

SGEL6000 Independent Project

DOUBLE MARKING SHEET AND COMBINED STUDENT FEEDBACK

Assessment 2 of 4

Presentation 1: Project Definition, Research and Quality Planning

2020-2021

Agreed mark

58

Student Name: Sean Jones

Student Number 1602826

<https://youtu.be/mgqGh7kmk68>

<https://youtu.be/i-VaZLwE53o>

Generic Assessment Criteria	Marks available	1st Marker (RD)	2 nd Marker (MH)	Agreed Mark
1. Engagement with Literature Skills.				
Section 1: Engagement in research, for project background (2/5) Some evidence present (RD) Limited reference to research. (MH)	5	2	2	2
Section 5: Engagement in research, for review of solutions (2/5) Good evidence present (RD) Limited sources used.(MH)	5	3	2	2
Total	10	5	4	4
2. Knowledge and Understanding Skills				
Section 1: Project background (4/5) Good, informative (RD) Good description given, but spent too much time on this. (MH)	5	3	4	4
Section 3: Project risks, health and safety etc (4/5) Clearly identified via PL rating (RD) Main risks to the project were from the choice of vision system and CV-19 lockdown (MH)	5	4	4	4
Response to questions 1 and 4 (5/10) Some good answers (RD) Some good answers, but vague on the specifics of several questions (MH)	10	5	6	5
Total	20	12	14	13
3. Cognitive and Intellectual Skills				
Section 1: Problem Definition and constraints (6/10) Some explanation given (RD) Explained with good detail (MH)	10	6	6	6
Section 2: Functional Design Specification (6/10) Stated briefly (RD)	10	6	6	6

FDS was explained, however this lacked some detail on specifics that would have been expected at this stage (MH)				
Section 4: Test planning (5/10) Some evidence (RD) A test plan was briefly discussed, however this lacked clarity of metrics on some tests (MH)	10	5	5	5
Response to questions 2 and 6 (3/5) Good responses given (RD) A little vague on some responses suggests that progress is behind schedule (MH)	5	3	3	3
Total	35	20	20	20
4. Practical Application Skills				
Section 5: Critical choice and justification of final solution (6/10) Limited explanations given (RD) 3 solutions given and grading of each was explained, justification for final choice was mentioned. Explained the discrepancy of the budget of £12,500, yet solution chosen only cost £91.56 (MH).	10	4	8	6
Section 6: Project Planning and working breakdown structure (5/10) Some explanation given (RD) Gantt chart and WBS used as planning tools, both of these lacked detail and were very basic in nature (MH)	10	5	5	5
Response to questions 3 and 5 (3/5) Good responses given (RD) Some understanding of the wider issues (MH)	5	3	3	3
Total	25	12	16	14
5. Transferable Skills for Life and Professional Practice				
All sections: Quality of the presentation slides – (4/5) Good (RD) All slides were clear and readable (MH).	5	4	4	4
All sections: Quality of the delivery style – (3/5) Generally good, time exceeded (RD) Confident and fluid, presentation was reasonably well-timed. (MH)	5	3	3	3
Total	10	7	7	7
Grand Total	100	56	61	58

Presentation 1602826

by Sean Jones

FILE	10202_SEAN_JONES_PRESENTATION_1602826_178787_2001397700.PPTX (585.12K)		
TIME SUBMITTED	08-JAN-2021 01:17PM (UTC+0000)	WORD COUNT	577
SUBMISSION ID	141246261	CHARACTER COUNT	2768

