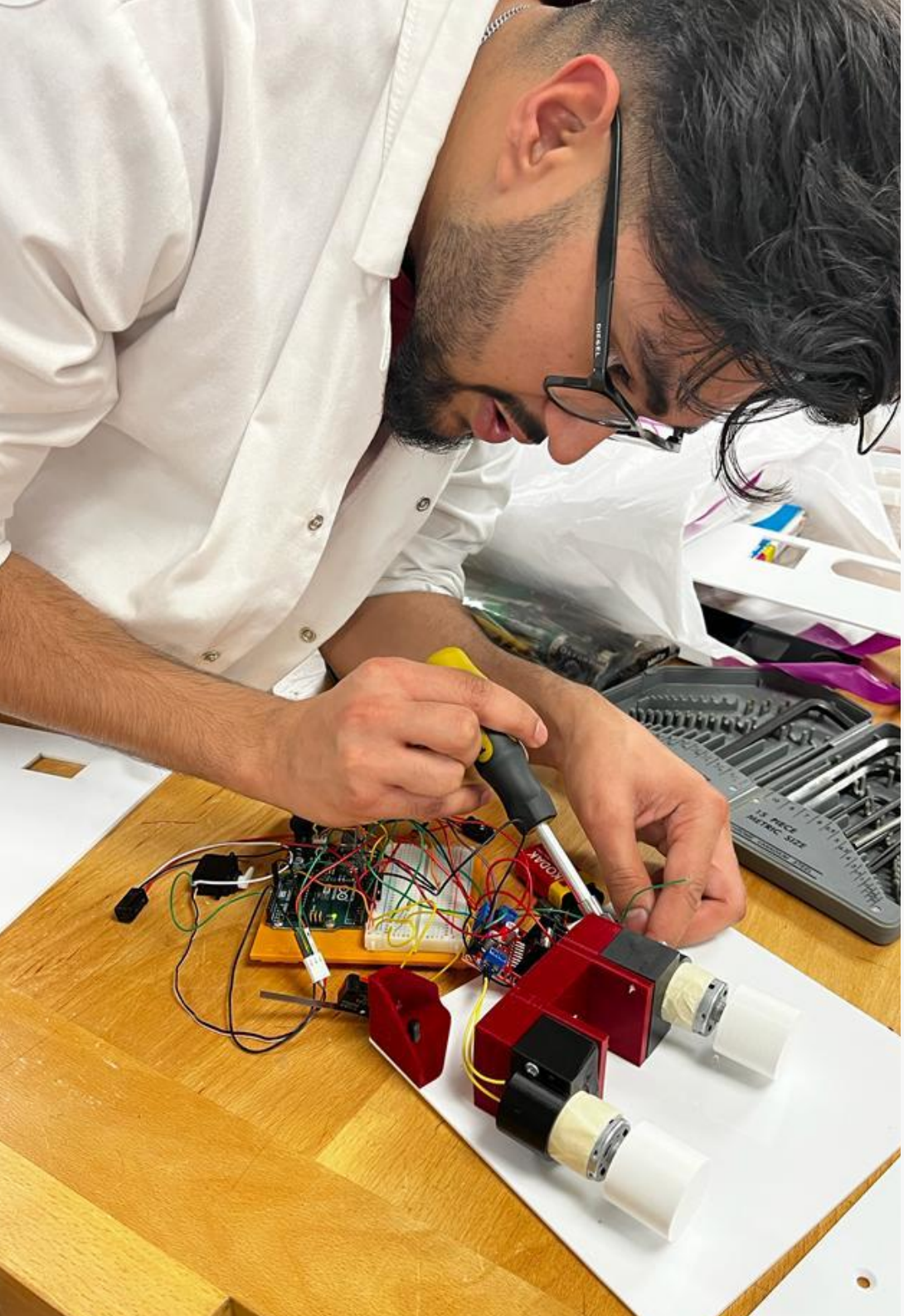
Namit Garg

Design Engineering Portfolio

namit.garg21@imperial.ac.uk

https://www.namit.co.uk/

namit-garg-550b72215



Hello,

I'm Namit, a second year MEng Design Engineering student at Imperial College London.

This portfolio walks through some of the projects I have ventured in during my time at Imperial.

