

Mechanical Arm Project

Home Engineering
Week 18 January 2021

Deadline Wednesday 27th January

Submissions to n.bradford@enlutc.co.uk or c.reet@enlutc.co.uk

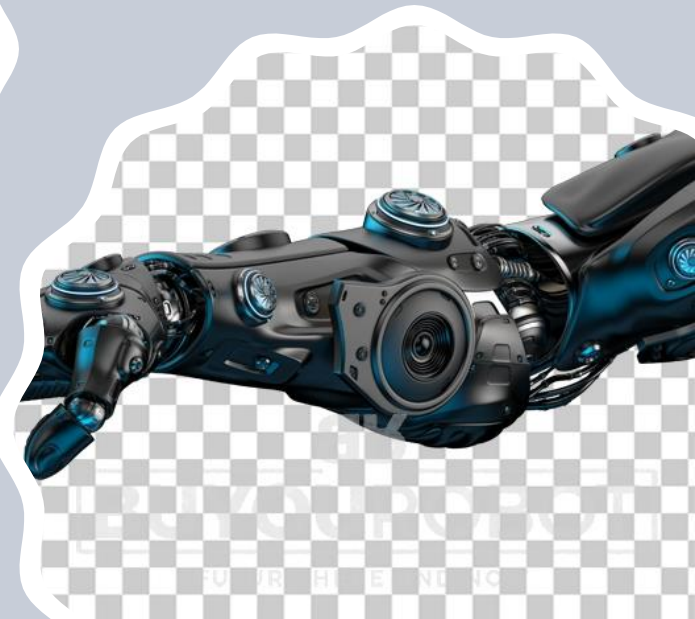
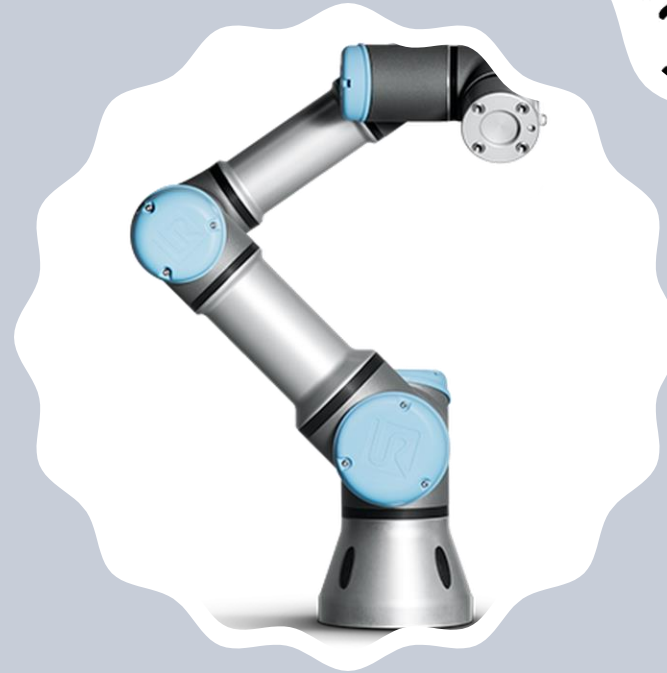
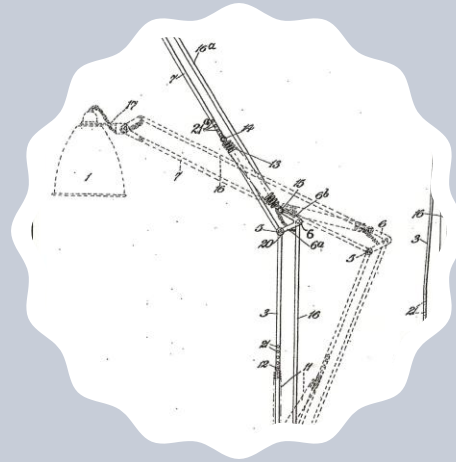
Mechanical Arm Challenge

The challenge is to make a two-piece movable arm from anything you have at home.

It needs to use those everyday objects that you have access to.

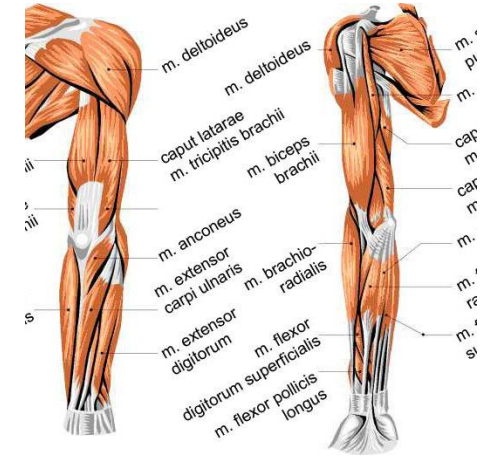
The arm does not need to be motorised, It does not need to hold a weight. There is no need for a hand – it does not need to grip an object.

it needs to be able to be put into various positions and hold that position for at least 10 seconds. Credit is given for an obvious construction from recognisable objects and household items.

