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by Kristian Payne

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SGE 6003- Presentation 2 : Project Design, Implementation and Evaluation

Kristian Payne



Aims and Objectives

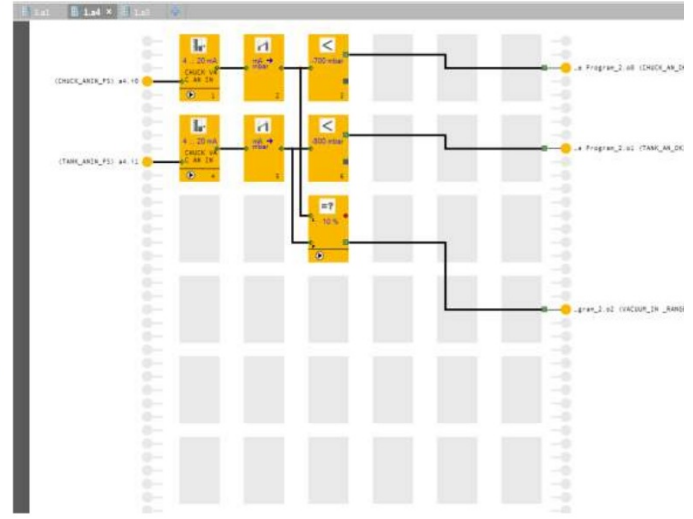
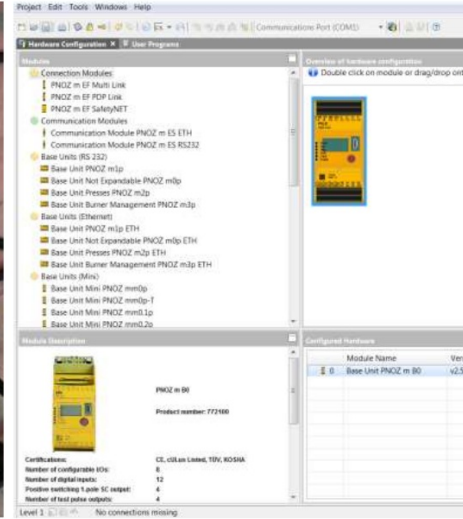
- **Modify and upgrade electrical vacuum system**
- Increase machine safety
- Increase machine reliability
- Decrease maintenance costs

Design details

Interface with machines NUM 1020 GS Controller



PNOZmulti
Configurator
10.11.0



Design details

- IFM PN2099 vacuum pressure sensors



Design details

- Redashe KH4 spring Retract vacuum hose reel



Design details

- M6AV4LR needle valve



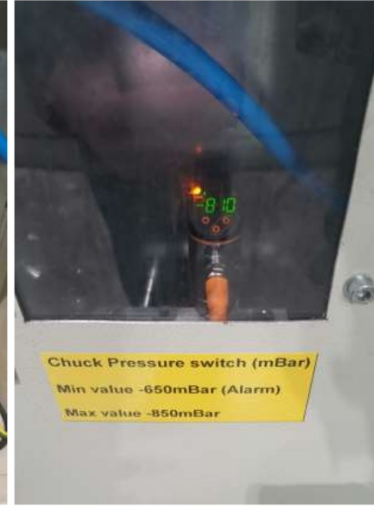
Four-part Construction phase

1. Simplified system in parallel with current system



Four-part Construction phase

2. Simplified system full installation



Construction phase

3. Advanced system installation:



Four- part construction phase

4.Full system installation:

- Full self-test functionality
- Operator feedback terminal



Testing

- Initial testing of vacuum measurement from chuck



Testing

- Test and commissioning Of each construction phase
- Full testing following test plan from report 1 on completion.

<u>Test step</u>	<u>Result</u>
1) Power up machine using panel isolator	Pass
2) Check all switches, sensors and indicators	Pass
3) Check status of machine	Pass
4) Check connections	Pass
5) Check operator controls	Pass
6) Check machine start-up	Pass
7) Check vacuum supply & measurement	Pass
8) Check vacuum pump operation & control	Pass
9) Check vacuum system	Pass
10) Check vacuum interlock operation	Pass
11) Check vac system operator visual feedback.	Pass
12) Functional program test	Pass

Conclusion

SGE6003- Presentation 2

Kristian Payne



Prifysgol Cymru

Y Drindod Dewi Sant

University of Wales

Trinity Saint David

FINAL GRADE

GENERAL COMMENTS

54/100

Instructor

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GRADING FORM: NEW CSG-RUBRIC

KRISTIAN
PAYNE

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1. ENGAGEMENT WITH LITERATURE

 Use of technical literature in final design solution: No mention during presentation but explained during questioning. Mainly based on company documents. Literature was not included in the presentation. (1/5)

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2. KNOWLEDGE AND UNDERSTANDING

 Introduction: Briefly covered, main aims presented. Aims and objectives given as modifying the electrical vacuum system to increase machine safety and reliability. (3/5) FDS: Briefly covered, main points of the FDS explained. Explained that solution must interface with the NUM 1020 GS Controller which is part of the existing machine. (3/5) Advanced knowledge and critical understanding demonstrated in the design of

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the project: Knowledge demonstrated in the machine operation and in the use of the software for programming the PILZ relay. Explained some of the main components to be used such as the Pilz safety controller, pressure sensors and hose reel. (5/10) Response to questioning: Some answers showed a good understanding, other lack clear quantitative data to ascertain the improvements made to the machine since the project was implemented. All questions were answered well and showed a good understanding of the wider issues. (6/10) Total = 17/30

3. COGNITIVE AND INTELLECTUAL

-  Testing and analysis of result: Table of results presented but lacked evidence to back up claims. Testing of each of the 4 stages was carried out, individual results not included in the presentation. (5/10) Critical evaluation of the project outcomes and comparison with the FDS: Some presented but lacking in detail. Review of machine performance required rework back to Stage 3. Solution met the FDS and has now been implemented by the factory. (6/10) Overall conclusions and recommendations: Briefly stated with some idea of future improvements and plans. Conclusions were given verbally with no accompanying slides. Project was a success and the project solution will be implemented on other machines at the factory. (6/10) Total = 17/30
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4. PRACTICAL APPLICATION

-  Formulation of innovative and creative design solution: A good solution was briefly outlined with some explanation of the PILZ program. Construction was divided into 4 stages; each stage was well explained stating what was done and why. (3/5) Deployment method, use of material, tools, equipment and techniques in the construction of the project: Some evidence presented that the project has been construction but much is missing to provide a full picture. (2/5) Quality of the final product or system: The end product appears to use high quality components but little evidence presented. Final product met local operating standards and has now been fully implemented at the factory. (3/5) Use of test equipment and presentation of results of the project: Little evidence presented of testing. (2/5) Management techniques and planning, comparison with initial plan: Some evidence explained in relation to Gantt chart, log book and management of change system. (2/5) Total = 12/25
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5. TRANSFERABLE SKILLS

-  Quality of the presentation slides: Good quality slides. Text on the slides was generally readable, however it was not possible to read the information on the schematic diagrams. (4/5) Quality of the delivery style: Good style but overran the 8 minutes by 2 minutes. Presentation was generally good and demonstrated a good working knowledge of the project. (3/5) Total = 7/10
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