To keep this portfolio as compact as possible, only a basic overview of each product is shown. For more information please click this link and find out more about the specific products/projects.

Contents

Brinter By DYMO

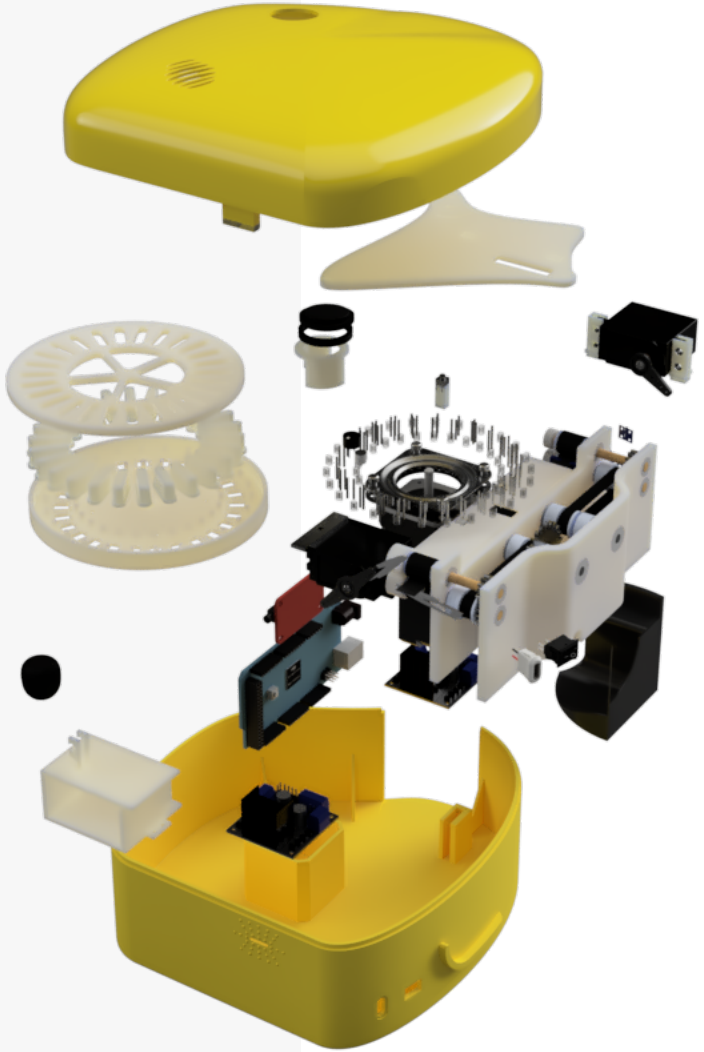
Problem: *HOW MIGHT WE improve quality of life for visually impaired people by increasing their confidence*

Solution: *Brinter is a* **voice detecting braille label maker** *that increases the users confidence with distinguishing household items which was found to be a really common problem when conducting our user research with the RNIB (Royal National Institute of Blind people).*

Skills acquired :

