# Group Assignment Feedback

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## Part A: Automation Conceptual Design

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

The initial dynamic calculations seem reasonable, however adding in further diagrams to explain the equations would be useful to help fully understand the context of your calculations.

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

It’s good to see some attention given to the structural calculations of your product to determine its capacity to perform the required function.

Some more detail/explanation should be given for how the torque is transferred throughout the design, especially with the couplings.

The exploded view seems to be missing a few components of an entire design, it should show every component present in your 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 to be mostly correct however adding in some more robust methodology for how you came to your values would have been useful (eg. using the contact surface area, moments from the centre of mass).

No graspability and/or stability analysis are given in the report.

Most workcell constraints have been identified, however, it would have been useful to see what is the minimum time required for a second cycle to begin after the first.

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 end effectors chosen for your workcell however some justification should have been given for each to highlight how they are suitable.

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 appears that a very poor attempt has been made in presenting the workcell simulation within the report, many components seem to be missing, etc.

It seems that many components are missing from your simulation video design to give a full workcell and should’ve been incorporated to show your conceptual design within the simulation.

The overall simulation quality is reasonable, however it would’ve been better to also include additional components within the workcell working.

## Part B: Research-Focused Investigation

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

The literature review doesn’t seem to be very relevant to the research topic highlighted and should be redone with better focus around your topic.

Some good criticism has been given throughout the literature review however it would’ve been nice to see how the research gaps found could be utilised as motivation for your own research.

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.

The literature chosen doesn’t seem particularly up-to-date and could do with finding furthermore relevant/newer papers to bring the literature to a more cutting-edge level.

#### 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.

It’s good to see some adaptation of the research being applied to the factory-in-a-box setting however it would’ve been useful to see more understanding of how specifically it works in this setting.

Overall, the methodology seems to be mostly of a high quality but some further details would be required to bring it to an overall excellent standard.

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

The analysis of the results is of a good standard but perhaps a few more details within the evaluation would’ve been useful to closely link your results to your conclusions.

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 reasonably well but perhaps giving further details about your insights would’ve been better to see.

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

Most annotations throughout are clear, however they may benefit from having more description throughout to give a better understanding.

Most of the CAD seems to be a little basic, perhaps adding in additional details to the design (fillets, chamfers etc.) would give a better representation of what components would actually look like.

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.