STUDY OF THE MEWMA CONTROL CHART IN DETECTING SHIFT IN THE MEAN PROCESSES PRODUCTION

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Abstract :

One of the tools used to control a wide range of production quality control process is the control chart. Control chart can detect the signal out of control when there was a shift in mean and variance. Univariate control chart is a control chart that can monitor the mean and variance of the production process which has only one quality characteristic. Due to the fact that many production processes have more than one quality characteristic, then developed multivariate control chart.

There are several types of multivariate control charts such as Hotelling and Weighted Multivariate Exponentially Moving Average (MEWMA). In this final described how the formation of MEWMA control chart, which will then compare the performance between MEWMA and Hotelling control chart in detecting a shift in process average. Comparisons between the control chart based on the value of Average Run Length (ARL) of each control chart, to obtain a more sensitive control chart to detect an average shift production process.

From the analysis has been done, the map MEWMA control ARL value is smaller than the Hotelling control chart with ARL the best value lies in the weighting value. So it can be said that the map control MEWMA is a more effective control chart used in detecting a shift in process average than Hotelling control chart.
Keywords: EWMA, MEWMA, Hotelling, Vector Mean, covariance matrix, in-control, out-of control