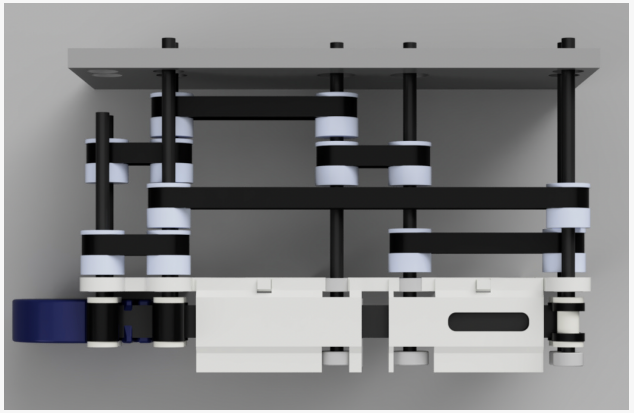
DFM **DFA** **Rendering**

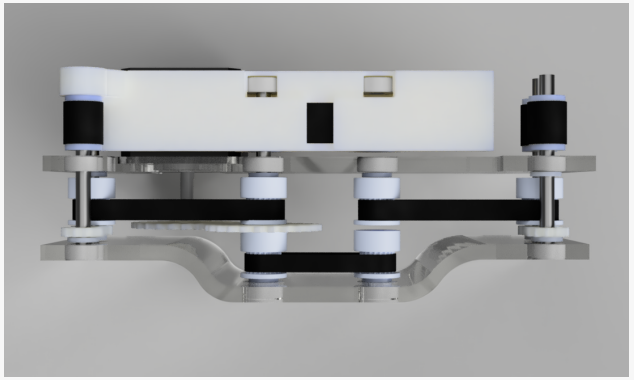
3D Printing **Coding** **Branding**

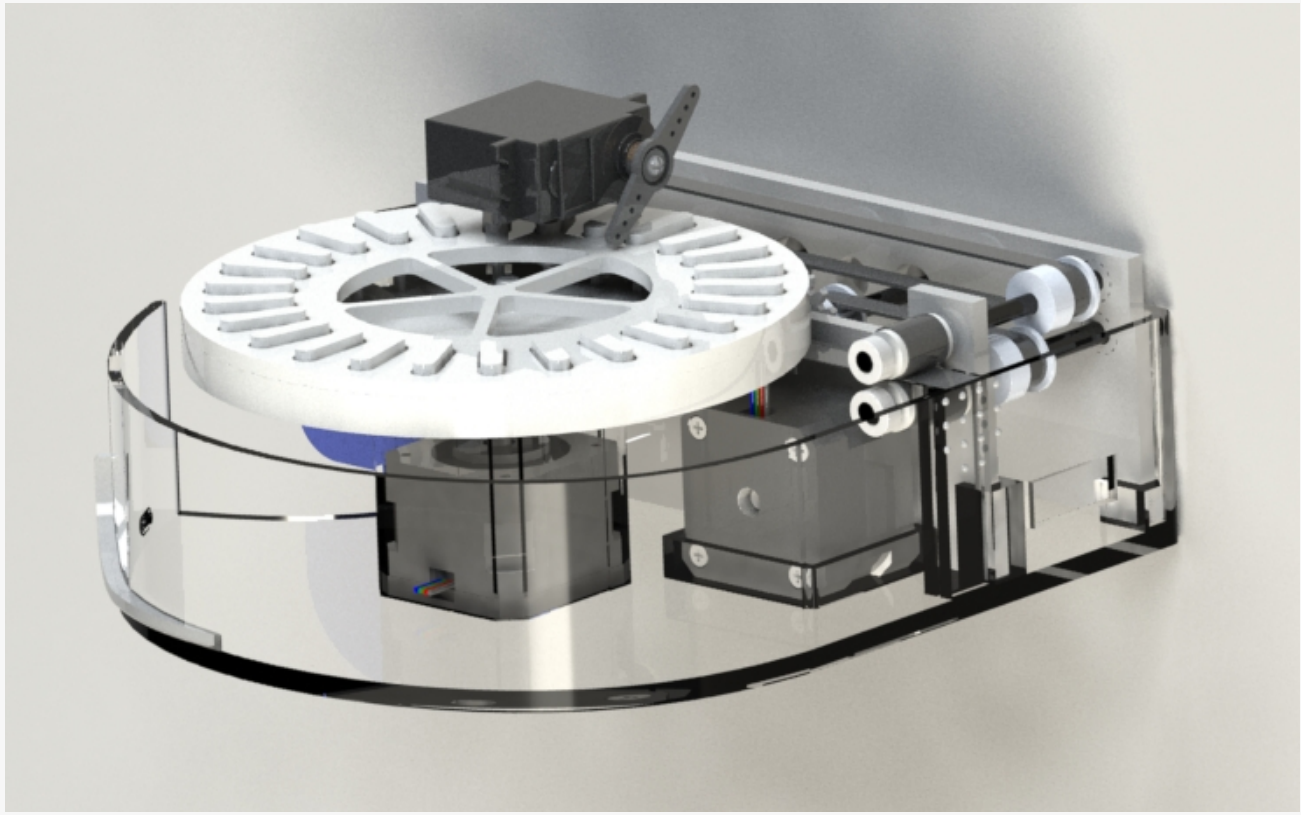


Disclaimer: DYMO was not engaged in any consultancy or collabarative capacity with this project and the outcome is in no way endorsed by them. Any publicity is limited to personal and academic use

