UDL Conference
Climbing the UDL Ladder:
Building a Culture of Inclusion in Higher Education

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Assessment Without Borders: Accessible assessment techniques and evaluation tools.

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My UDL Journey

Accessibility

Perception

Recruiting Interest

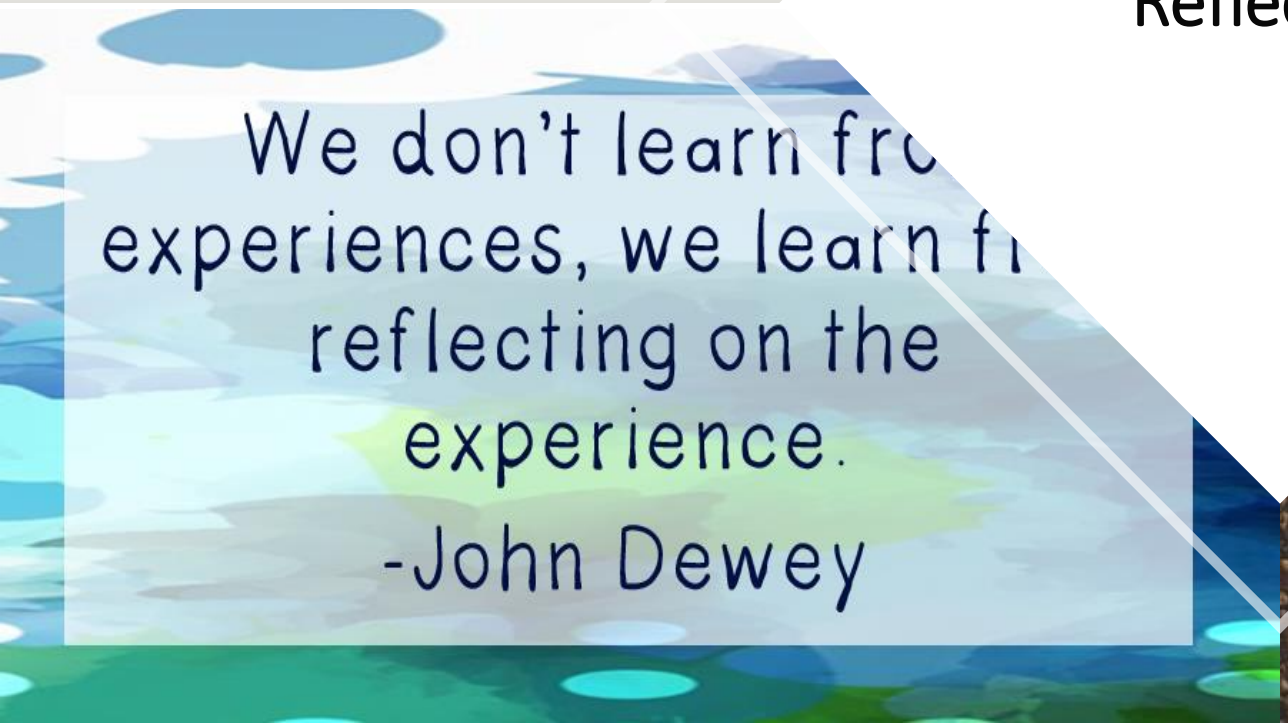
Comprehension

Physical Action

Language & Symbols

Expression & Communication

Reflection


We don't learn fro
experiences, we learn fi
reflecting on the
experience.
-John Dewey


