final report

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Prepared by: Gavin Inglis
Machinery Automation and Robotics

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Meat and Livestock Australia Limited
Locked Bag 991
NORTH SYDNEY NSW 2059

GM Scott automation support and capability building

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Abstract

The aim of the GM Scott Automation Support and Capability Building Project is to provide Gundagai Meat Processors (GMP) with 12 month post warranty MAR technical support for recently installed ROC 450 system. During this period MAR

- Conducted 3 service visits
- Installed and utilized MAR remote
- Provided GM Scott with MAR service tool (iPAD) and are continuing to develop APP's for the iPAD to be used for maintenance and service purposes.
- engaged GM Scott technical and maintenance staff so as to build capability on-site and allow long term internal GM Scott support of automation technologies.

Executive Summary

The aim of the GM Scott Automation Support and Capability Building Project is to provideGM Scott with 12 month post warranty MAR technical support for recently installed ROC 450 system. During this period MAR

- Conducted 3 service visits
- Installed and utilized MAR remote
- Provided GM Scott with the MAR service tool (iPAD) and are continuing to develop APP's for the iPAD to be used for maintenance and service purposes.
- engaged GM Scott's technical and maintenance staff so as to build capability on-site and allow long term internal GM Scott support of automation technologies.

It is evident from the body of this report that the objectives of this project have been achieved. As a result of this project MAR has been able to provide GMScott with:

- Properly maintained ROC 450 system robots
- Building of the capability and skills of the onsite maintenance staff in using, fault finding and maintaining the robotic system as a whole. Guy Chojnacki (Maintenance Manager) and Allan Baker (Electrician) are particularly engaged in ensuring that the robots run to the best of their ability.
- An effective MAR remote system that can be used to diagnose and rectify faults remotely

Recommendations moving forward on other technical support that should be pursued at GM Scott are the development of iPAD APPS customised to GM Scotts system and a further service contract to enable MAR to ensure the ROC system and recently installed Robotic Brisket Cutting system are properly maintained.

Contents

1 Project Objectives

This project will provide GM Scott with 12 month post warranty MAR technical support for recently installed ROC 450 system. During this period, MAR will engage GM Scott technical and maintenance staff so as to build capability on-site and allow long term internal GM Scott support of automation technologies.

12 Month Support Package includes:

- 12 month non warranty service & support for MAR ROC 450 system
- Three scheduled service visits per year
- 1 years MAR Remote RM – service provision
- MAR service tool (iPad)
- GMP staff participation during project
- Pre and post project reports

Scheduled Service Visits:

- Service & support for MAR installed ROC 450 system
- MAR will actively involve GMP staff to participate during each site visit as part of industry training and capability building.
- Three scheduled service visits per year
- Each service visit – duration 2 days on-site
- Includes travel, preparation & reports

1yr MAR Remote Service:

To complement service & support, MAR-Remote RM Service will be supply MAR Remote-RM enhanced service includes:

- MAR Remote – ALERT
  - o Will email system alerts to requested email addresses, “up to five (5) email addresses”
  - o Will monitor up to six (6) fault triggers and alert you by email automatically when triggered
  - o Will email a series of video if requested of the fault event as it occurs
- MAR Remote – LIVE
  - o Will allow webcam access to view a pre-set area of cell in real time
  - o Access for MAR and client
- MAR Remote – ONLINE
  - o Will allow a MAR Certified Programmer access to system hardware
  - o Enable monitoring of MAR Remote, Robot(s), PC’s, PLC’s and sensing systems.
  - o Enable minor programming/code changes of Robot(s), PC’s, PLC’s and sensing systems.

MAR Service Tool (iPad):

- MAR Enhanced support – iPad Service Tool
- iPad2 as complimentary tool with service contracts
- Service tool to communicate with MAR Support team
- Dedicated MAR – APP (under development)
- Use existing APPS – eg Face Time to communicate with MAR

- Request for Service Reports
- Manuals & equipment information

GM Scott staff participation during project:
MAR will actively involve GM Scott staff to participate during each site visit as part of industry training and capability building. Typical Staff members at GM Scott who will participate and who hold relevant skill sets required are:

- Guy Chojnacki (maintenance manager)
- Allan Baker (electrical maintenance tech)
- Joe Nolen (electrical apprentice)

Pre and Post Project Reports:
The project would include a short report on system performance before and after service, and staff participation at each site visit, and conclude with a report on final outcomes in terms of plant capability building, and usage of iPad and MAR Remote

2 Methodology

The scheduled services performed as part of this project will be performed by MAR trained technicians to optimise system performance and can prevent potentially costly downtime. Machinery Automation &Robotics' detailed inspection report keeps client informed about equipment and ensures that the performance has not been compromised. This service program will be tailored to suit GM Scott requirements and all effort will be made by MAR to utilise time on-site efficiently to maximise scope of work completed during each site visit.

