

Jonathan Pulmans presentation

by Jonathan Pulman

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VISION CAMERA SYSTEM.



Jonathan William Pulman
15/10/2019

Problems and why?

Problem with quality concerns.

- . Missing parts
- . Damaged parts
- . Damaged bumpers
- . Missing welds

This is why the camera system is being fitted.
Mainly to focus on the Missing part used on
the bumper.

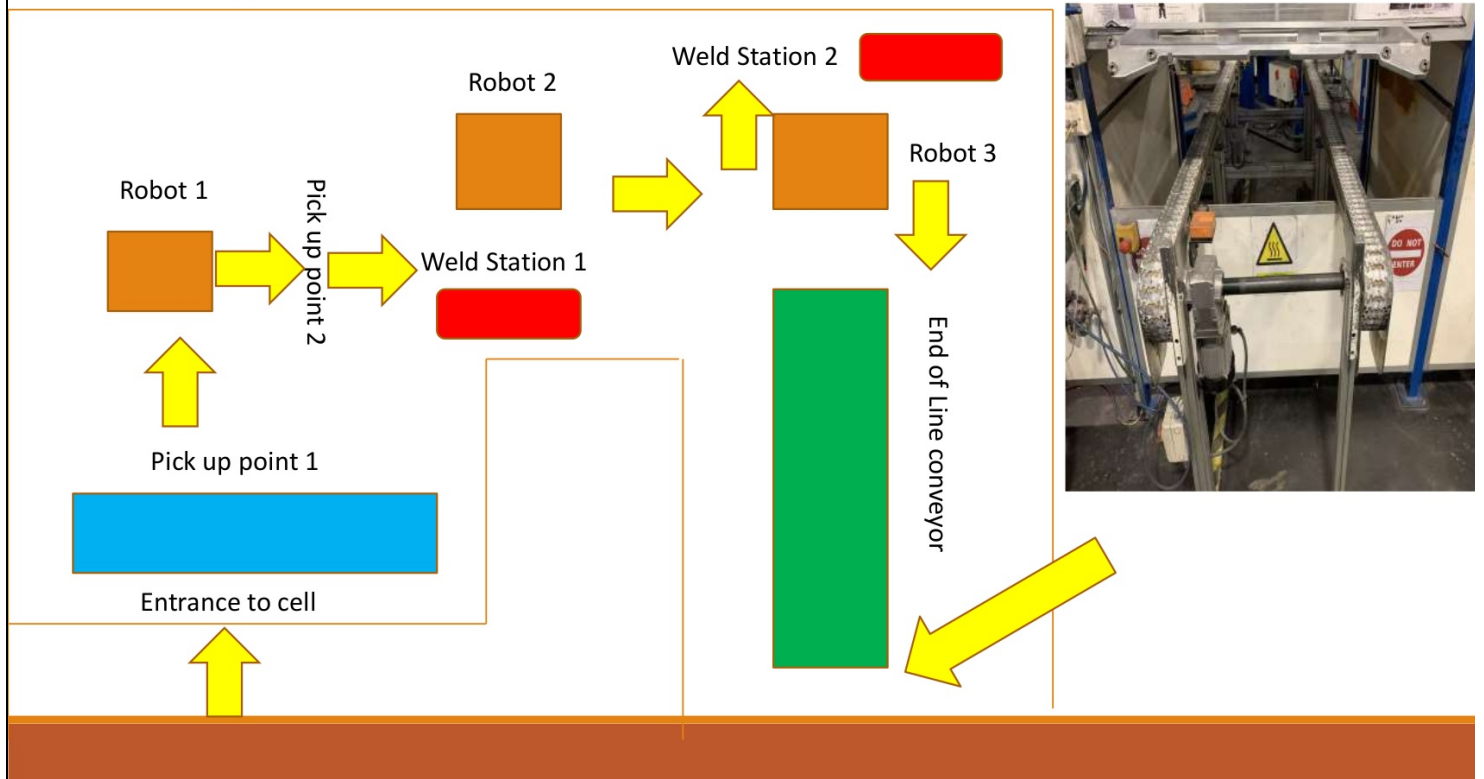
Image of cell



Type of camera fitted
Is a Keyence.



Block Diagram of cell



The Vision Camera System is to be used with the D2WO cell in the assembly part of the plant.



← Manual part for bumper.



End of line conveyor



← Camera fitted?
← Manual part on Bumper.



How the camera system will work.

The camera, once set up will be looking on a small part on the bumper which needs to be placed manually.



This tool detects the boundary between the bright and dark parts in an image. KEYENCE's proprietary edge strength optimization algorithm can be used to stably detect targets that have variations in edge contrast.