Customer Demonstration System

Independent project by Sean Jones

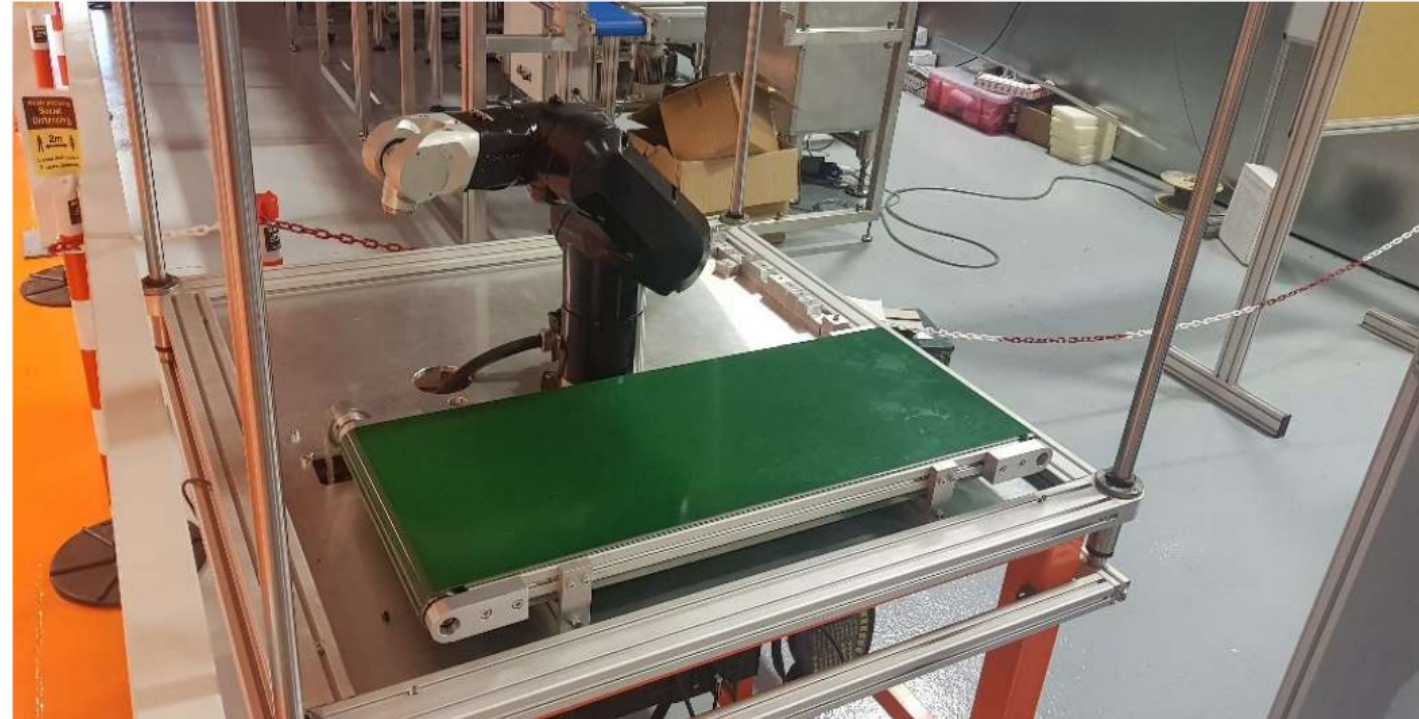
Background

- The company is automation based
- Clients aimed for will be medical and food industry
- A system attract more customers
- Have a system that shows the strengths of an automated system
- Include a robot
- Involve a vision system
- System must have an alternative function of employee training

Proposal

- A robot integrated to a camera sorting parts
- A conveyor will feed parts to a vision area
- Parts will be 20mm cubes and a 20mm x 20mm cylinder
- Robot will sort the parts that are fed onto conveyor

