

1809802

by Mason Morgan

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LINE 2 GLASS BOTTLE DOWNTIME MONITORING SYSTEM

*BSc Independent Project
Presentation 1*

MASON MORGAN



(1) PROJECT BACKGROUND

- Project based in company that produces mineral water which distributes across the UK.
- Project being developed is on the oldest 1 of 4 lines that is in the factory.
- Future development is possible but with more data & info. gathered.
- Glass bottles offer the highest sale price.



(2) PROBLEM DEFINITION

INEFFICIENCY

- 1) Due to lack of maintenance
- 2) The age of the machinery
- 3) Not knowing what machines are producing the most down time
- 4) Lack of skilled operators
- 5) Poor profit margins

(3) CONSTRAINTS - ETHICAL ENGINEERING



Stock targets that
aren't being hit



Lack of training



Method of stock
placement



Poor Machine
communication



Poor condition of
machines &
equipment

(3) CONSTRAINTS - SUSTAINABILITY

1) To meet the customer standards

2) Product meets all criteria

3) Consideration of power saving

4) Investigating the high rejection rates



(3) CONSTRAINTS - LEGAL / COMMERCIAL

01

Lack of H&S
regulations within
the line

02

CIPs carried out
once a week

03

If downtime
exceeds 5 hours
machine must be
cleaned



FUNCTIONAL DESIGN SPECIFICATION.

- (1) Capability to isolate the panel
- (2) To monitor statuses of all machines through HMI
- (3) To determine the amount of downtime from each machine



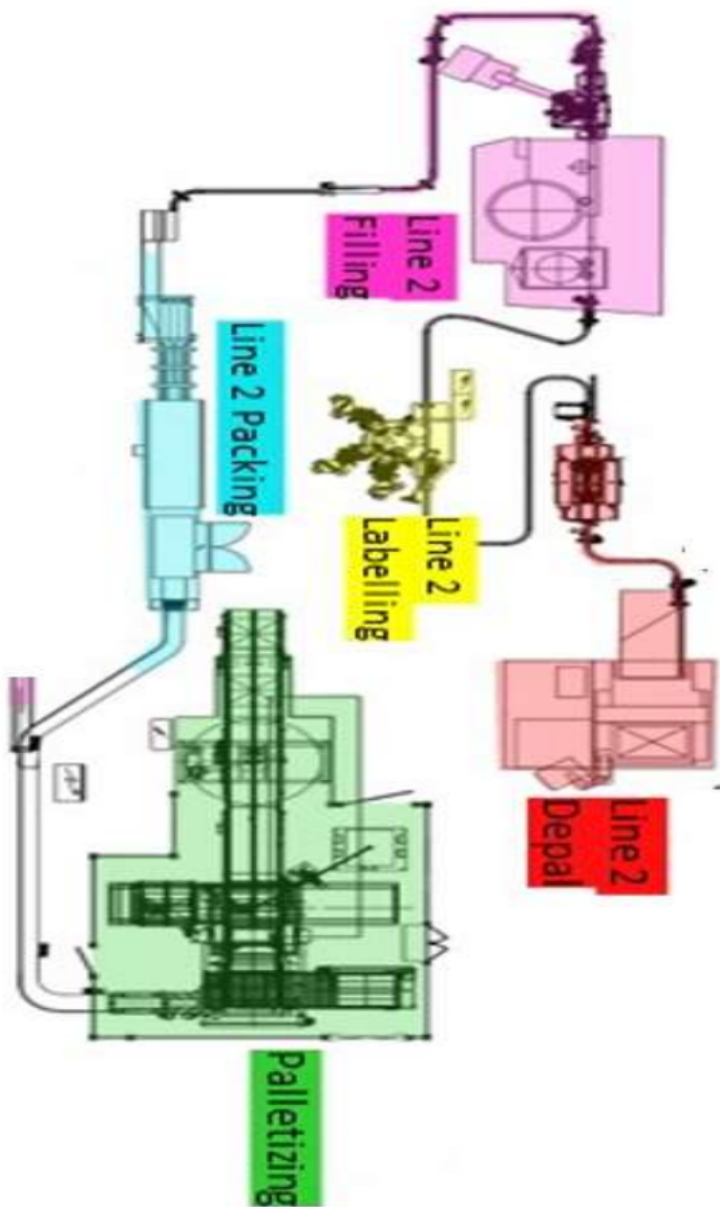
PROJECT RISKS, HEALTH & SAFETY ETC.