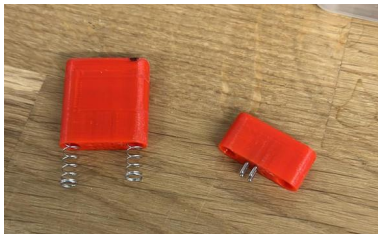
Internal mechanism

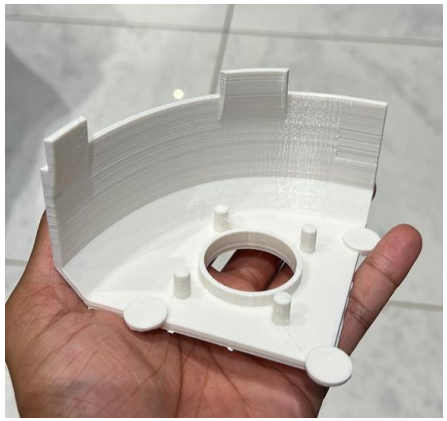


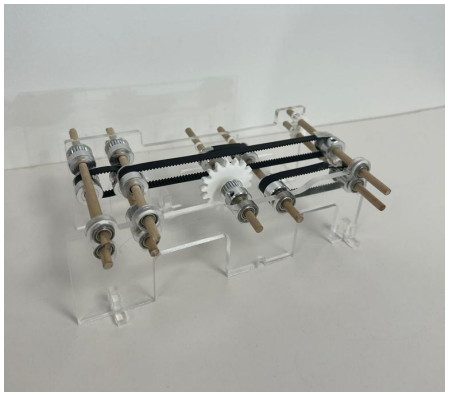
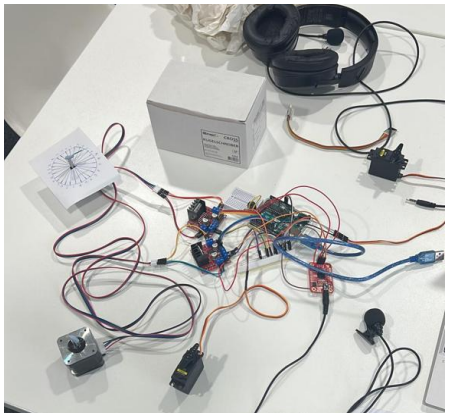
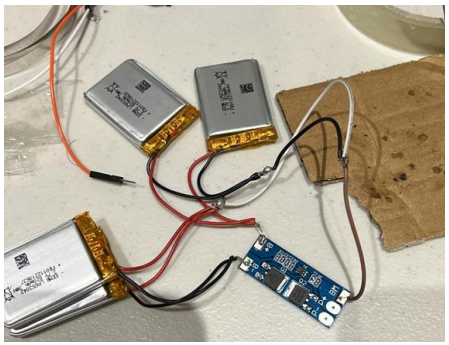


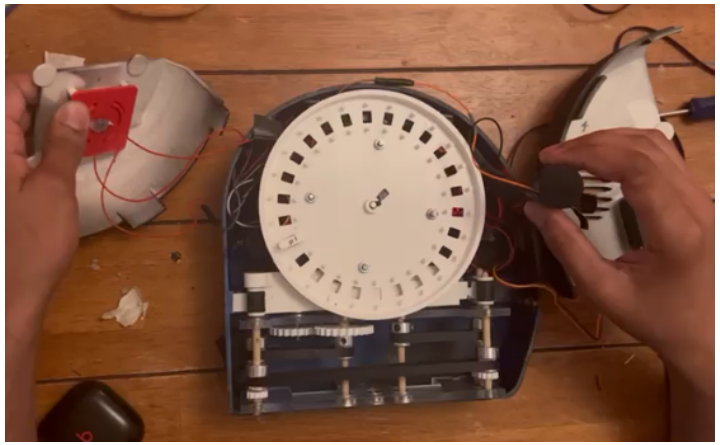


Prototyping





Iterative prototyping

Final product

MyEyes

Skills acquired :

- **CAD**
- **Rendering**
- **Sketching**
- **Ideation**
- **User - Research**

Problem: *HOW MIGHT WE help blind people read important text when navigating through day to day tasks*

Solution: *For my individual project I conceptualized MyEyes. They are* **smart glasses** *which* **convert text** *picked up by the discrete cameras* **into audio** *which is heard by the bone conducting speakers.*

Tandem Bike

Task: *Design a* **lightweight tandem bicycle frame** *with a natural frequency higher than 30Hz and an effective work life of at least 10 years*

To develop a tandem cycle frame which met the design brief, an iterative design process was used in which the final design had to pass both **fatigue and natural frequency tests** .