TIME
FOR
CHANGE

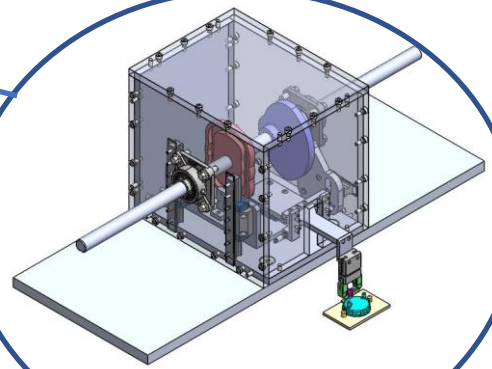
Module Assessment

Report

Updates

Presentation

3D CAD Model



Design Engineering Project 201

CAM Assembly Station

Project Brief

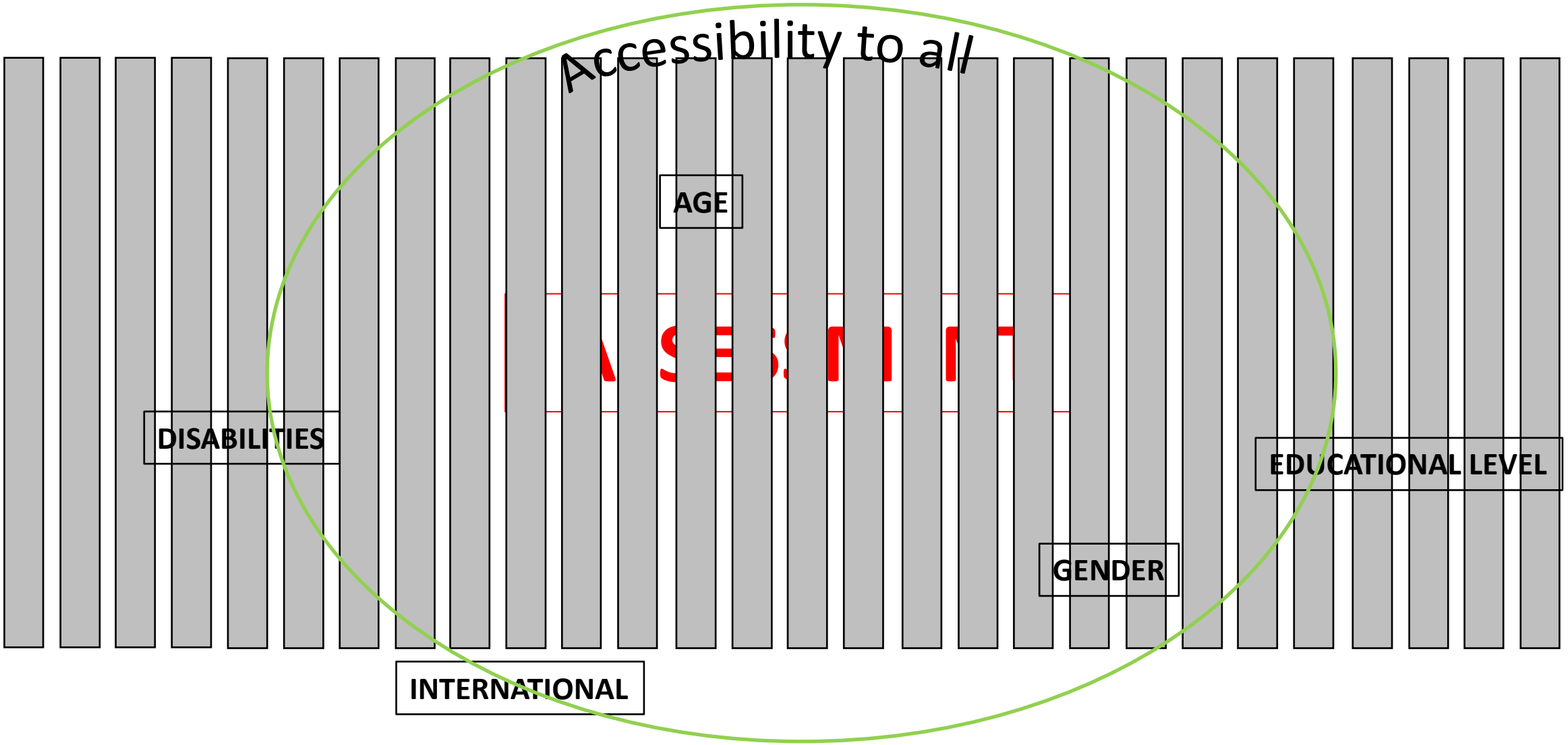
"Design and build a prototype CAM assembly station that operates via the means of an existing central drive shaft"