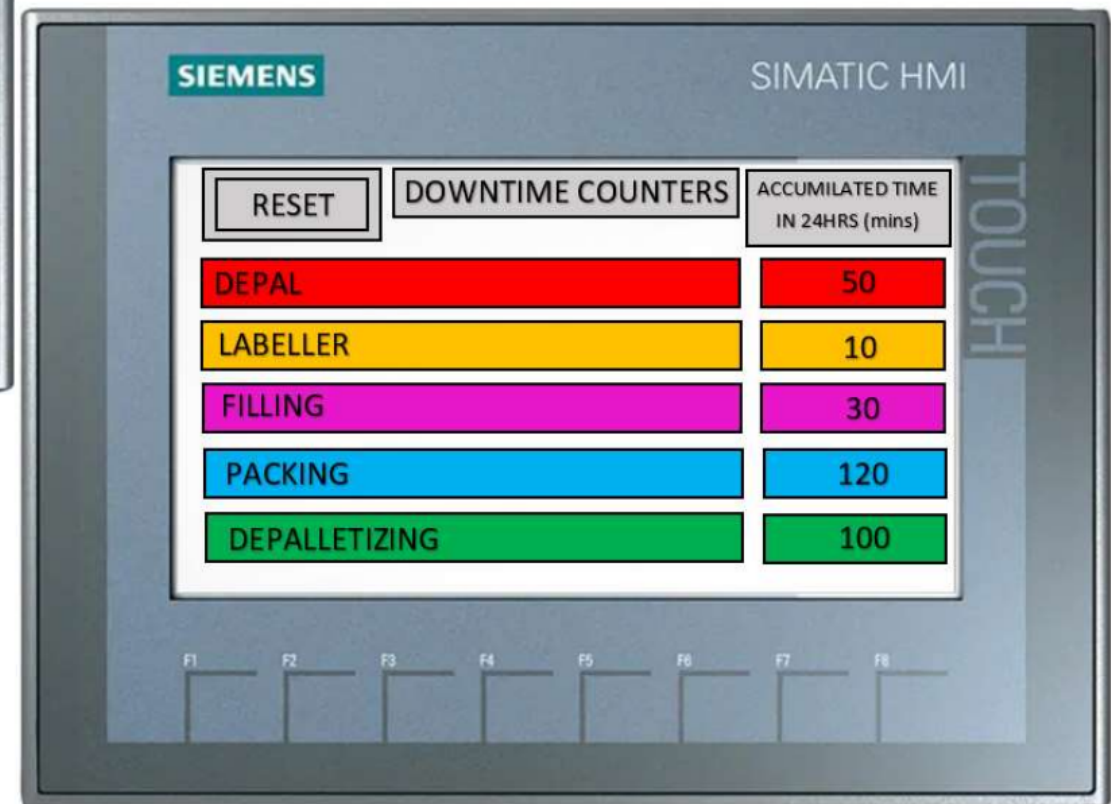
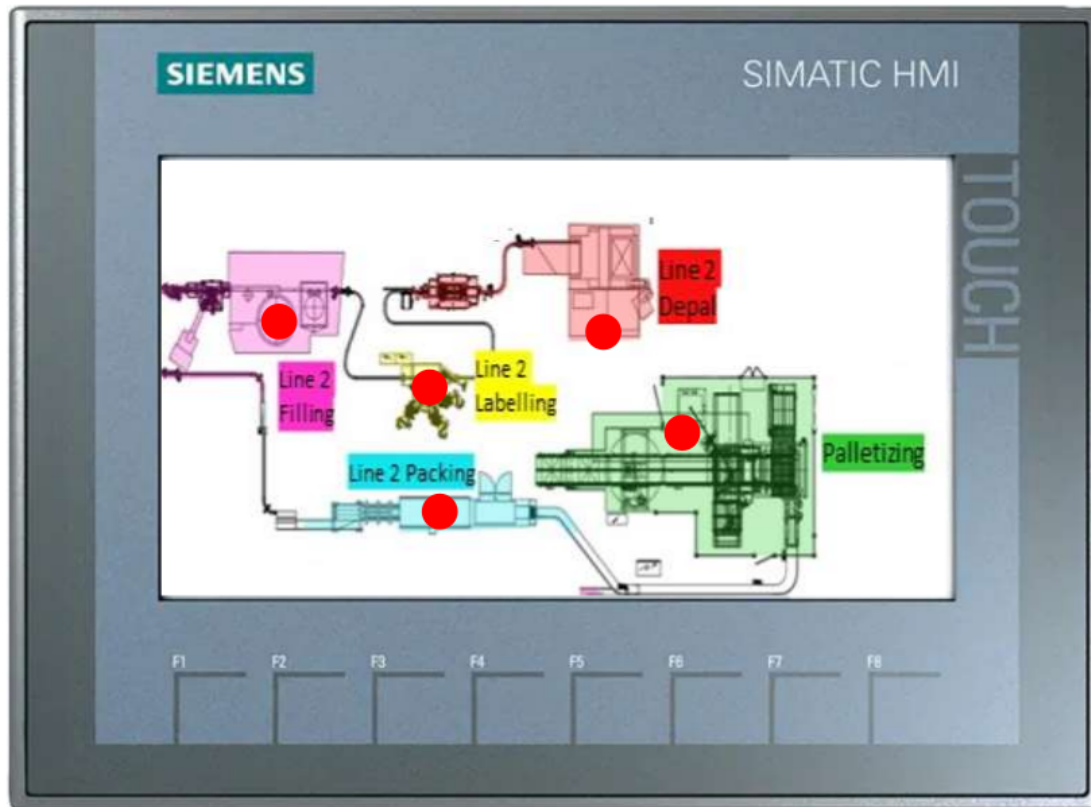
- Performance Risk
- Financial Risk
- Strategic Risk
- Lack of H&S regulations
- Condition of machines