MAR will service each system including:

- Robot System - robot manipulator, robot controller, teach pendant, protective bags and cable sets
- Process equipment – such as tooling, sterilisation and hoses
- Control Systems – main control cabinet, PLC, system sensors, solenoids & field cabling
- Safety Systems – emergency stops, light curtains, safety mats, safety gates switches and cabling
- System software & program backups
- Comprehensive report provided after each service "equipment status, recommended repairs, parts, process changes etc" MAR will work with and actively involve GMP onsite technicians to detail lists of responsibilities and to ensure that the entire system is regularly serviced. GMP participation during each site visit is part of industry training and capability building.
- During the first service the MAR technician will complete the detailed inspection report covering service items, typically the check list comprises of 6 pages for the robot system and up to 12 pages when including process equipment & control systems.

3 Results and Discussion

Service Visits

The three scheduled services that occurred as part of this Service and Capability Building project were carried out during March 2013, August 2013 and November 2013. The service reports for these services are attached as appendices to this report. As will be seen in the reports each service involved a comprehensive service reviewing:

- Robot System - robot manipulator, robot controller, teach pendant, protective bags and cable sets
- Process equipment – such as tooling, sterilisation and hoses
- Control Systems – main control cabinet, PLC, system sensors, solenoids & field cabling
- Safety Systems – emergency stops, light curtains, safety mats, safety gates switches and cabling
- System software & program backups

During each of these services personnel from GMP maintenance were involved, particularly Guy Chojnacki.

MAR Remote

MAR Remote was installed on site as part of the first service visit. The images below show the camera installed on the wall inside the boning room, the MAR remote computer located in the control room and the view from the camera viewed remotely from MAR's offices.
As with the previously installed MAR remote at Gundagai, connection of MAR remote at GM Scott to the MAR's server is being performed via a hard wired connection through GM Scott's network.

Fig.1 Image robots at GM Scott with the MAR Remote camera mounted on the wall in the back ground

Fig.2 Image of the MAR Remote PC mounted in the control room at GM Scott

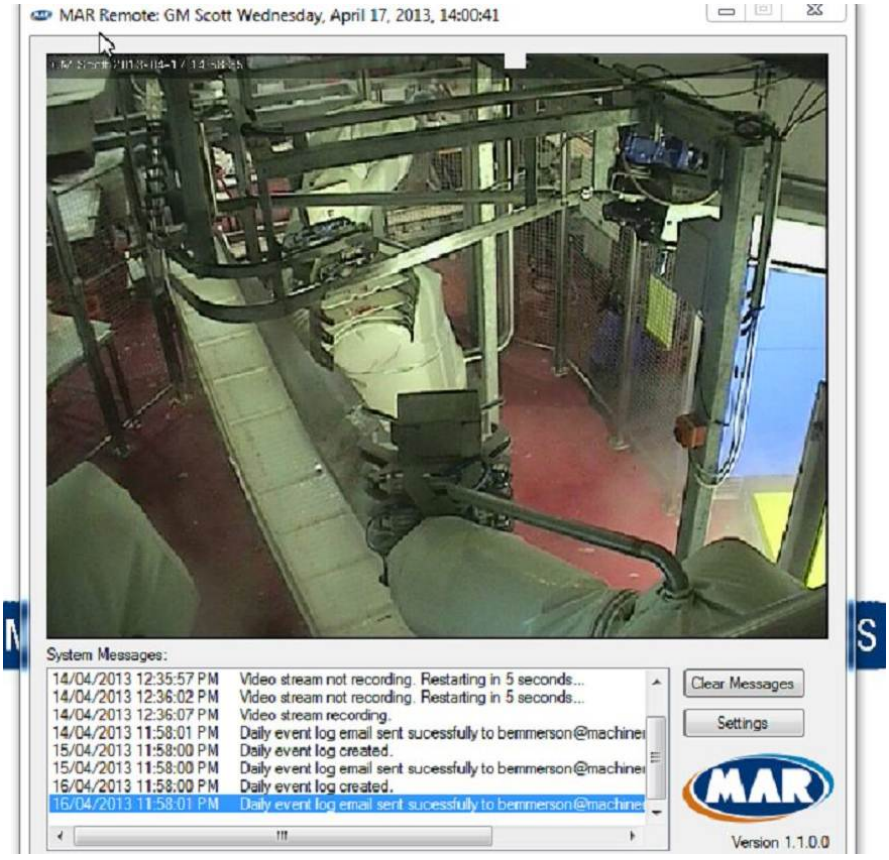

Fig.3 Image from the MAR Remote camera

MAR Service Tool (iPAD)

GM Scott have been supplied with the MAR service tool/ iPAD. The iPad contains all the system manuals and documentation and is setup with an email address which enables GM Scott to easily report any faults to MAR. App's are currently being developed for the iPad as part of project P.PSH.0625 Red Meat HMI iPAD APP. Once complete these Apps will be adaptable to GM Scott's site.

4 Success in Achieving Objectives

It is evident from the attached reports and the descriptions above that the objectives of this project have been achieved. As a result of this project MAR has been able to provide GM Scott with:

- A Properly maintained ROC 450 system
- Building of the capability and skills of the onsite maintenance staff in using, fault finding and maintaining the robotic system as a whole. Guy Chojnacki (Maintenance Manager) and Allan Baker (electrician) are particularly engaged in ensuring that the robots run to the best of their ability.
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Recommendations moving forward on other technical support that should be pursued at GM Scott are the development of iPAD APPS customised to GM Scotts system and a further service contract to enable MAR to ensure the ROC system and recently installed Robotic Brisket Cutting system are properly maintained.