

TABLE I. THE PERFORMANCE COMPARISON BETWEEN PFACO AND ACO

Table Head	Cross Reference		
	Path Length	Cost	Duration
ACO	43.562	230.084	12.31
PFACO	36.213	227.142	11.45

Through the data in TABLE I, the result shows that PFACO has a better solution than ACO. The PFACO searching length is 36.213, duration is 11.45s. Compared with ACO, PFACO has more advantage in global searching with lower cost and time. What's more, PFACO complete inherit the ability of ACO, and can fit for any environment mission.

VIII. CONCLUSIONS

This paper main contributed on the foundation of the UAV automation navigation. Because of the compatibility and the disadvantage of ACO, we combine the ACO with APF to find a better path in shorter time. Through the connection in UAV with obstacles, the improved method uses the potential field as the information of heuristic. From the results, it shows that PFACO can effective overcome the local optimal and premature. What's more, speed up the searching ability. With the help of the evaporation strategy of MMAS improve the ability of global searching to have a better convergence. And the simulation also shows the safety and reliable path planning of PFACO. As to PFACO path planning is based in known environment, it can't handle the external environment. Therefore, the method needs further sensor to handle the random condition, and let automation navigation come true.

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