TEST PLANNING.

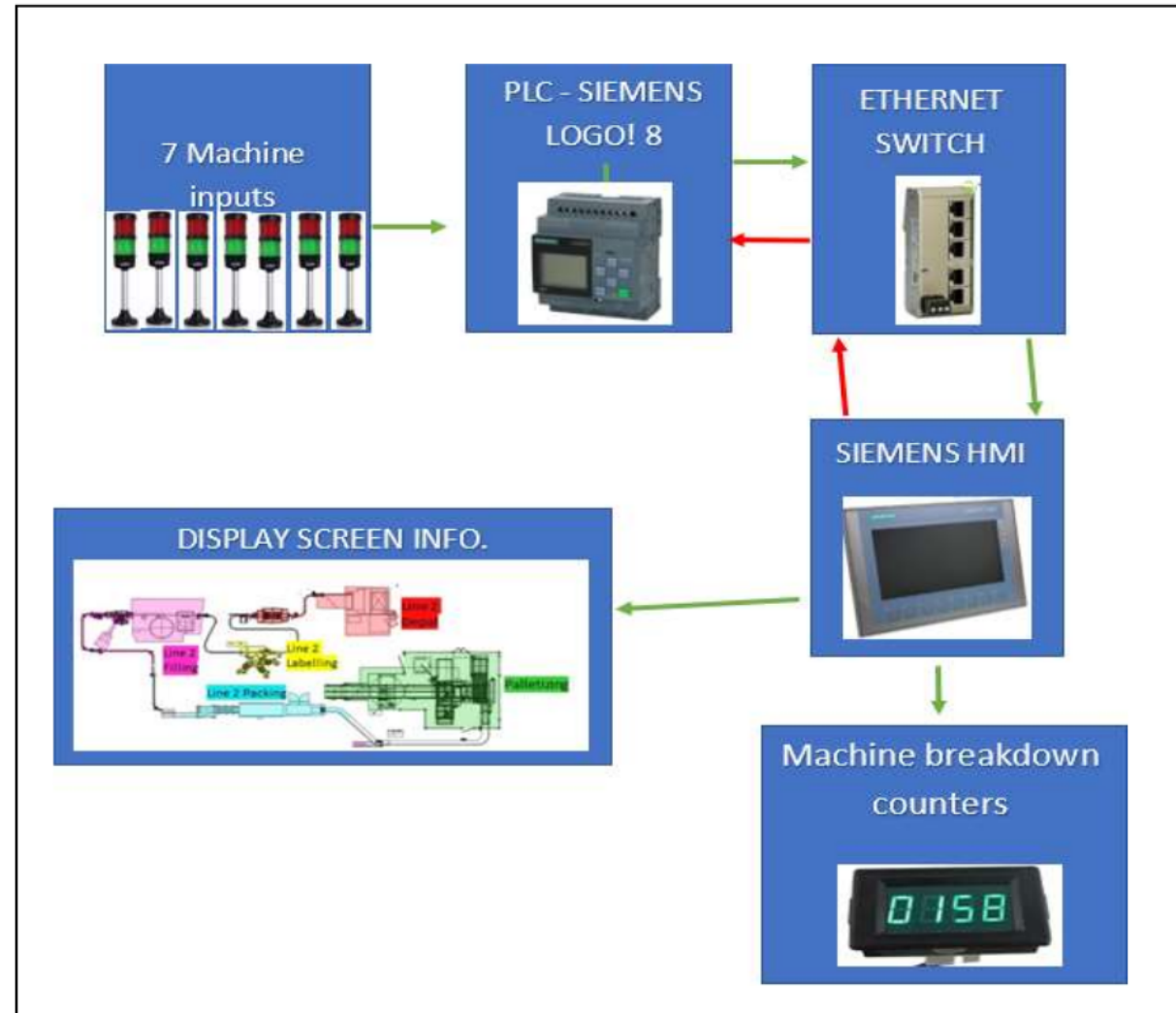
QUESTION - What tests will be carried out?