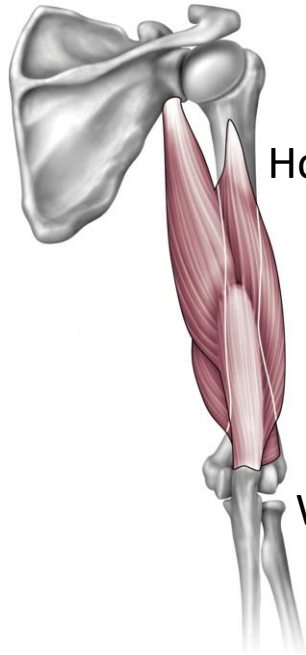


Research

What information do you need to create a good design?



Have a look at your own arm! – you need to have at least one joint in your design. A great design would have two!



How can you make a joint?

What makes a joint strong enough to remain in place?

What do you have around you at home that works in the same way?



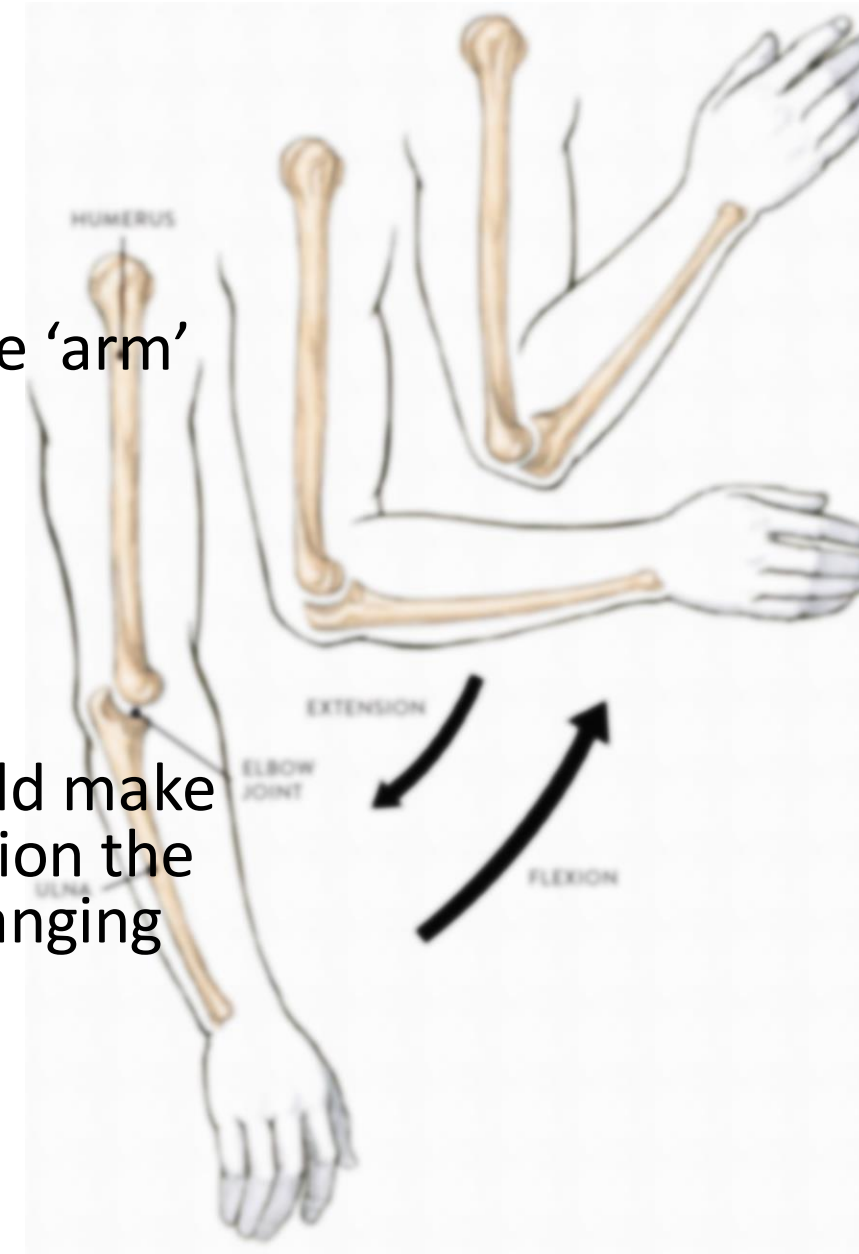
Design ideas

Think about the materials that you could construct the 'arm' from.

Strong materials are often heavy.

Light materials sometimes weak.

Will you try for two joints or one? One good one would make up for two weak joints – remember you need to position the arm and it remains in that position. (That's not just hanging down!!)



Test your ideas and evaluate



Each time you create your design you need to try it out, see if it will do what you expect it/need it to.

By experimenting you should be able to improve your design.

But it might be worth keeping track of the things you change in case you need to go back or you want to re-introduce them at a later stage in the evaluation process.



Finalisation and demonstration

Decide on your final adaptation.

Think about how best to present your design.

Can you video your design including someone manipulating the arm itself?

Do you need to show it on teams either live or by making a short video?

