Shark | NINJA

Design Challenge

How does the Ninja Intelli-Sense Kitchen System work?

First Impression and specification

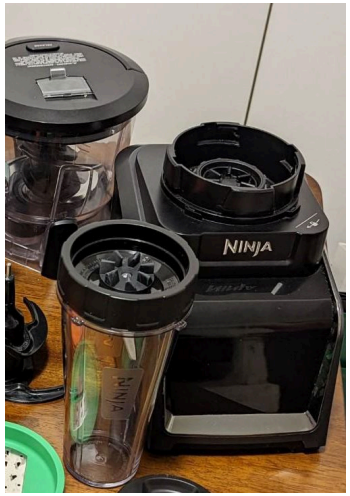
- Rotates to move blades in Blenders, food processor and spiraliser.
- Solid/wide base
- Has a mechanism to secure attachments.
- 1200 W Smart Base
- Motor which turns at set preprogrammed speeds.
- Vessel Recognition
- Touch screen display.
- 2 litre max capacity on existing attachments

Working out the turning mechanism and recreating on CAD

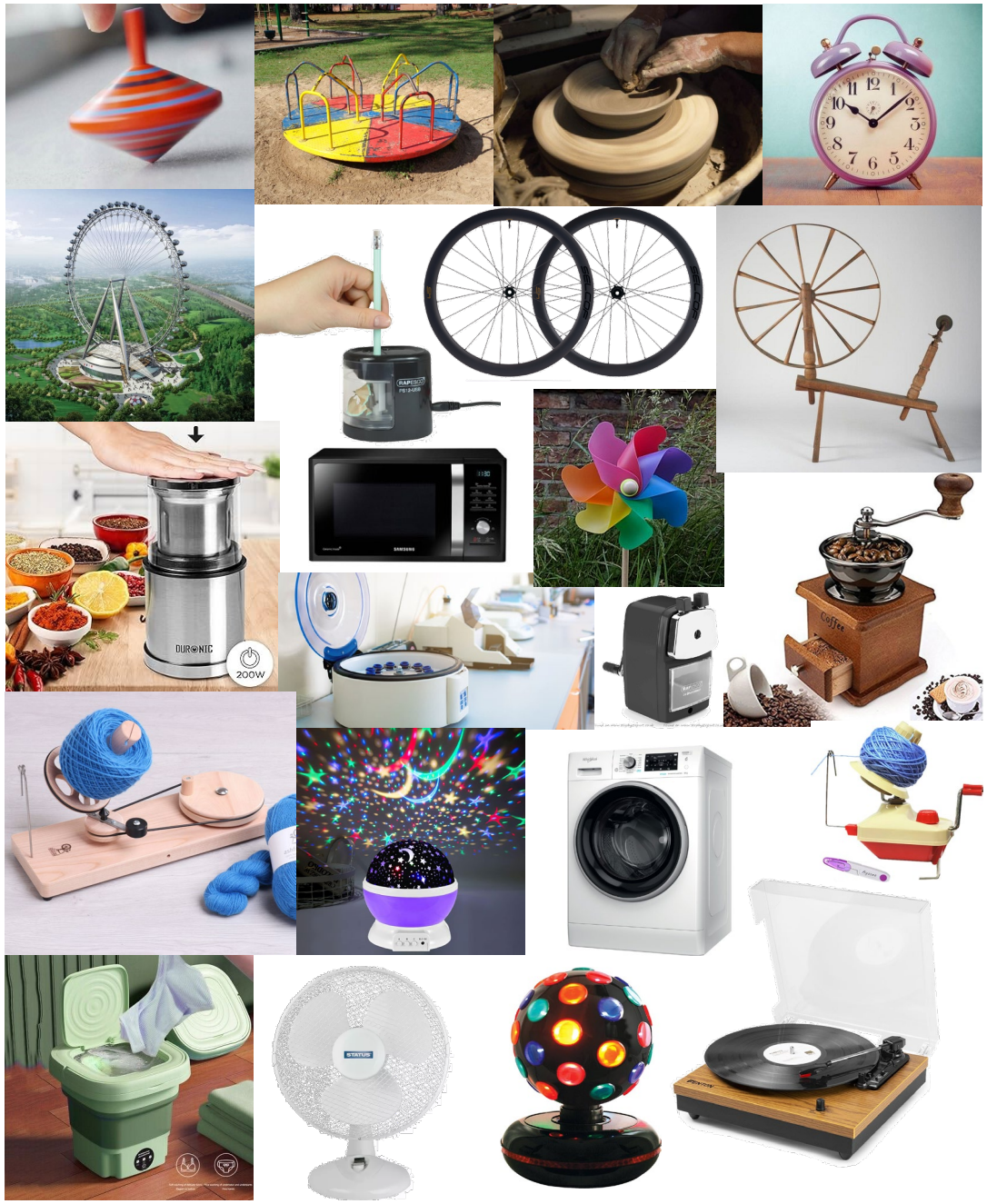
- Found pictures of resale products online which provided different angles than videos and official photos to give understanding of how product worked.
- Did a quick Cad model to ensure my assumptions works and were most likely correct.