EDGE PIXELS



EDGE PRESENCE



WIDTH/HEIGHT



PITCH

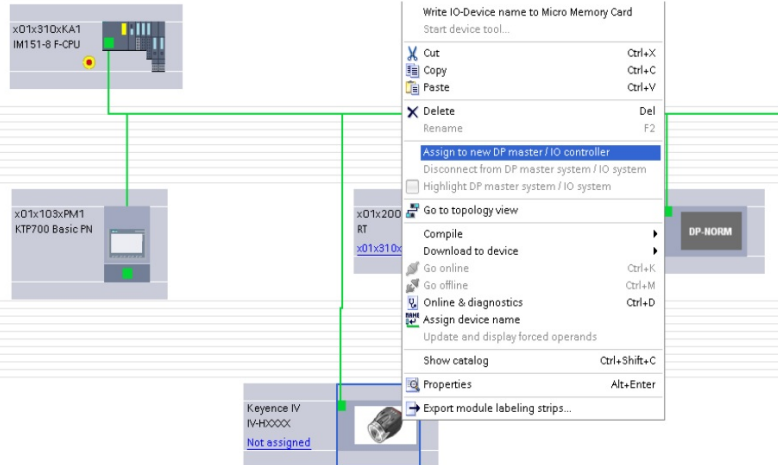


DIAMETER



Solution 1

Solution 1 will have the camera integrated into the PLC safety parameters of the cell.



Solution 2

The solution 2 would take the part off the conveyor and move it into a modified checking station. The reason this isn't being Used is due to cost and time to build and test.