Introduction

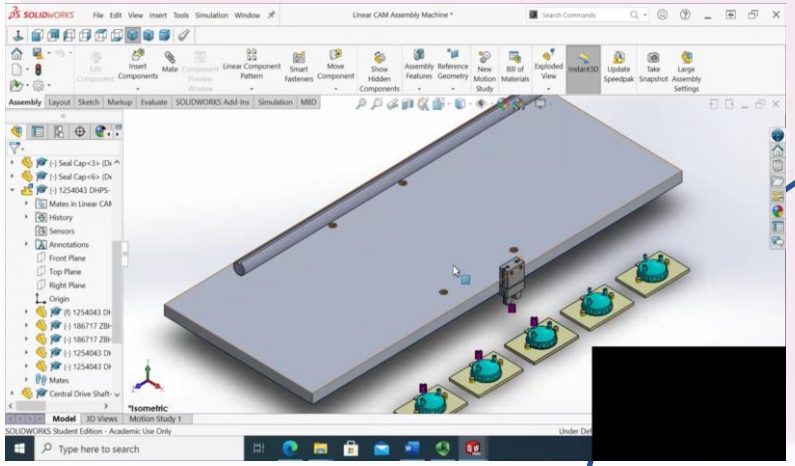
A multi-national medical device company are in the process of re-designing a medical product, as shown in Fig. 1 & Fig. 2 and are confident that this re-design will be approved and validated. As a result, they have sought tenders from a number of engineering companies for a modification to an existing assembly machine. The company has also specified their requirements to use standard parts from recognised engineering suppliers that they use as part of their preventative maintenance procedures.
A local engineering company has secured a contract to modify this existing assembly machine, to incorporate an additional CAM assembly station to the existing machine set-up.

The machine concerned is a linear indexing assembly machine, consisting of a series of CAM actuated stations used for assembly, in-line inspection and pick and place type of operations. CAM-driven systems, similar to the machine shown in Fig.3, have numerous advantages, including their reliability, durability and are easy to run. Low maintenance and superior life are among the biggest benefits of cam-driven indexers. When maintenance is required, advanced skills are not needed.

Remove those border walls



Accessible Assessment



Embedded videos

Perception
Auditory & Visual Information

“Live” Project Brief

CAM Mechanism Motions

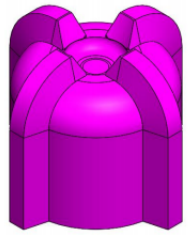
The new assembly station is required to pick and place the seal cap, as shown in Fig. 4, from a feeder track onto the modified sample part. The modified sample part is located on a fixture, as shown in Fig. 5, which indexes after one full rotation of the central drive shaft.

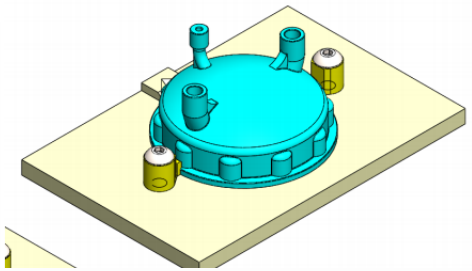
The required motions are as follows:

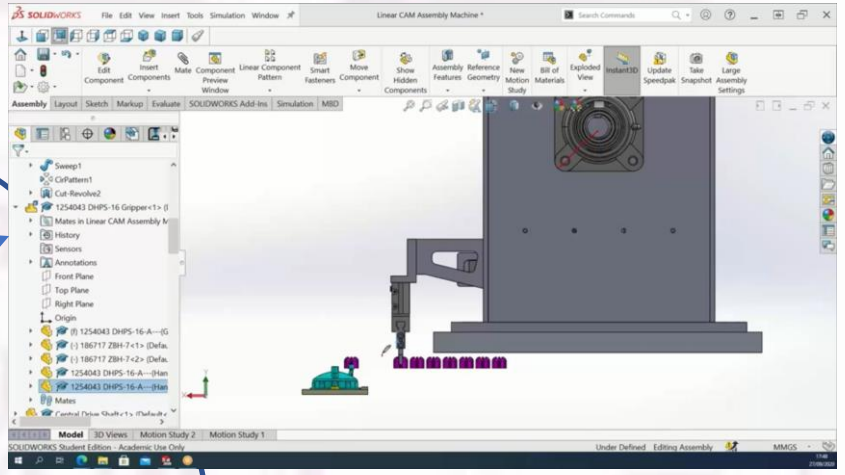
1. Two separate CAM based motions, that occur through the rotation of the central drive shaft. The motions are required to lift the cap from the feeder track and place the cap onto the modified sample part. This will require a vertical rise of 25mm and a horizontal movement of 60mm. These dimensions are determined from the existing machine set-up as shown in the assembly drawings available on the moodle page and in this accompanied video, click here.

