# Multivariable PID controller design tuning using bat algorithm for activated sludge process

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**ABSTRACT**
The designing of a multivariable PID control for multi input multi output is being concerned with this project by applying four multivariable PID control tuning which is Davison, Penttinen-Koivo, Maciejowski and Proposed Combined method. The determination of this study is to investigate the performance of selected optimization technique to tune the parameter of MPID controller. The selected optimization technique is Bat Algorithm (BA). All the MPID-BA tuning result will be compared and analyzed. Later, the best MPID-BA will be chosen in order to determine which techniques are better based on the system performances in terms of transient response.