Existing System



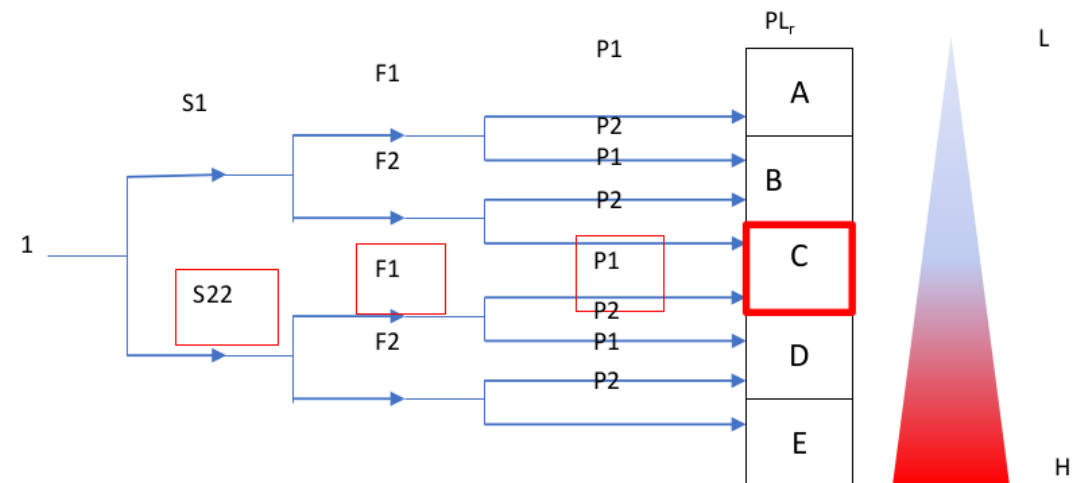
- Use an existing system which has a tx40 robot mounted to a frame and which has a conveyor as a starting point
- The project will require the electrical design, software of the robot mechanical design and the implementation

Functional Design Specification

- Robot is a Staubli tx40 with a CS8 controller
- Camera must be able to detect profile of parts
- Machine will have guarding with a door switch interlocked to the safety. This will stop auto movements but allow manual movements.
- E-stop will kill everything in the cell
- All electrical components will be contained in an enclosure
- Supply is 240vac less than 16A so a pce socket can be used
- Performance will have to be at least 20 parts per minute
- Be within the budget of £12500

