

Design and manufacture of Multi-function handle push pull attachment for Functional Capability Evaluation (FCE)

Introduction

Functional Capability Assessment (FCE) is a set of tests, practices and observations that combine to determine the ability of the assessed person to work in various situations.

In most FCEs, the following measurements will be taken:

1. Lifting power
2. Push and pull power
3. How long one can stand, sit or walk
4. Flexibility and reaching
5. Grasping and holding capabilities
6. Bending capabilities
7. Balance capabilities

Outcome and objective

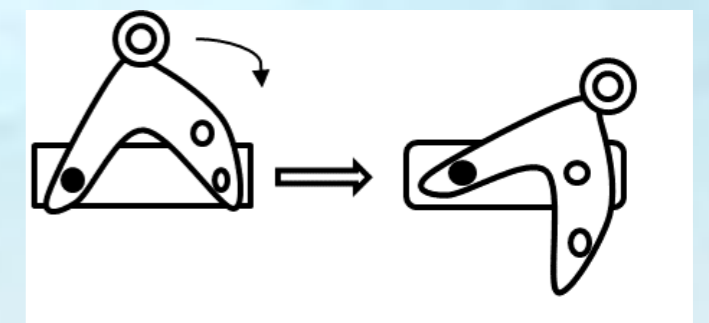
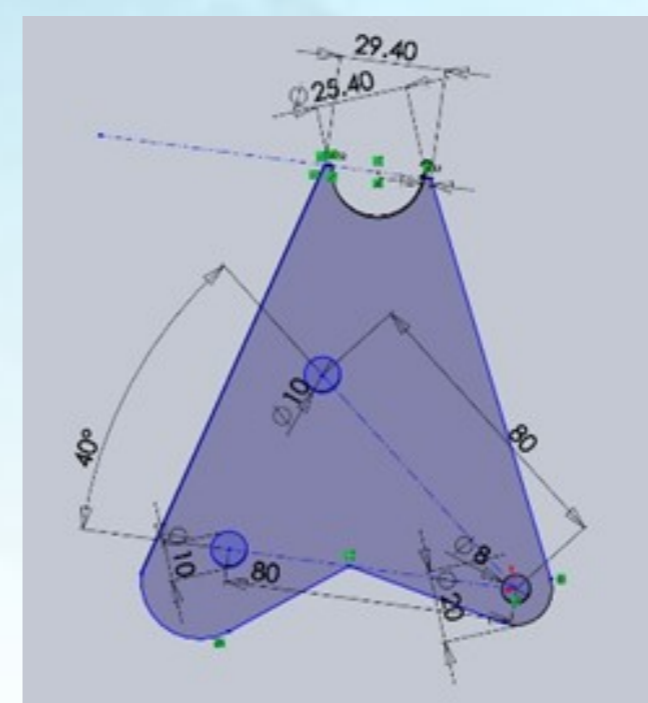
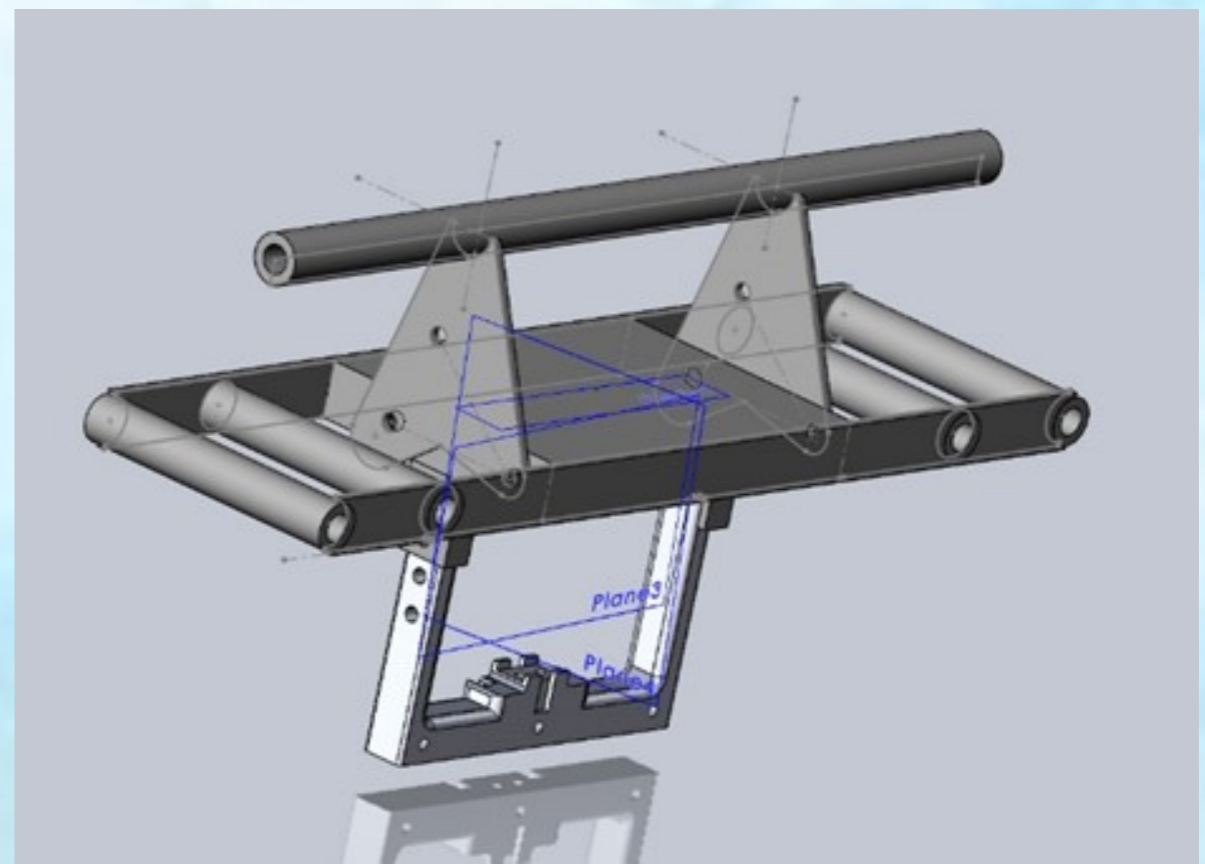
Design a visually appealing, sturdy attachment that securely connects with the newly designed handgrip.

1. Design all relevant parameters: dimensions, materials, shape, mounting points, manufacturing processes
2. Draw the sketch
3. Create the 3D Model in SolidWorks
4. Make plastic model
5. Modifications to design
6. Use SolidWorks to analyse stress concentrations and displacements
7. Use Engineering Methods to answer additional questions
8. Update designing
9. Create prototype for testing

Engineering problem

- * Consider the strength of the person
- * Check the size of the hand
- * Consider the manufacturing batch of parts
- * Consider the characteristics of the moulding method of the part
- * Consider the machining fixture of the part
- * Consider the tool to make the part
- * Consider the processing range of the machine tool for processing parts
- * Make the structure stable and flexible enough
- * How to save raw materials and save costs
- * Choose suitable materials and determine the production process

Result



Schematic diagram of the rotation of the push

Reference

1. Wikipedia. (23 July 2020). Functional capacity evaluation. https://en.wikipedia.org/wiki/Functional_capacity_evaluation
2. "The world leader in FCE software". [Online image]. (2020). <https://www.fcsoftware.com/>

