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***Abstract*— This paper describes multi-robot foraging in an unknown environment with an unknown number of sources and single sink (home). The goal is to effectively allocate robots to sources with least interference and maximum rate of resource collection. The navigation between source and sink is achieved by using trails of virtual landmarks inspired from ant-like trail laying behaviour.**

The algorithm is tested in simulation with varying number of robots and sources. The result indicate that our method achieves near optimal allocation of robots to different sources.

I. INTRODUCTION

We present an algorithm for the classical *resource transportation* task in an unmapped environment. Robots start from arbitrary positions and search for a supply of resources. On reaching the source, they receive a unit of resource and return home with it, then return to fetch more resource repeatedly for the length of a trial [**?**]. Our main focus in this paper is finding task allocation that maximizes the rate of collection of the resources (our throughput) and with minimum congestion in trails. These two goals are mostly overlapping, hence we achieve the former by trying to solve the latter.

The navigation is based on Spread-Out localization-space trails (SO-LOST) [**?**] where robots generate and share tails of waypoints labelled with their destination. This algorithm, however, converges to a single "best" trail with shortest source to home distance. This solution can be sub-optimal if we have numerous robots and multiple sources as the converged source-home trail is badly congested and allocating robots to difference sources has better throughput.

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$$\alpha + \beta = \chi \tag{1}$$

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TABLE I

AN EXAMPLE OF A TABLE

One	Two
Three	Four

We suggest that you use a text box to insert a graphic (which is ideally a 300 dpi TIFF or EPS file, with all fonts embedded) because, in an document, this method is somewhat more stable than directly inserting a picture.

Fig. 1. Inductance of oscillation winding on amorphous magnetic core versus DC bias magnetic field

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V. CONCLUSIONS

A conclusion section is not required. Although a conclusion may review the main points of the paper, do not replicate the abstract as the conclusion. A conclusion might elaborate on the importance of the work or suggest applications and extensions.

APPENDIX

Appendixes should appear before the acknowledgment.

ACKNOWLEDGMENT

The preferred spelling of the word acknowledgment in America is without an e after the g. Avoid the stilted expression, One of us (R. B. G.) thanks . . . Instead, try R. B. G. thanks. Put sponsor acknowledgments in the unnumbered footnote on the first page.

References are important to the reader; therefore, each citation must be complete and correct. If at all possible, references should be commonly available publications.

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