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Advances in Sustainable Materials and Resilient Infrastructure

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Chapter 5

Development of a Machine Learning-Based Drone System for Management of Construction Sites



Kundan Meshram  and Narala Gangadhara Reddy

5.1 Introduction

In order to manage construction sites, a large pool of labours, managers, site engineers, construction agencies, etc., are required. It is not easy to track the work done by these parties due to the following issues still persistent with old construction methodologies:

- Lack of stock measurement technologies for soil, cement, stone, etc., during unloading and usage.
- Lack of equipment for daily tracking of consumables.
- Incorrect evaluation of site progress on a daily basis.
- Real-time measurement of construction quality and deployment of correction processes.

In order to tackle these issues, structural researchers have devised different plans which involve work package analysis, deployment of progress monitoring rules and devices, management of different planning interfaces, progress reporting protocols, management of risks, and mitigation of issues. A flow diagram that indicates the connections between these components can be observed from Fig. 5.1, wherein all these components are seen to be connected in a circular manner, indicating continuous management of these components.

In order to deploy these architectures, a wide variety of systems have been proposed by researchers. A review of these systems is done in the next section, which allows readers to evaluate best practices for each of these steps. This is followed by the

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