Risks & Health and safety

- Vision system
- Covid19
- The machine is category 3 for safety

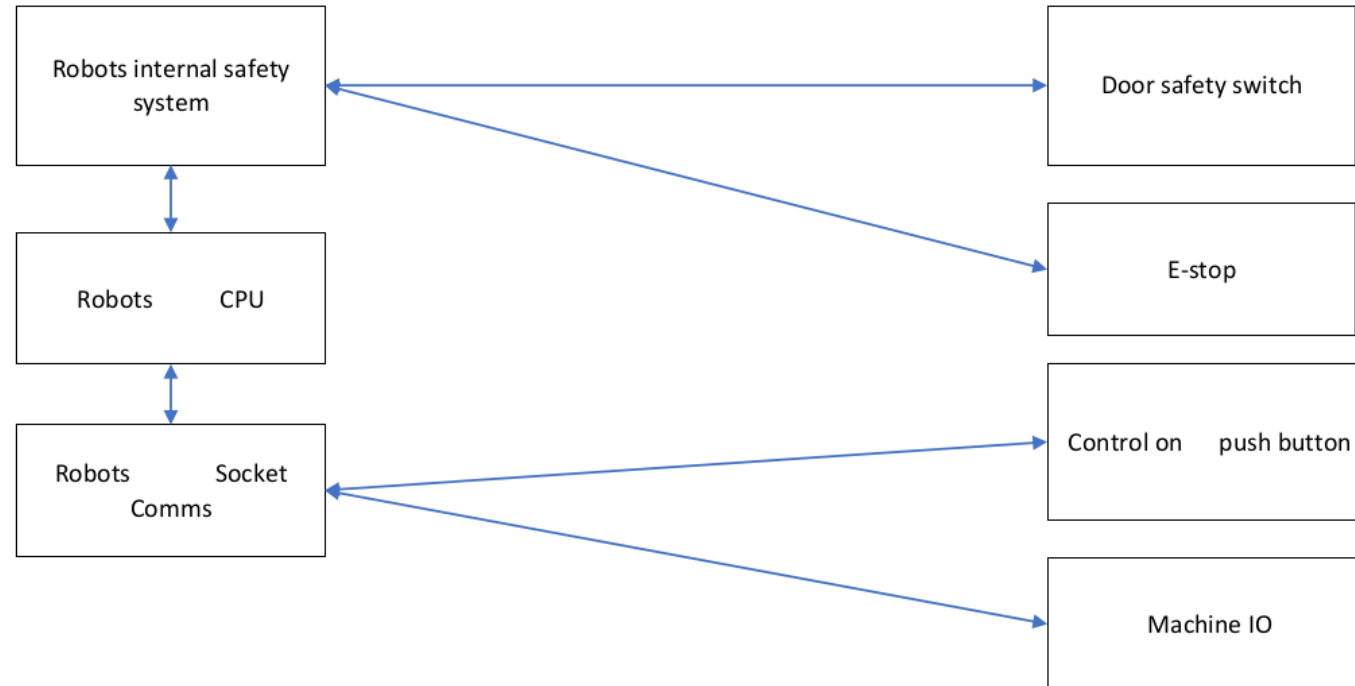


Test Planning

- Will ensure the specification is met
- Will ensure the machine is safe
- Will ensure the machine is to relevant standards

