

A Predictive Unmanned Aerial Vehicle Maintenance Method: Using Low-Code and Cloud-Based Data Visualization

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Abstract

Demand for Unmanned Aerial Vehicle (UAV) usage in various industries rapidly increases from one year to another. The Federal Aviation Administration (FAA) anticipates that the number of commercial drones will increase to 1.44 million by 2025. But at the same time, there is a growing concern about UAVs' electrical, mechanical, and system reliability. The problem is that those reliability issues can interfere with safe operations and may lead to accidents due to malfunctions during flight. One of the effective ways to solve the reliability issues is to improve the UAV maintenance method. For this purpose, we first review existing UAV maintenance methods and investigate technologies utilized for the current maintenance in the aviation industry. Second, we propose a Cloud-Based and Low-Code Predictive Maintenance Method (CLPMM) that uses a low code development platform and Azure Cloud Services. Third, we compare each technology of the existing maintenance methods with the CLPMM to verify the benefits. Lastly, we discuss the strengths and weaknesses of the CLPMM.

Keywords: Low-Code Development Platform, Cloud Computing, Cloud-Based Predictive UAV Maintenance Method

A full and updated manuscript of this Abstract appears at <https://jisar.org>