CAM Assembly Station Mounting

The new station has to be secured to the existing machine using the four M16 tapped holes in the skeleton machine, available on the moodle page and highlighted in this accompanied video, click here. Once the new station is aligned with the central drive shaft, two extra dowel holes should be drilled to maintain the necessary precision in this machine.







Embedded videos

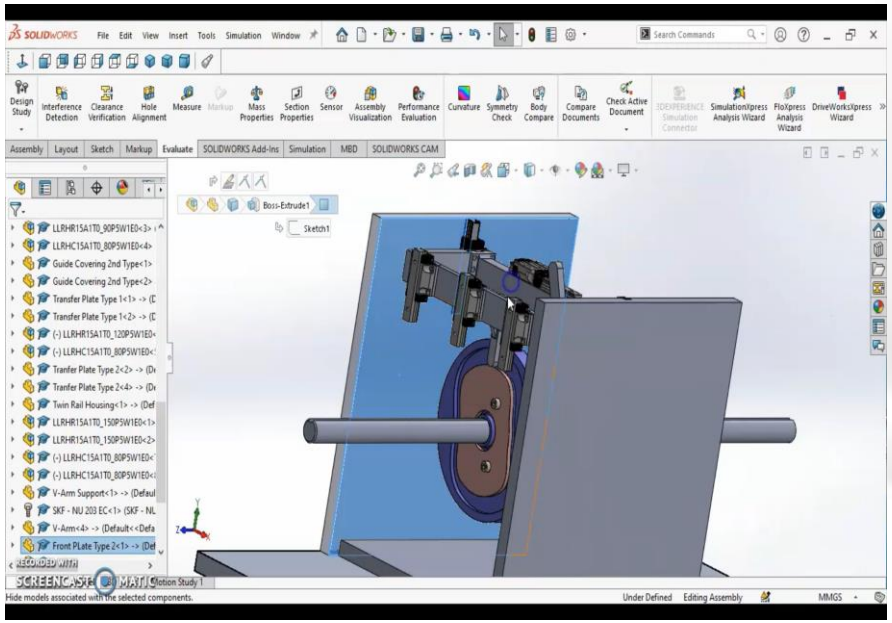
Language & Symbols
Clarifying Terminology
Illustrating through media

Lacked clarity

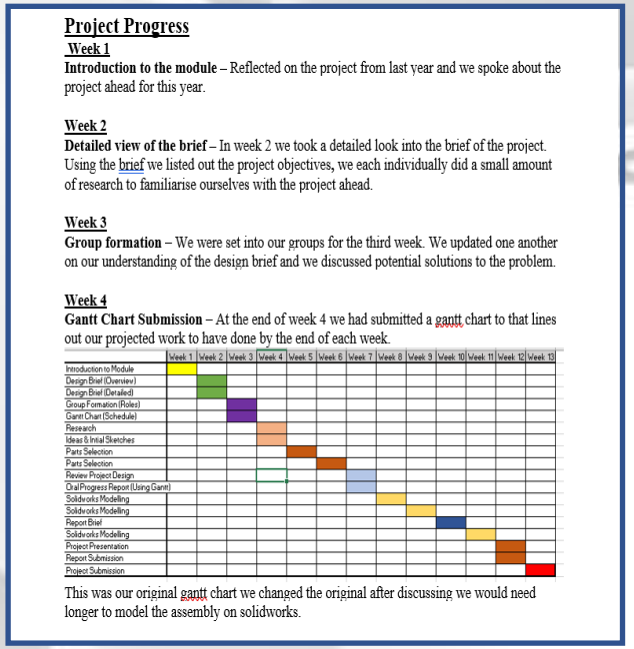
Project Updates

Multiple Means of Engagement

Recruiting Interest
Optimised individual choice and autonomy
Enhancing leaner motivation
and persistence