Left image shows mechanism attached to motor

Below is a top view

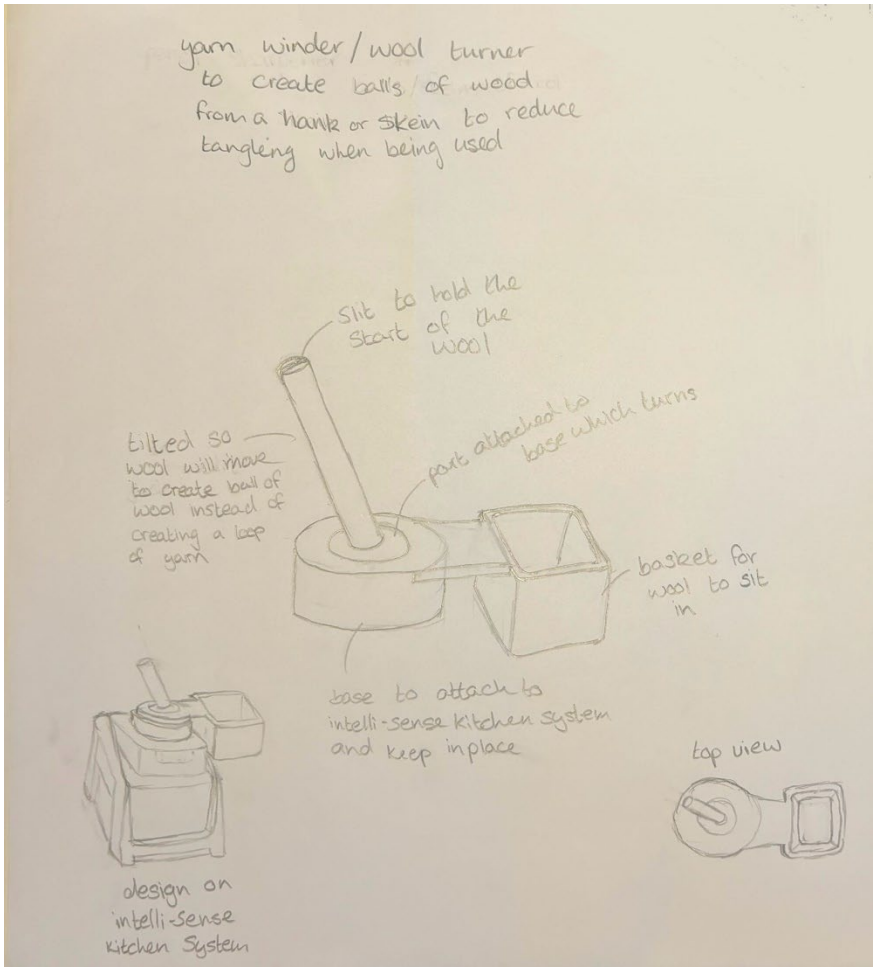


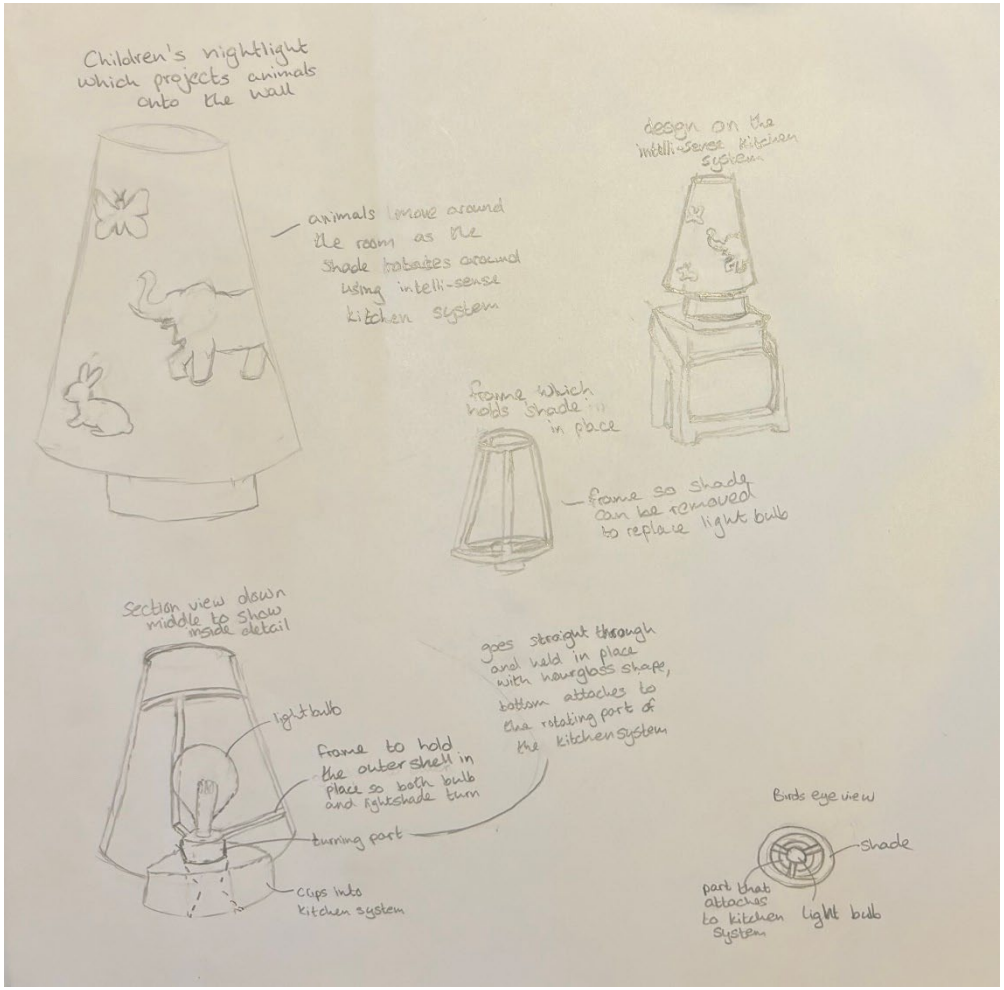
Idea Generation



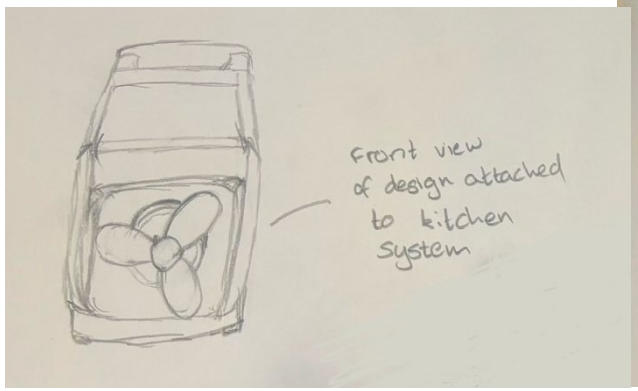
Created a collage of different products that use rotation as their main mechanism.

