**Literature Survey:**

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| **Sr. No** | **Title of Paper** | **Name of Authors** | **Published Year** | **Remarks** |
| 1. | Handwritten Digit Recognition using Machine Learning Algorithms | S M Shamim, Mohammad Badrul Alam Miah, Angona Sarker, Masud Rana. | 2018 | Waikato Environment for Knowledge Analysis (WEKA) is a prominent suite of machine learning which is written in Java |
| 2. | Handwritten Digit Recognition of MNIST dataset using Deep Learning state-of-the-art Artificial Neural Network (ANN) and Convolutional Neural Network (CNN) | Drishti Beohar, Akhtar Rasool. | 2021 | Convolutional Neural Network and Artificial Neural Network are trained and tested with the MNIST dataset. The ADAM optimizer was used for decreasing the loss. |
| 3. | Handwritten Digit Recognition Using Various Machine Learning Algorithms and Models | Pranit Patil, Bhupinder Kaur. | 2020 | Convolutional neural network (CNN) accuracy increase to the 99.89%. Similarly, Double Q learning algorithm also given high accuracy only in MATLAB dataset. |
| 4. | Handwritten Digit Recognition using Machine and  Deep Learning Algorithms | Ritik Dixit,  Rishika Kushwah,  Samay Pashine. | 2021 | handwritten digit recognition using MNIST datasets, based on deep and machine learning algorithms. Convolutional neural network (CNN) deep learning algorithm is used. |
| 5. | Handwritten digit recognition using OpenCV and CNN | Swetha, Hithaishi,  Tejaswini, Parthasaradhi, Venkateswara Rao. | 2021 | they used conventional neural network (CNN) and OpenCV, a machine learning library for HDR. |