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(57) Abstract :

ABSTRACT In the manufacturing industry, in the early stages of product development, the defect or fault has to be identified. After completion of the manufacturing, when found defect or faulty product, it may lead to financial loss in the case of micro-scale products. For industrial prototype, the 3D-printing enables it to iterate the prototype number of times when there is a change in the concept or idea of the designer without much loss, wherein actual manufacturing using the machinery in industry costs more and wastage of material. Alternatively, there will be a need to recycle a method that has to be adopted or dispose of waste. In this process, the parameters are monitored, and the training sets are obtained from the different sensors to capture the desired data. Once capturing the training set, the desired features are extracted. Next, the machine learning algorithm, which is the communication and interaction of machine to machine, is deployed with an appropriate algorithm. The algorithm suggested is the K-Nearest Neighbors algorithm, which correlates the trained data set with the test data and give predictions. From the predictions given by the process, the user can analyze the data whether it is tolerable and continue with the process of printing in the 3D-printer or to halt the process of printing and check the corresponding feature and make changes to it and start the process again. This model of the concept or idea costs less, comparatively testing by manufacturing the component in the industry directly with machines.

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