Costs

Solution 1 - costs

PLC - £2188.39

Lights - £73

Sensor - £50.91

Sensor cables - £10

Camera - £800

Total = £3122.30

Solution 2 - costs

Lights - £73

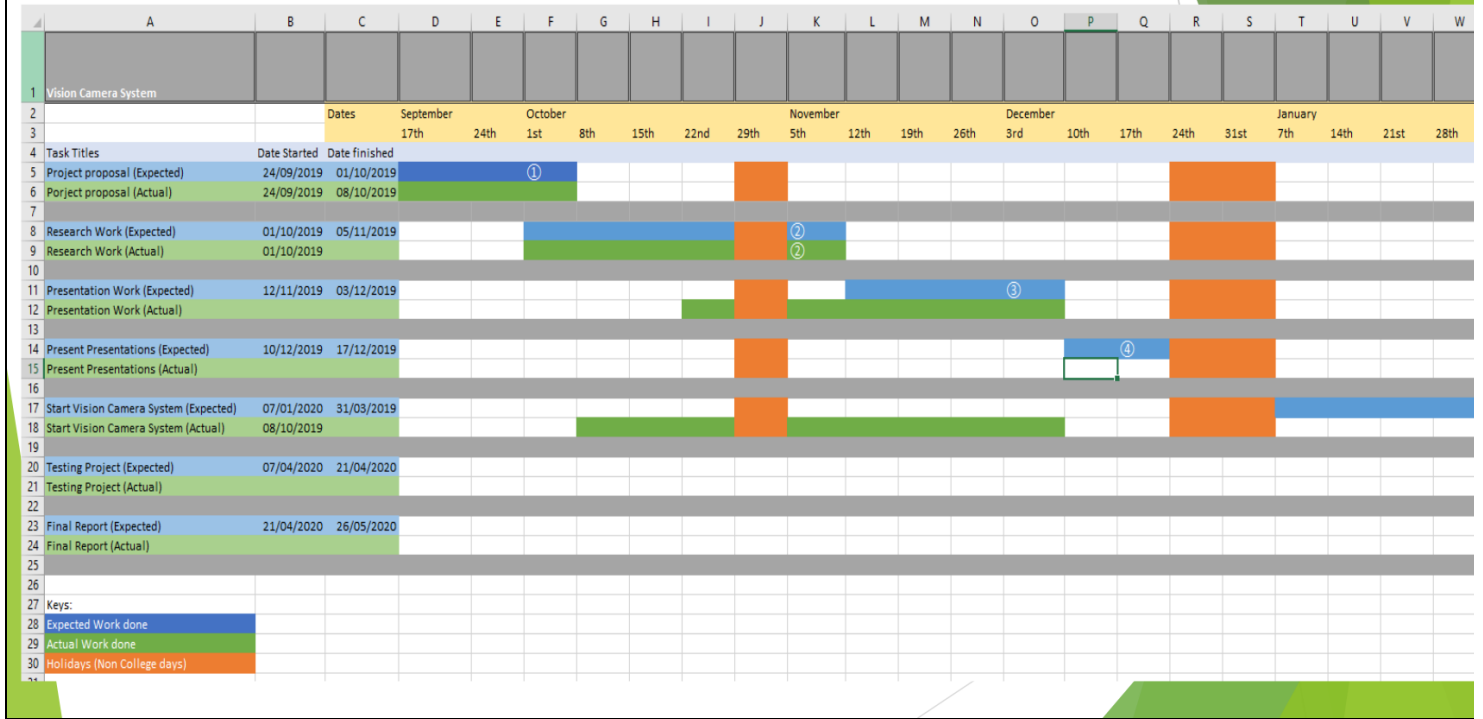
Sensor - £50.91

Sensor cables x4 - £40

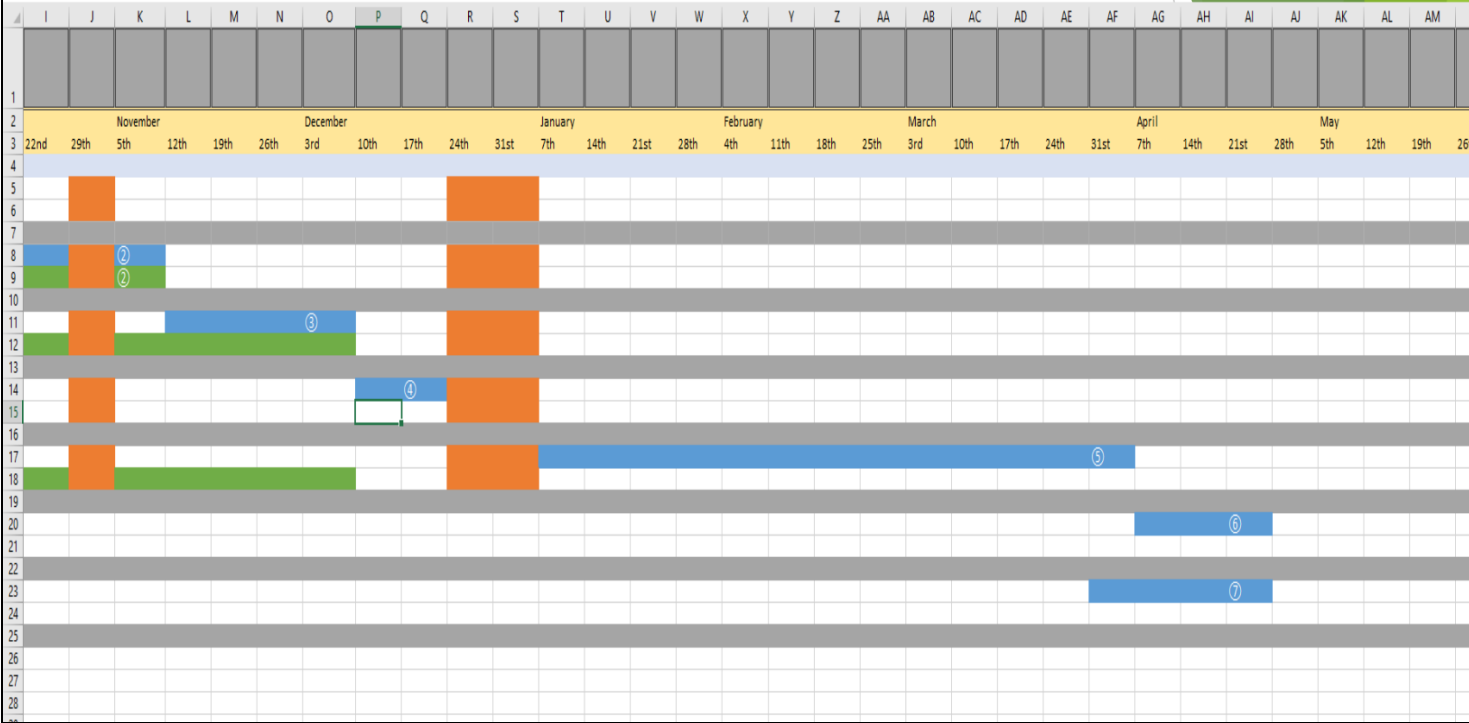
Camera - £800

Total = £963.91

Gantt Chart Progress



Gantt Chart



ANY QUESTIONS ?

FINAL GRADE

GENERAL COMMENTS

71 /100

Instructor

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GRADING FORM: CSG-RUBIC

JONATHAN PULMAN

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RESEARCH-INFORMED LITERATURE

 Background research included relevant detail and a good explanation. 7/10 The depth of research was appropriate for the project at this stage with a clear understanding of the solutions considered.7/10

14/20

KNOWLEDGE AND UNDERSTANDING

 The problem was defined very clearly and a good understanding demonstrated. 4/5 Constraints and codes of practice relevant to the industry have been identified and the requirements have been planned as part of the project.3/5 Environmental and sustainability issues were discussed and will be integrated into the project plan.3/5 A clear understanding of functional requirements has been demonstrated with good use of a block diagram.4/5 Excellent response to questioning with full knowledge of the project requirements. 8/10

22/30

ANALYSIS

 A full breakdown of the problem was delivered and showed a good understanding.3.5/5 Functional design requirements was discussed thoroughly and a very clear understanding was shown.7/10 Justification of final solution was clear with a good alternative option.3.5/5

13/20

PRACTICAL APPLICATION AND DEP.

 Design specification was very clear with a good explanation.3.5/5 Reasons for final solution was logical and a good comparison carried out to justify the choice. 7/10 Project planning has been very well thought out .3.5/5 **14/20**

SKILLS FOR PROFESSIONAL PRAC.

 Quality of the slides was good and clear to read. 4/5 The presentation delivery was very professional and confident.4/5 **8/10**