Audio & Visual



Project Progress

Week 1

Introduction to the module – Reflected on the project from last year and we spoke about the project ahead for this year.

Week 2

Detailed view of the brief – In week 2 we took a detailed look into the brief of the project. Using the brief we listed out the project objectives, we each individually did a small amount of research to familiarise ourselves with the project ahead.

Week 3

Group formation – We were set into our groups for the third week. We updated one another on our understanding of the design brief and we discussed potential solutions to the problem.

Week 4

Gantt Chart Submission – At the end of week 4 we had submitted a gantt chart to that lines out our projected work to have done by the end of each week.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Introduction to Module													
Design Brief (Overview)													
Design Brief (Detailed)													
Group Formation (Roles)													
Gantt Chart (Schedule)													
Research													
Ideas & Initial Sketches													
Parts Selection													
Parts Selection													
Review Project Design													
Oral Progress Report (Using Gantt)													
Solidworks Modelling													
Solidworks Modelling													
Report Brief													
Solidworks Modelling													
Project Presentation													
Report Submission													
Project Submission													

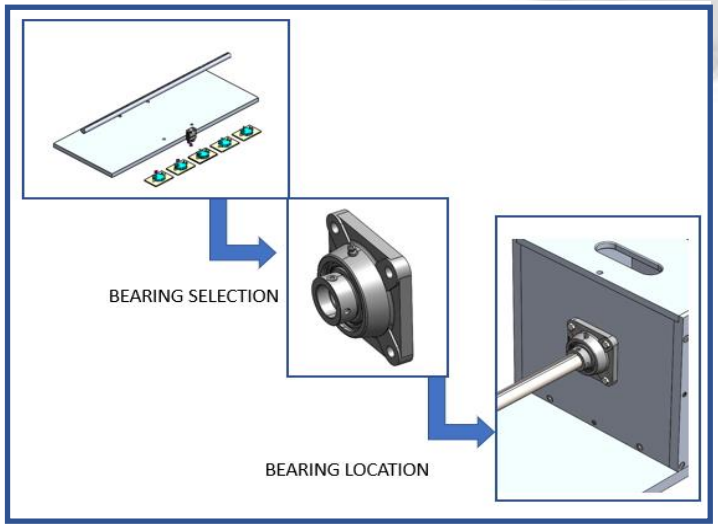
This was our original gantt chart we changed the original after discussing we would need longer to model the assembly on solidworks.