In this project, **mesh refinement studies and sanity checks** *were also used to ensure the results were delivered in a reasonable time and were accurate.*

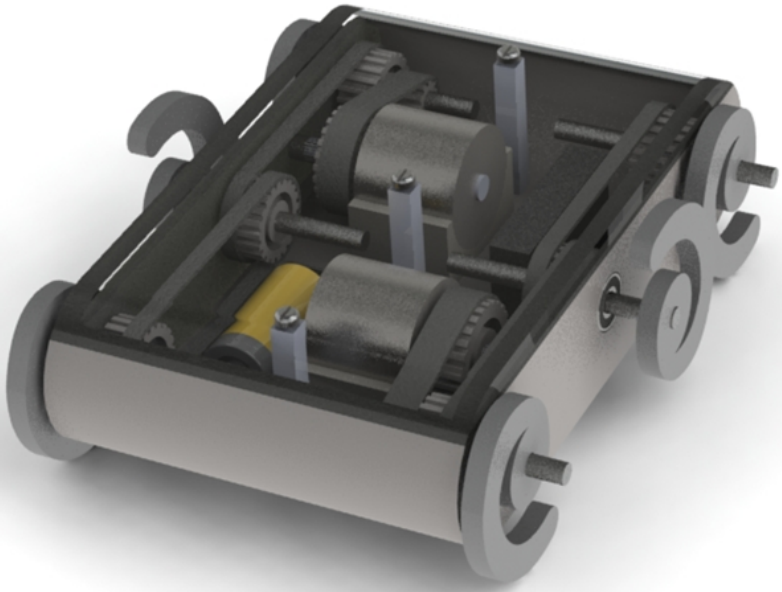
Skills acquired :

CAD **Rendering**

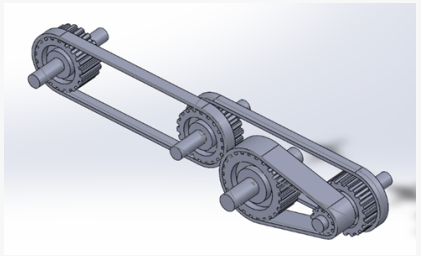
Failure Analysis **Ansys**

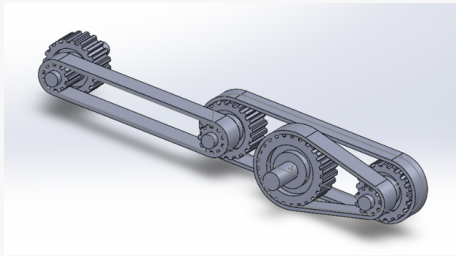
Fatigue Testing **FEA**

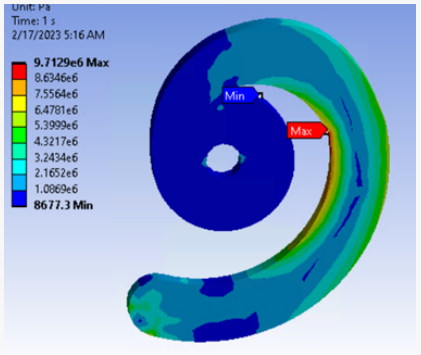
RHex

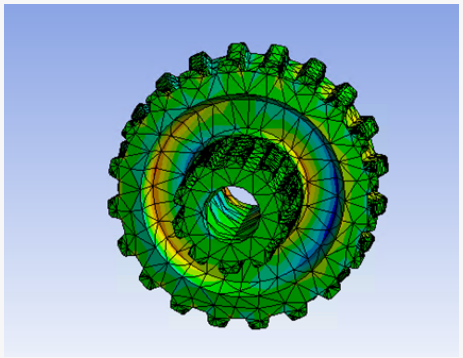


Task: *Design a* **chassis and mobility system for an agile and highly mobile mini Hexapedal robot** *based on RHex architecture.*