- 1) Testing the panel for dead
- 2) To view the statuses of all the machines from HMI screen
- 3) To break an interlock for each machine to simulate a breakdown scenario
- 4) To view the home screen to watch red LEDs flash over an animation of each machine
- 5) To watch the inputs & outputs switching on the PLC device
- 6) Gathering data for different time limits on each machine to prove test accuracy

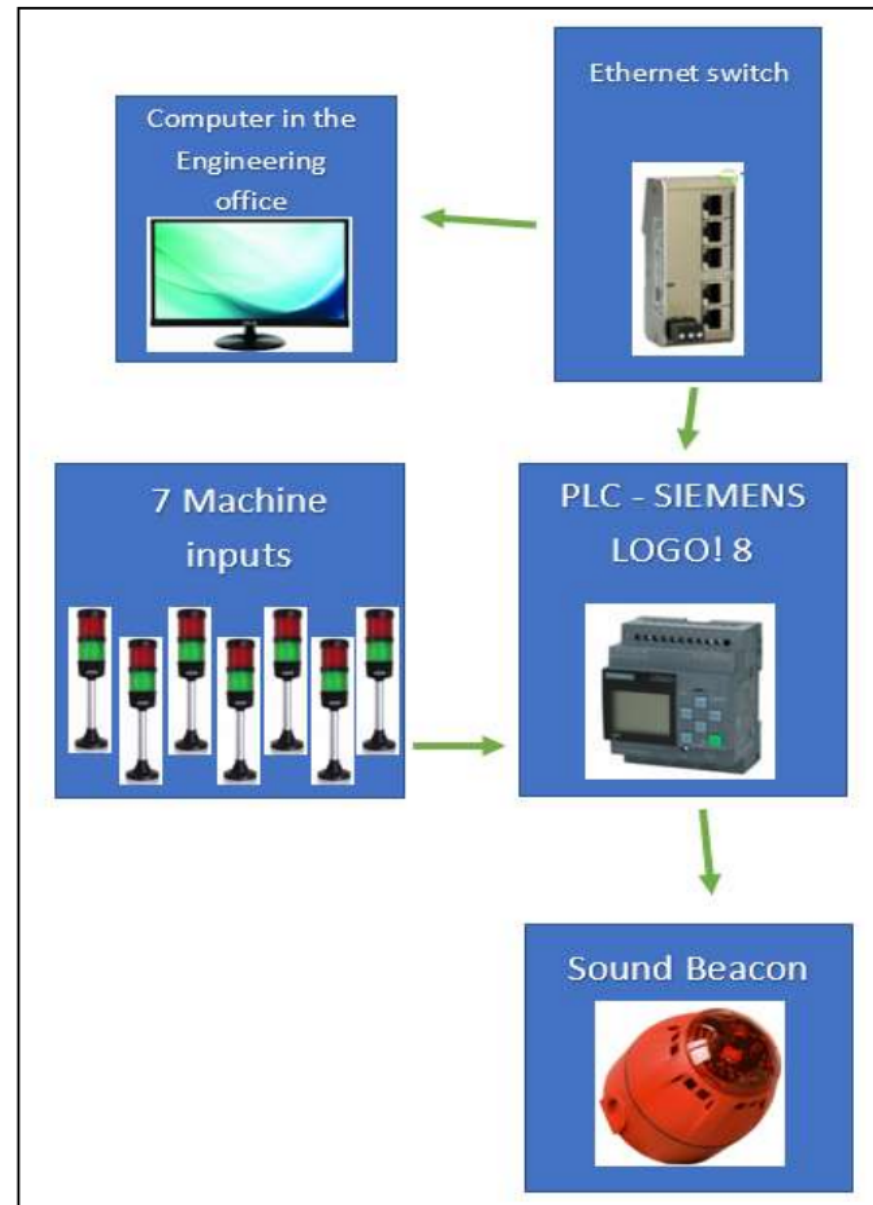




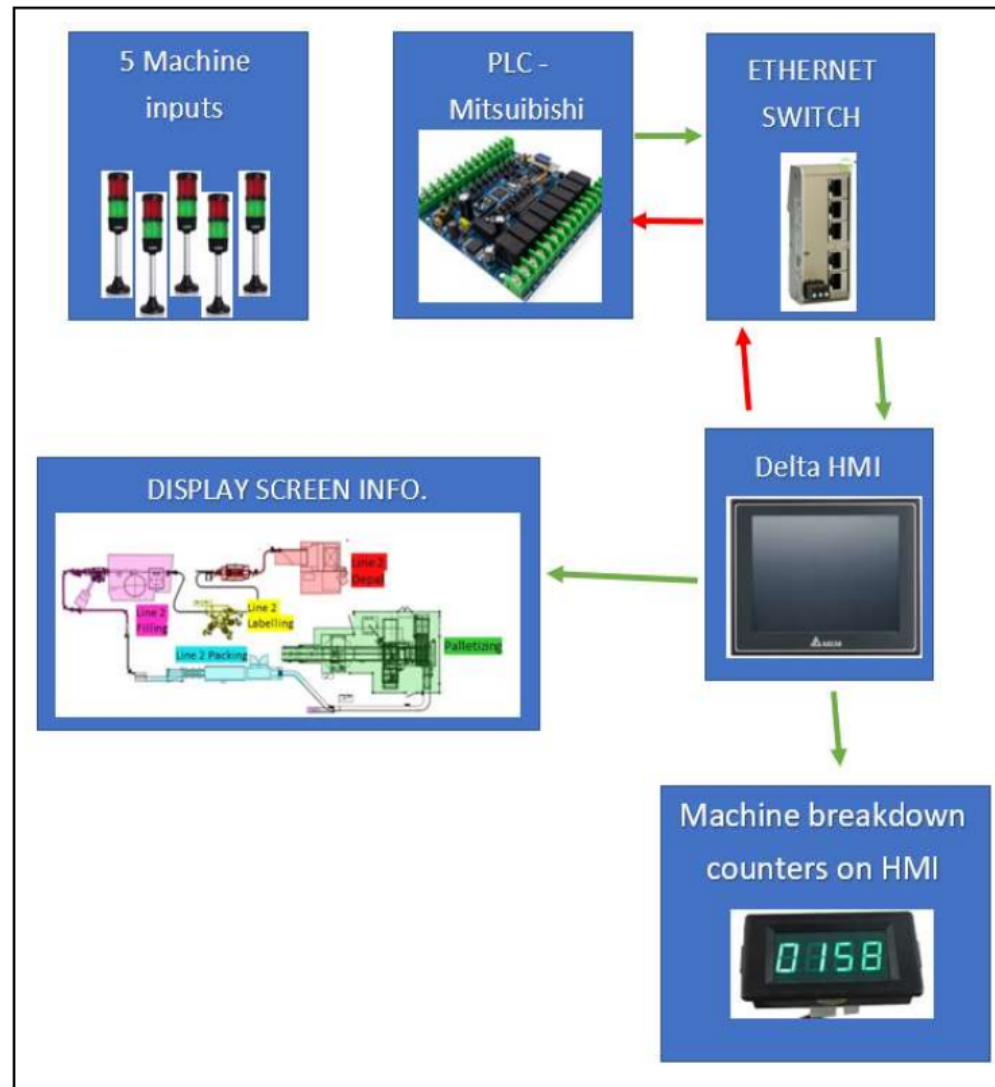
SOLUTION 1



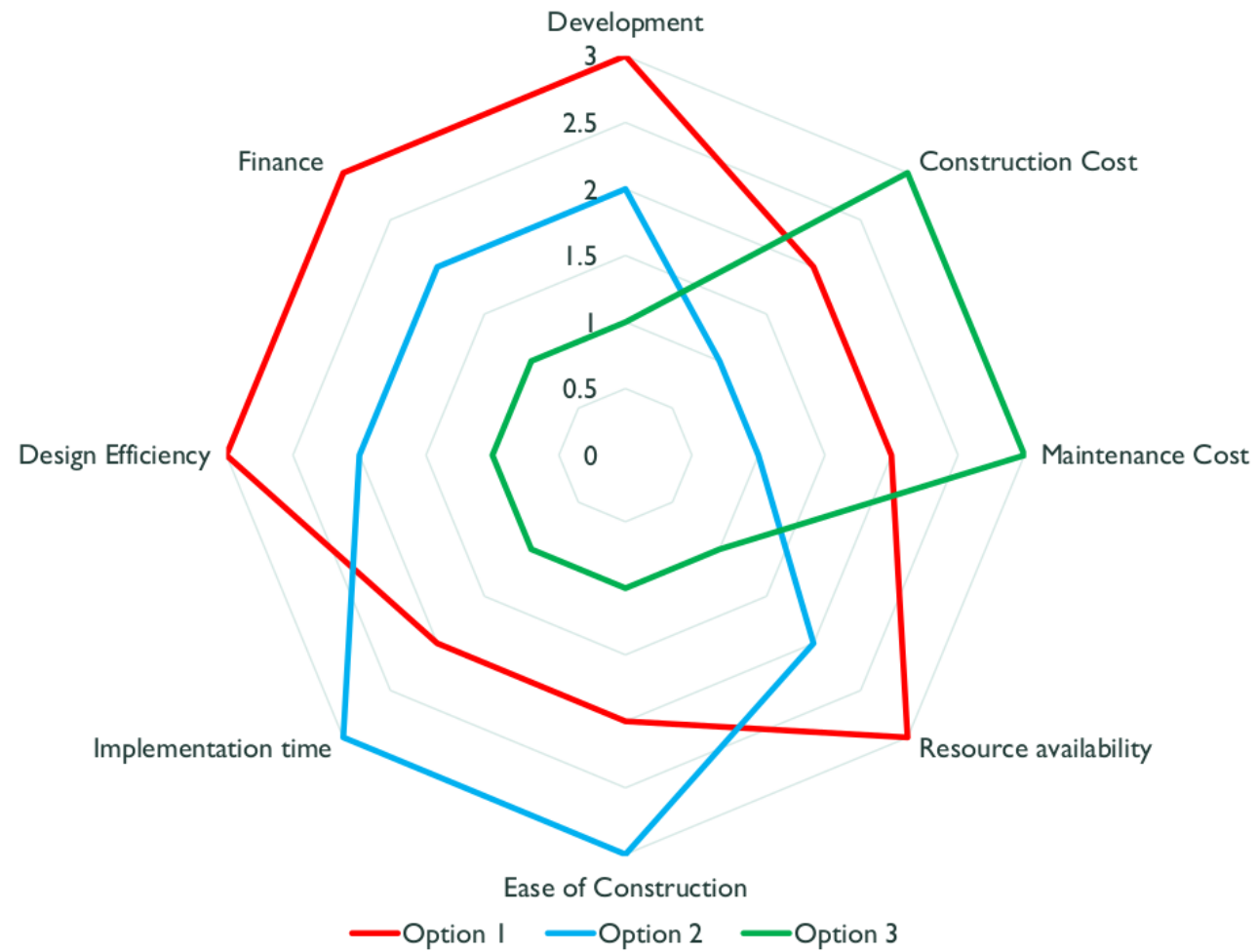
SOLUTION 2



SOLUTION 3



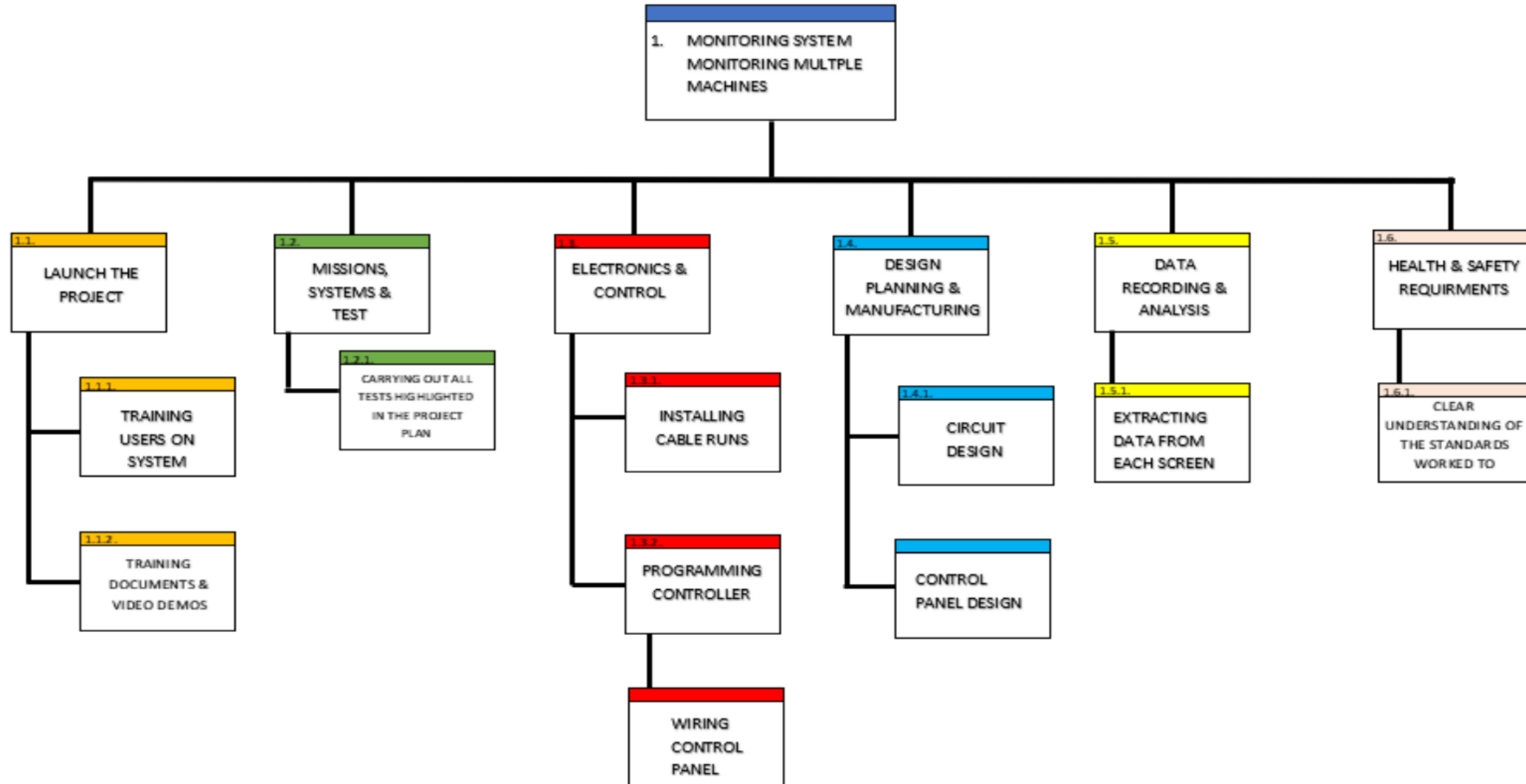
JUSTIFICATION OF THE CHOSEN SOLUTION