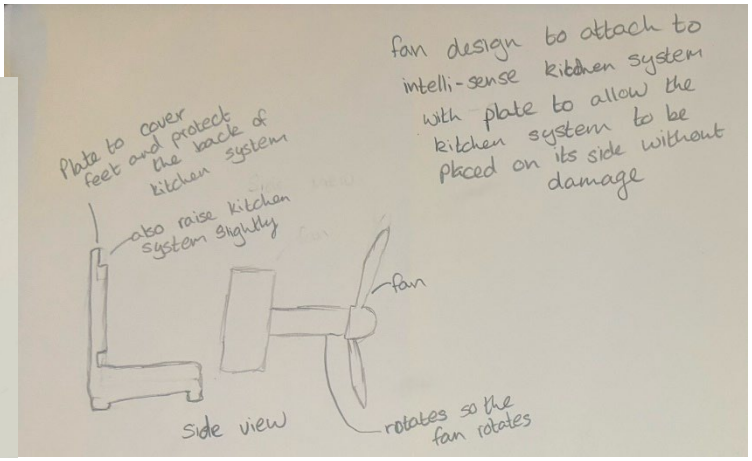
Concept Generation





Using my idea generation collage as inspiration, I generated 3 different design ideas. The sketches on the page show these initial concepts. The aim of this was to get something on the page that I could expand and develop.