Solution 1

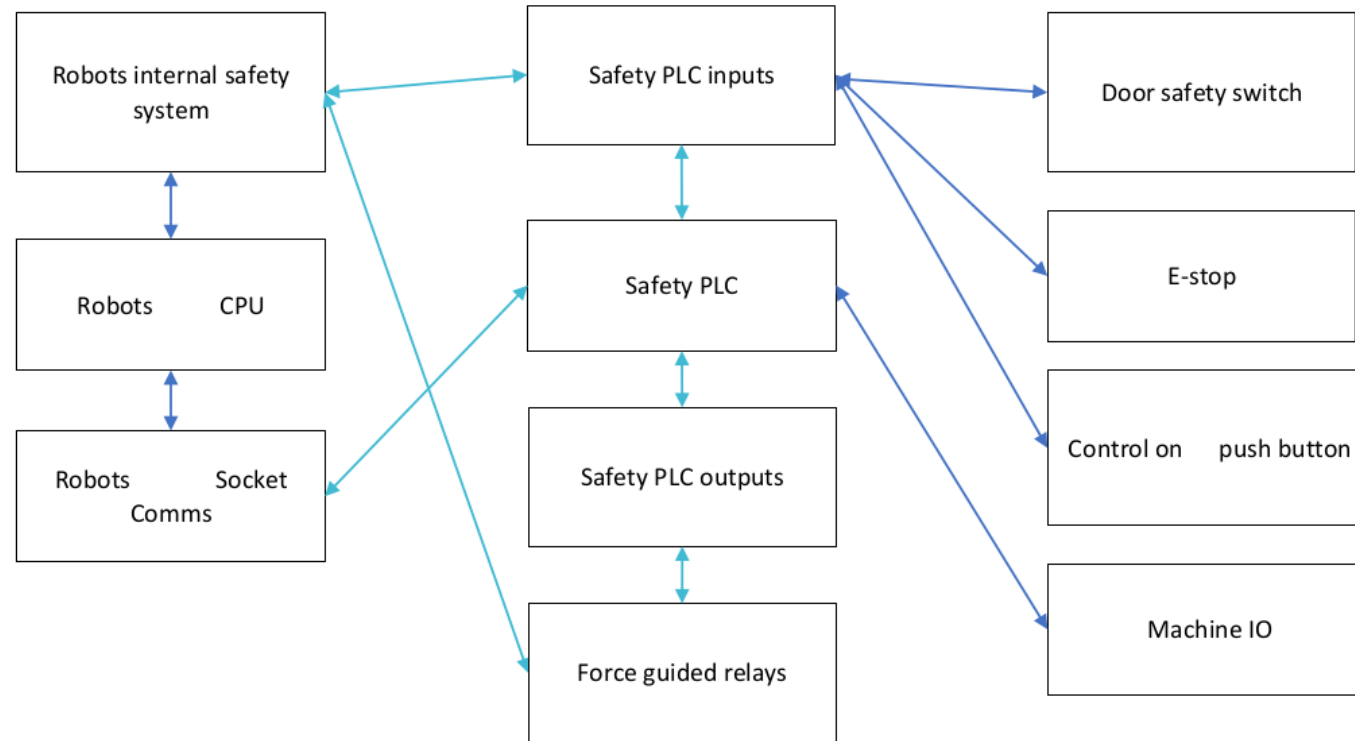
Using the robots internal safety system



- £91.56
- Category 3 safety
- Quick design
- No expansion if needed

Solution 2

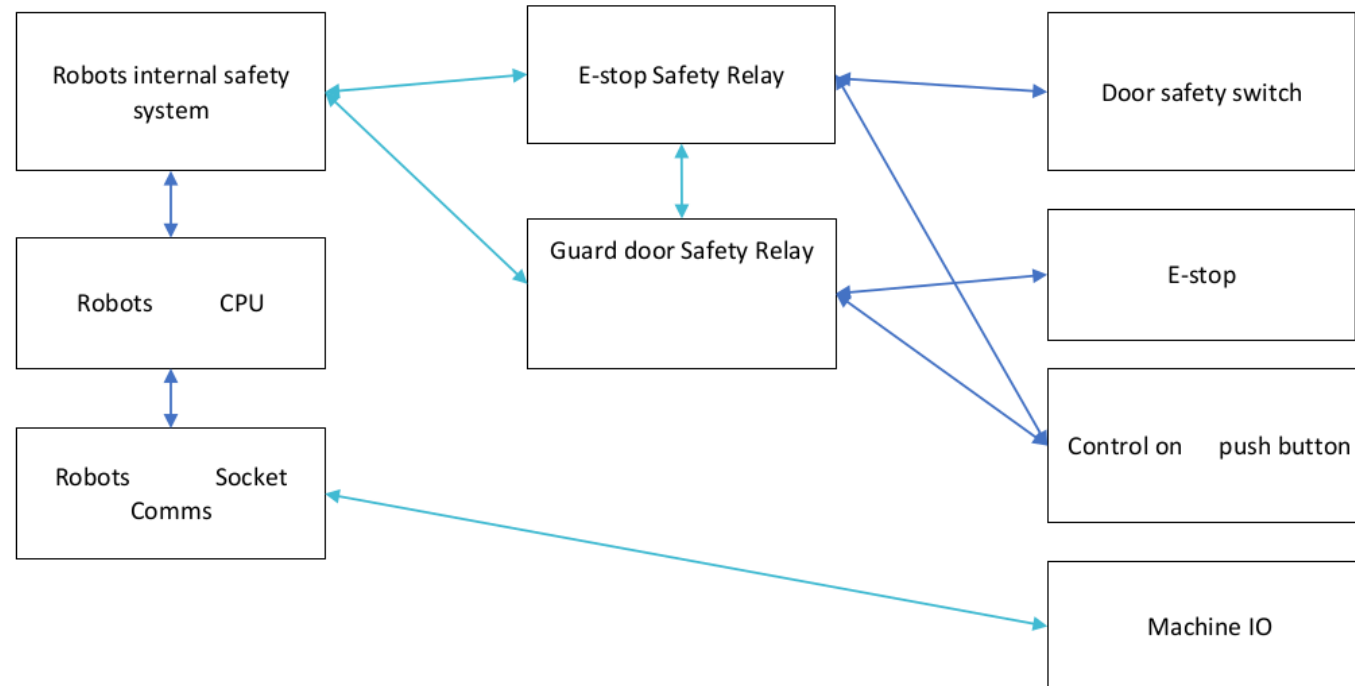
Using a safety PLC



- £1551.24
- Category 4 safety
- Quick design put takes longer to programme the system
- Room for expansion if needed

