Multi-Agent Systems Coursework Report

Abstract

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Introduction

This project tackles the “smartphone supply chain problem”, a computing problem focused on the automation of the manufacture and sales of mobile phones. The problem takes place from the perspective of a mobile phone manufacturer, who needs to buy parts from their suppliers, take orders from customers and then construct telephones based upon their orders with the parts in stock. The crux of the problem is maximising profits and minimising squandered time through the use of computing solutions. This is important in the current market due to the ongoing “arms race” to automate every part of the supply chain, allowing businesses to be more efficient in their processing with the aim of landing higher net profits. The automation allows for a reduction in unnecessary staff as well as improving the efficiency and accuracy of tasks, such as finding parts at the best price from suppliers, at the cost of the lump sum development cost of a system to undergo the process.

There are various potential approaches to tackling the automation, however the one of interest with this project is using multi-agent systems.

Model design

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Model implementation

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Design of manufacturer agent control strategy

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Experimental results

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Conclusions

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References

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Appendix 1: ontology

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Appendix 2: communication protocols

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Appendix 3: source code

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