Routing problem becomes a problem that is often discussed. Minimize the time, vehicle, or shipping costs become the main focus. In this study, Firefly Algorithm (FA) to forming the optimal route for police patrol problems. The patrol route becomes important to be optimally formed to be effective in cracking down on crime and maintaining security. By adopting a multi-agent police patrol, this study uses two steps: the grouping of Hotspots of Criminal Case using the K-Means Algorithm to limit the Police Agent's patrol and Firefly Algorithm patrol areas as an algorithm to establish an optimal route. As a result, users still get optimal route results even with different parameter values. Based on the convergence result, the three scenarios with parameter values are bigger than other scenarios, are Alpha value: 0.3, Beta: 1.5, and Gamma: 0.45 are superior to make optimal route on two clusters A4 and A5 with total time the average execution is less that is 558862.4 microseconds.


Index Terms

Computer Science Algorithms
Keywords

Firefly Algorithm, K-Means Clustering.