

Build a Technology Driven Approach to Lower Construction Costs and Shorten Project Timelines

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Abstract:

In today's dynamic environment, traditional methods often face challenges that impact both cost and project timelines as changes in the design plans during construction can disrupt workflow, causing delays and additional expenses. An inadequate project management method leads to wastage of resource allocation, affecting cost and time. To enhance the construction process, we propose combining AI/ML and 3D printing technologies, providing a solution to address challenges in the building sector. When loaded with construction material the machine initiates printing of specified architectural design. With the performance of this technology, we can ensure continuous evaluation for precise project excellence and quality. The sequential manufacturing process enables swift and efficient construction,

which results in reduced project timelines. Using machine learning algorithms within the system enables real-time identification of printer defects in data, resulting in reduced waste and advanced prints. In construction field, the development of 3D printing technology shows great potential for transforming conventional building techniques. Implementing this revolutionary strategy not only saves time and money but also strengthens buildings, allowing more environment friendly construction. This technology contributes to ecological conservation by minimizing waste, unlike predictable construction practices. It enables the creation of more complex and customized designs, introducing a novel construction perspective that assists in the development by surpassing traditional methods, fostering innovation potential.