Solution 3

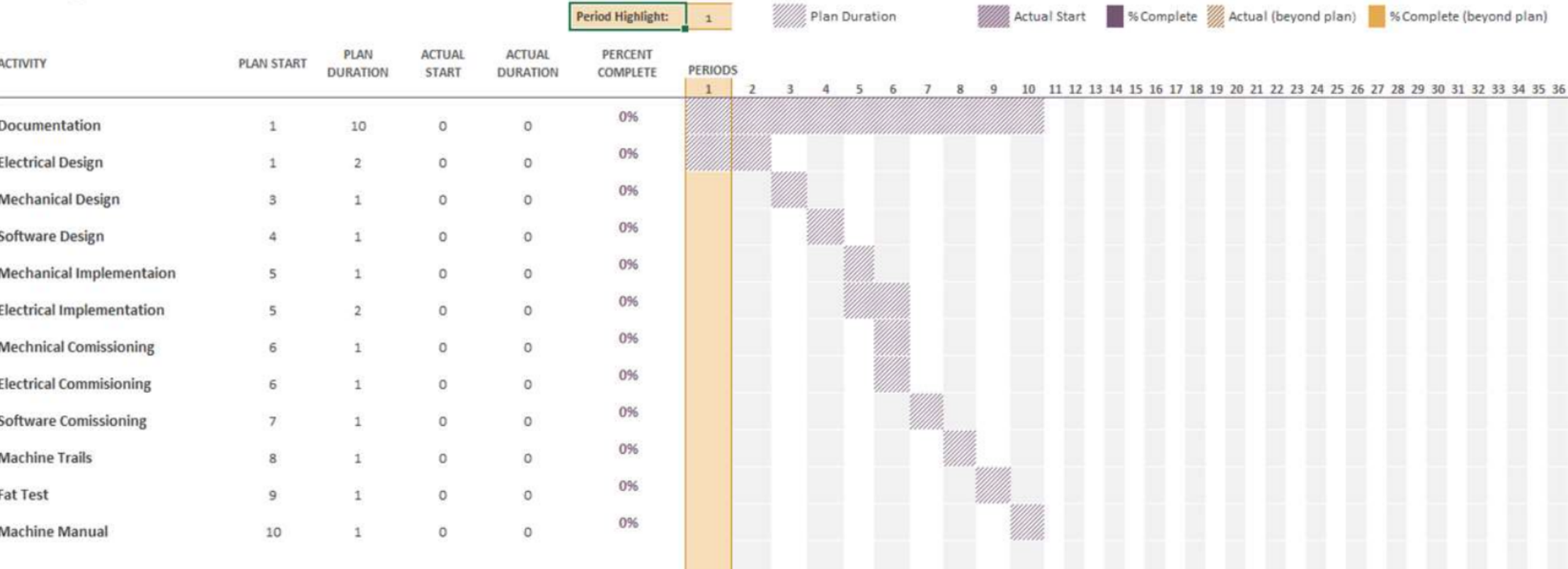
Using safety relays



- £148.48
- Category 3 safety
- Minimal programming required but a longer electrical design time
- Room for expansion if needed

