extract the actual information from the MQTT payload.
2. Implementation of the Electronic Product Code Information Services (EPCIS) component that:
    a. Conducts the data processing. It is responsible for aligning with the EPCIS standard by aggregating the data over time intervals.
    b. Performs data control and check. It ensures whether the collected measurements are within the specified ranges and performs checks to validate the data.
    c. Stores the data.

Practitioners can use this to optimise routing and scheduling of the food commodities transportation through data-driven decision making, resulting in cost savings for the operations, improved business continuity, increased competitiveness, better compliance management, and adaptability to changing market conditions.

Author(s)

Apostolos Apostolaras
Center For Research & Technology
apaposto@gmail.com

Stakeholders

Food Industry
Food Safety Authorities
Policy Makers
Consumers
Academic and Research Community
Industry Association
Trade Organizations
Technology and Data Analytics Experts
Supply Chain Partners

Country

Worldwide

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A holistic frameWork with Anticounterfeit and inTelligence-based technologieS that will assist food chain stakehOlders in rapidly identifying and preveNting the spread of fraudulent practices

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About Watson

Watson is a 3-year project funded by the Horizon Europe programme, aimed at tackling fraudulent practices in the food supply chain. Our interdisciplinary consortium of 47 partners from 20 EU and non-EU countries is collaborating to develop a holistic traceability framework that integrates data-driven services, intelligence-based toolsets, and risk-estimation approaches, enabling food safety authorities to detect and prevent food fraud more effectively.

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