Skills acquired :

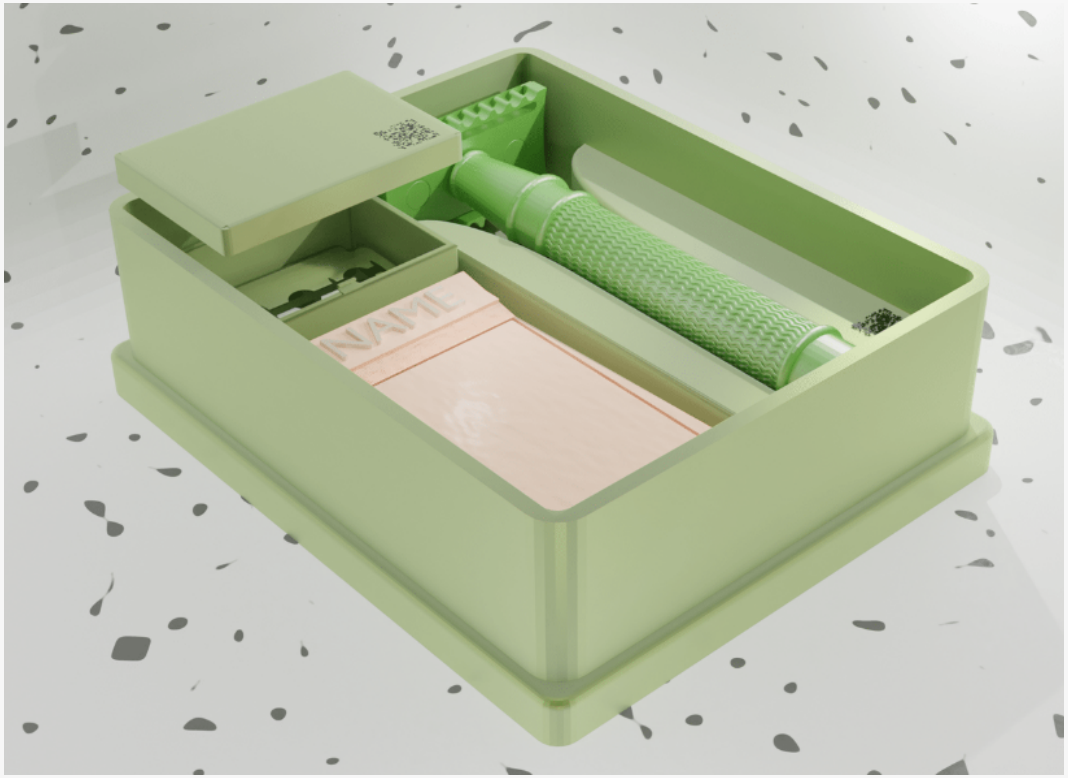
CAD **Rendering**

Failure Analysis **Prototyping**

Mechatronics **FEA**

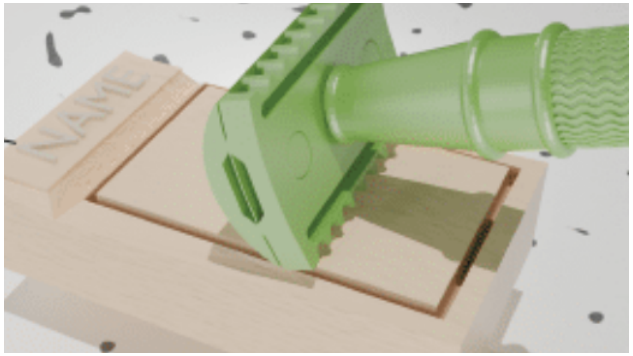
For this project we had to go through multiple iterations of transmission mechanisms and design to ensure the robot was robust enough to meet the specification

Sharp



Task: *Redesign a razor blade to make it as sustainable as possible factoring material, transport, disposal and its whole life cycle.*

Solution: *We designed a* **premium safety razor with a blade sharpening slab** *and blade returning scheme so each blade is utilised to its maximum capacity and disposed off in a eco-friendly manner. Furthermore, an app UI was created to show how reward schemes could be used to promote sustainable habits.*



Skills acquired :

Rendering **Sustainable design** **Packaging design**

Material analysis **CAD** **App UX/UI**