Written

Multiple Means of Action & Expression

Executive Functions
Enhanced capacity for monitoring progress

Expression & Communication
Use multiple media for communication



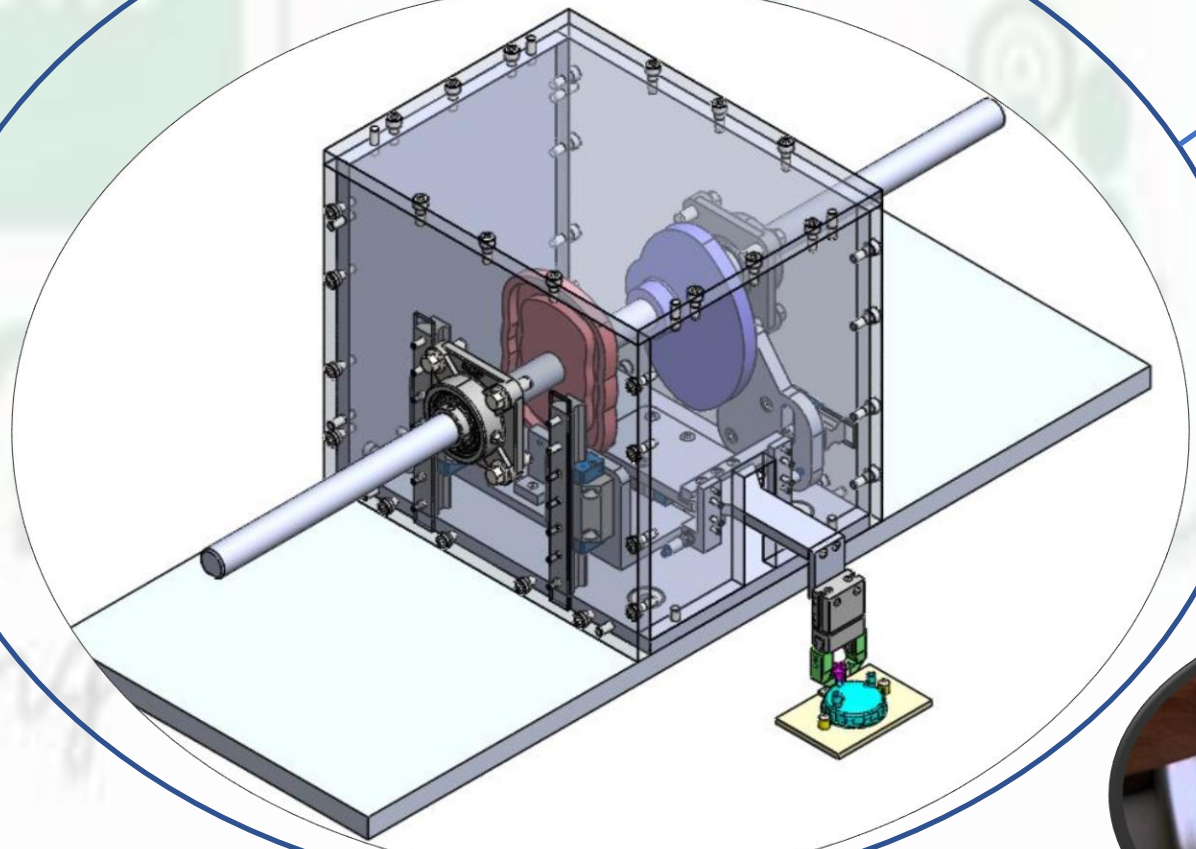
Storyboard

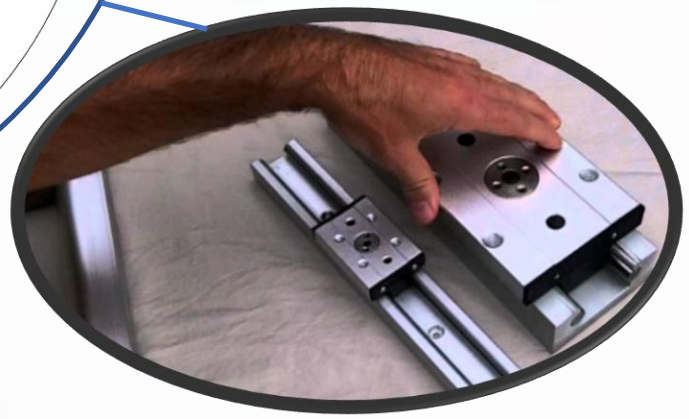
Engagement/Action & Expression

Recruiting Interest
Enhancing leaner motivation and persistence

Expression & Communication
Access to tools and assistive technologies

Tutorials





Conclusion

- A successful outcome for all concerned.
- The “Live” project brief was seen as a significant improvement and the information presented was much clearer, in terms of visualizing what was required from the project and the importance of certain aspects of the mechanism that weren’t as obvious in the initial brief.
- Students liked the autonomy they were given in the project updates and the presentation format.
- Students also spoke about the physical materials made available in the tutorials and how it helped them visualize what components they may incorporate into their designs.

Thank you for listening

Any Questions?