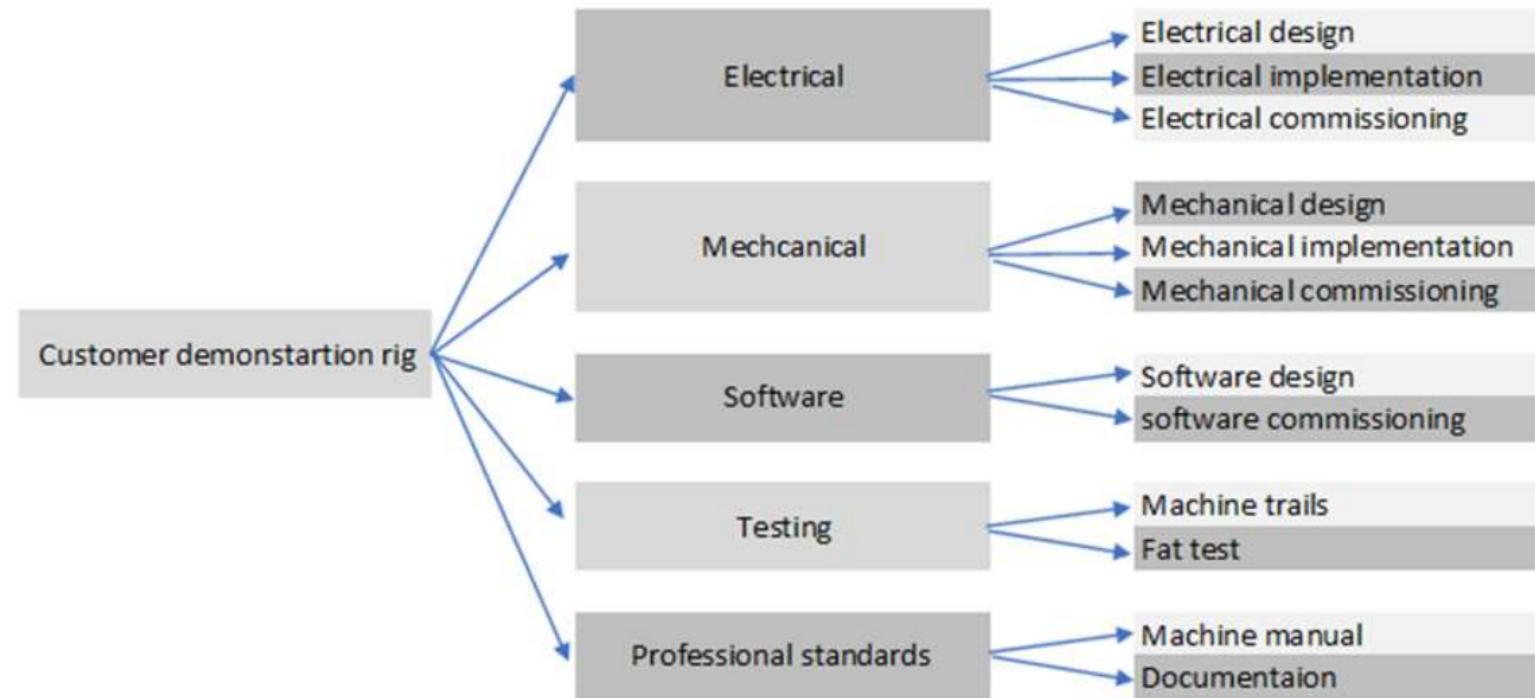
COMPARISON POINT		SOLUTION 1		SOLUTION 2		SOLUTION 3	
	SAFETY RATING	Category 3	2	Category 4	3	Category 3	2
	DIAGNOSIS	Basic robot diagnosis	1	If connected to PLC full diagnosis	3	Led lights flash to indicate fault	2
	COST	£91.56	3	£1551.24	1	£294.40	2
	TIME TO DESIGN	Basic circuit required	3	Circuit design is more involved than the robot but more time consuming	2	Longest time	1
	TIME TO INSTALL AND COMMISSION	Basic wiring and settings in robot	3	Wiring more involved than solution 1 put programming time is a lot more	1	Wiring is the most time-consuming part. Setting up just contains setting a dial	2
	FUTURE EXPANSION	Little ability for expansion	1	Easy expansion with just programming and adding IO cards	3	Expansion is possible but will require rewiring	2
SCORE			13		13		11

Project Plan



- Week 1 starts on the 4th of January

Work Breakdown Structure



Presentation 1602826

GRADEMARK REPORT

FINAL GRADE

GENERAL COMMENTS

58/100

Instructor

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SEAN JONES

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3. COGNITIVE AND INTELLECTUAL

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4. PRACTICAL APPLICATION

 Section 5: Critical choice and justification of final solution (6/10) Limited explanations given (RD) 3 solutions given and grading of each was explained, justification for final choice was mentioned. Explained the discrepancy of the budget of £12,500, yet solution chosen only cost £91.56 (MH). Section 6: Project Planning and working breakdown structure (5/10) Some explanation given (RD) Gantt chart and WBS used as planning tools, both of these lacked detail and were very basic in nature (MH) Response to questions 3 and 5 (3/5) Good responses given (RD) Some understanding of the wider issues (MH)

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5. TRANSFERABLE SKILLS

 All sections: Quality of the presentation slides – (4/5) Good (RD) All slides were clear and readable (MH). All sections: Quality of the delivery style – (3/5) Generally good, time exceeded (RD) Confident and fluid, presentation was reasonably well-timed. (MH)

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