**10th Dec 2024**

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| **Student Name** | **Roll Number** | **Score** |
| First Name | Last Name | ID |
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## **Part A: Automation Conceptual Design**

### *Topic 1. Product Design (Total: 10 Marks)*

The initial calculations for the product have been completed well and seem to give reasonable values for the requirements of your design.

Most components chosen seem reasonable for your design but perhaps the motor is working too close to It’s maximum capacity.

It would have been nice to see some attention given to the structural calculations within your design (eg. how it can be held in place during operation).

It’s good to see the couplings highlighted, however perhaps some additional annotation/highlighting would’ve been useful to better understand your design.

The exploded view seems to be missing some annotation for the referencing to a bill of materials which would have been useful to see for all components in the design.

### *Topic 2. Automated Workcell Design (Total: 15 Marks)*

It’s good seeing an attempt made at highlighting each of the robot operations, however, there appear to be a few missing that are required to fully assemble your design.

Perhaps some additional detail could have been given within the workflow matrix such as highlighting how exactly it corresponds to the requirements of the workcell.

It would have been useful to see what are the maximum payloads your robots are required to handle based on the weight of your components to help identify what parameters are needed.

The graspability/stability analysis seems reasonable however it would have been useful to see your logic for how you obtained the values chosen for each shapes.

Perhaps utilising the graspability/stability analysis would have been useful to optimise your work cell based on analysing a few assembly processes.

More of the workcell constraints should have been identified throughout your assembly process to better understand the key bottlenecks in your design.

Perhaps highlighting some robot movement optimisation could have been useful based on the constraints discussed before.

### *Topic 3. Automation Support Systems - (Total: 15 Marks)*

Most of the workcell has been developed well, however, perhaps it would have been useful to see a general overview of the grippers utilised throughout.

It’s good seeing robots available in-market being identified, however, it would have been useful to give a comparison between the robot specifications and your required parameters.

Much more detail should have been included within your stiffness analysis as it seems like a much more robust analysis could be developed.

It’s good to see some discussion for at least one of the end-effectors however justification should have been given for all of them in some way to identify how they are suitable for each assembly process.

Most sensors seem suitable for your design, however, more sensors may be required to have your workcell functioning effectively.

It’s good to see the key parameters of the part transport system highlighted but it would have been useful to see how this system meets your specific requirements.

It’s good to see a flexible fixture included into your design but perhaps highlighting why the flexibility would’ve been useful for your design.

### *Topic 4. Robotic Simulation - RoboDK (Total: 10 marks total)*

It’s good to see that all the required components for your workcell have successfully been highlighted in the simulation section of the report as demonstrated in your design.

Most components seem to have been integrated into your design based on what you have shown on the simulation video however a few of the support systems seem to be missing.

The overall simulation quality is reasonable, however it would’ve been better to have included more details and/or clarity for the assembly processes.

## **Part B: Research-Focused Investigation**

### *Topic 5. Literature Review (Total: 10 marks)*

Some of the literature chosen seems to be relevant to the research topic highlighted, however, some aspects could be removed as they seem to offer very little insight into the prior research.

Reasonable criticism has been given for the literature review however more detail should be included to give a thorough evaluation of the literature.

Some theories have been identified throughout the literature however it seems that some of them aren’t particularly relevant to your research and may need to be reviewed further.

It’s good to also see the key theories identified being developed further but more explanation/interpretation would be useful to see how they fit better to your research topic.

Most of the literature chosen seems to be fairly old/outdated, finding any newer research to build upon (or highlighting the lack of It’s presence) would’ve been useful to see.

### *Topic 6. Methodology (Including alignment to Industry 4.0 and Factory-in-a-box) (Total: 15 Marks)*

The methodology is mostly logical throughout, however perhaps some additional specific detail within would give a more logical step-by-step process of your work.

This section seems to be reasonably innovative but perhaps there could be a more efficient method utilised to give a more concise and to-the-point analysis.

There seems to be some consideration given to industry 4.0 within the methodology, but perhaps much more context could be given to the research to better fit it to this technology.

Most annotations through are clear however they require additional arrow references to significant figure areas to understand what is being talked about.

Overall, the methodology seems to be reasonable, however much more effort needs to have been put into this section to bring it to a much higher standard.

### *Topic 7. Results (Total: 15 Marks)*

The analysis of the results is of a good quality but perhaps giving some evaluation of the results would have been more useful to see to bring this work to a higher standard.

Its’ good to see some comparison given between your project and previous literature but perhaps giving some more details about the previous literature would’ve been useful

The results shown have been supported by research reasonably well but it would’ve been useful to see more novel insights made into what impact the results may have.

### *Topic 8. Quality of Supporting Evidence (Total: 10 Marks)*

Most annotations through are clear however they require additional arrow references to significant figure areas to understand what is being talked about.

Most of the CAD modelling is of a good quality throughout, but perhaps adding in some post-processing/colouring would bring it to a higher standard.

Some tables and figures have been labelled logically throughout the report, however some seem to be in the wrong place based on what is being discussed.

Generated on: 10th Dec 2024