Predicting Machine Failure

Most manufacturing factories have a quality control unit that oversees the predictive maintenance. Failures can occur due to wear and tear of the machine over prolonged use. The problem is to capture the failed unit before it can cause more failures downstream.

The goal of this project is to predict the failed unit.

The data presented here is from a quality station of a manufacturing plant for one device.
There are 219 parameters measured for each device.
Machine_State column provides information on whether the machine passed or failed the quality checks.

We want to implement a machine learning algorithm to detect a bad device using the available 219 parameters. Additionally, it is known that the cost of a bad device passed in the station which fails in the field is $5000 and the cost of testing a good device classified as bad is $500.