

Collaborative Research Programme Project Definition (1 of 2)

Project Number:	SWE002
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Project Title:	Application of Multi-Agent Systems (MASs)
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Relation to Research Areas:
Intelligent Agents

Background of Project Provider:
Jade Software Corporation is the main beneficiary of this project, due to them proposing the project and providing the funding to support the project.

Statement of Need:
<p>Jade Software Corporation has special interest in logistics applications. Current offerings include the Jade Master Terminal and Jade Investigator products (www.jadeworld.com). It has also developed several important bespoke applications around administration and control of transportation vehicles for international companies operating in that domain.</p> <p>This includes the utilization of purpose built heuristics to enhance the benefits of its software solutions in the logistics industry. Intelligent agents have been identified as particularly suitable for this kind of applications.</p> <p>A Master's project has already been undertaken to research the use of Multi-Agent Systems within the application domain of Logistics and in particular, but not limited to, for managing the complex logistical activities within container terminals. Jade would like to take the findings of this project and extend it in to a follow on project to build on the original findings.</p> <p>A Multi Agent System consists of a number of goal-directed autonomous agents that are able to perceive their environment and react to changes. Although agents operate autonomously to achieve each individual goal(s), they collaborate and negotiate with each other to fulfill a common goal. The unique characteristics of agents (i.e. autonomy, social ability, reactivity and pro-activeness) lead the agent technology to be a promising solution to the container terminal management problem that is distributed, dynamic, and complex.</p> <p>Through the research project a number of issues were identified as having an impact on the working of a container terminal. Based on the findings of the master's project Jade would like to develop the findings of the original research to build on the use of multi-agent systems to overcome known issues, as identified in the research, as well taking a more in-depth investigation of other issues that can impact the efficiency of a container terminal.</p> <p>It is anticipated the research would take the original research into Multi Agent Systems, whilst identifying other Multi-Agent Systems techniques that can be of benefit in solving the identified issues.</p> <p>Through this research two outcomes are anticipated</p> <ol style="list-style-type: none">i. a more thorough understanding of how multi agent systems can be applied to container

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| ii. | terminal solutions
a comprehensive prototype which demonstrates the use of multi agent systems; with the prototype being able to identify clear opportunities for solution implementation in real time systems. |
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Potential for Follow On Work:

Dependant on the outcomes of the research, there is the potential of follow on work to build on the findings the research undertaken in this project or to investigate related other related areas.

Anticipated Duration:

The anticipated period for undertaking this project is 12 months, although the industry partner expects continuous engagement with the researchers, in order to make use of findings as early as possible and to transfer knowledge in the subject area to their staff and the WRC.

Project Budget:

\$??

(This is a nominal figure, the actually funding provided will be finalised once the project has been fully scoped.)

Key Dates:

Closing Date for Letter of Interest :	
Notification of Request for Full Proposal :	
Closing Date for Full Application :	
Notification of Award of Project :	

For further information Contact:

Jeremy Reece – Manager Wireless
Research Centre

Tel: +64 3 366 7001 ext 7871
Email: jeremy.reece@nzi3.com
Addr: NZi3, College of Engineering
University of Canterbury
Private Bag 4800
Christchurch, 8140

Appendices

Schedule A – Non-Disclosure Agreement

Schedule B – Intellectual Property Agreement