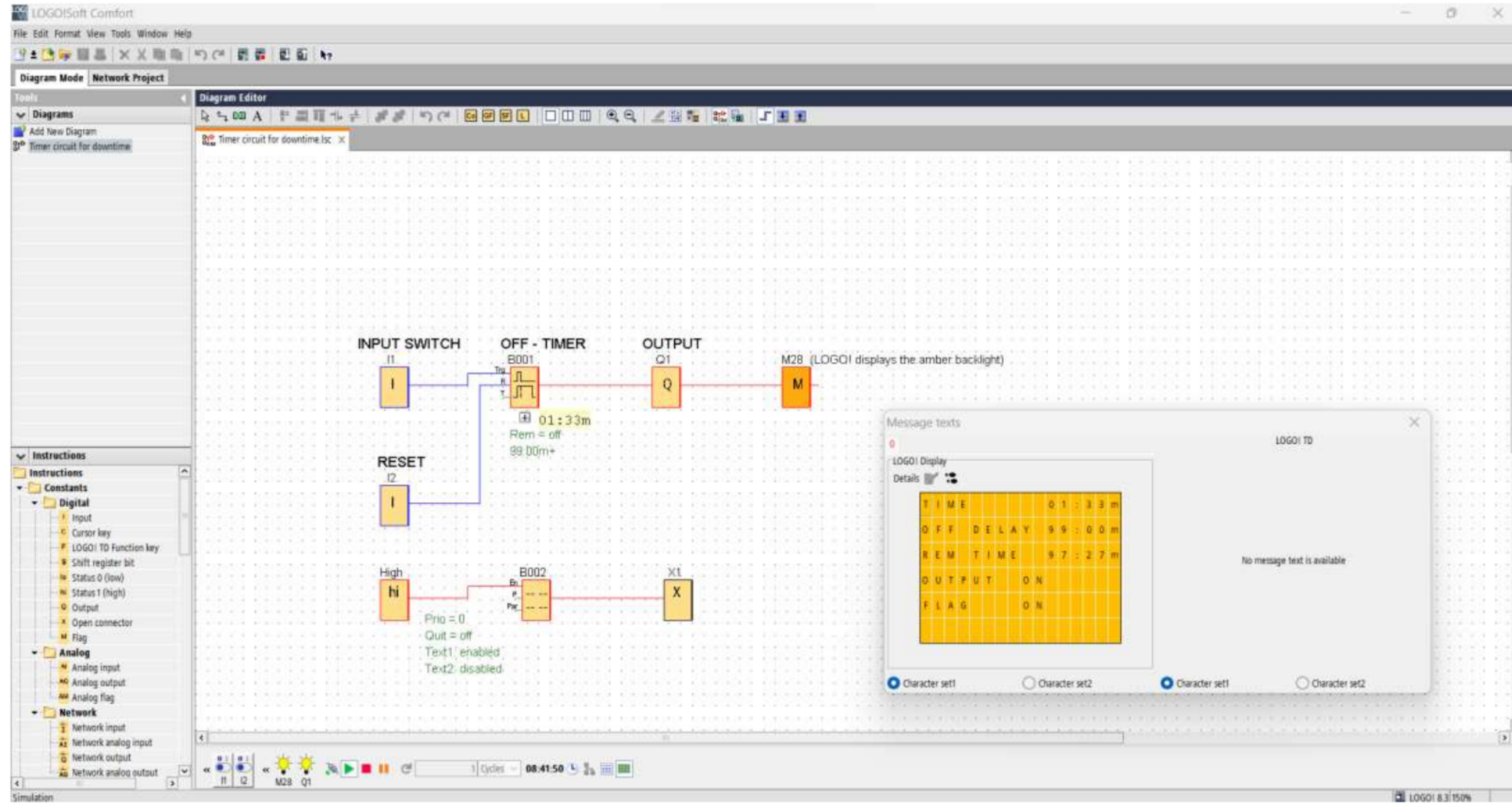
GANTT CHART

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WORK BREAKDOWN STRUCTURE



PROGRESS MADE TO DATE.



PROGRESS MADE TO DATE.



FINAL GRADE

GENERAL COMMENTS

Instructor

50/100

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GRADING FORM: NEW CSG-RUBRIC

MASON MORGAN

50

1. ENGAGEMENT WITH LITERATURE

2. KNOWLEDGE AND UNDERSTANDING

 Project background and problem definition (5/10) Project constraints, risks, health and safety (5/10)
Response to questions (5/10) Total = 15/30 **15**

3. COGNITIVE AND INTELLECTUAL

 Functional Design Specification (4/10) Test planning (6/10) Project Planning and management
methods (5/10) Total = 15/30 **15**

4. PRACTICAL APPLICATION

 Review of Solutions (5/10) Justification of final solution (5/10) Total = 10/20 **10**

5. TRANSFERABLE SKILLS

 Quality of the presentation slides (5/10) Quality of the delivery style (5/10) Total = 10/20 **10**