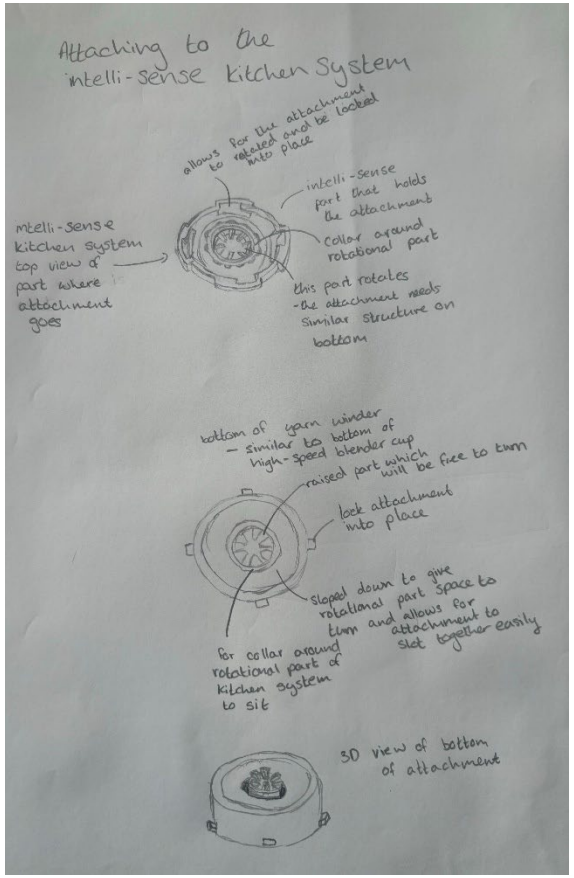
Concept Selection

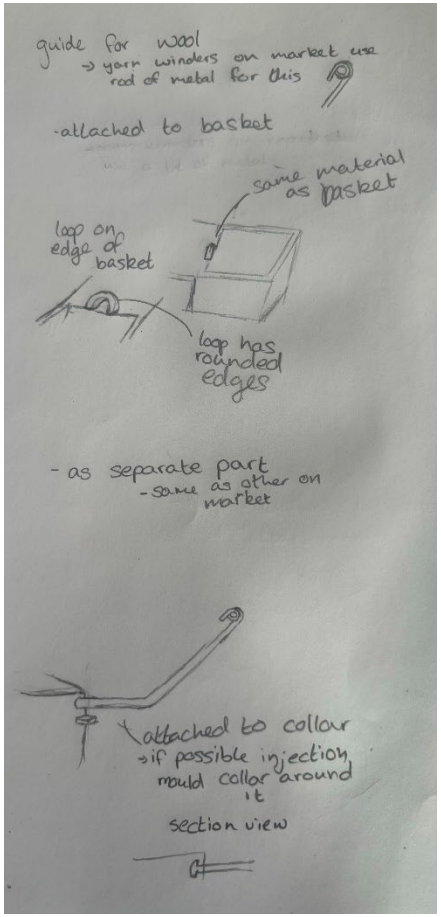
Concept	Aesthetics (/4)	Functionality (/6)	Ease of use (/5)	Manufacturability (/5)	Total (/20)
Fan	1 Not very attractive, the kitchen system being on its side takes away from aesthetics	4 Would act well as a fan on a high speed rpm	3 Easy for user, but several interactions that shouldn't be necessary	3 Plate can be injection molded. Fan more difficult to manufacture due to several parts	11
Yarn winder	3 More compact than that on market. Basics of design necessary for product to work	5 Lost mark due to nothing to hold string of wool in place	5 Very easy to use, just attach to kitchen system and then press setting	4 Only difficult part for manufacture is how the rotating part is secured within the based	17
Nightlight	4 Very aesthetic and attractive. Would appeal to consumer	5 Has to have a separate power supply from kitchen system	4 May be difficult to replace lightbulb. Several interactions to get set up and turned on	3 Several different parts needing manufactured and put together	16

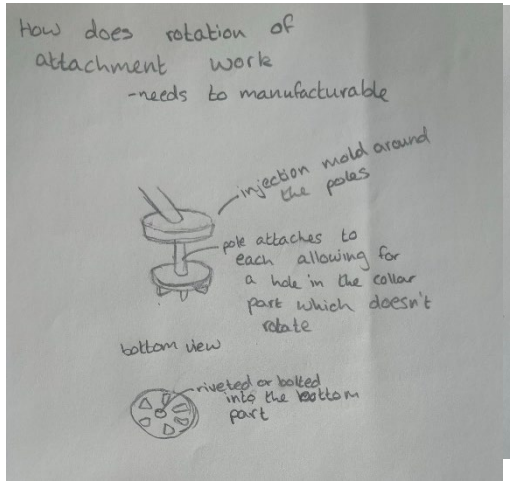
I chose these 4 criteria for my concept selection as I believe these are most important to the brief. They also have the biggest impact on the feasibility of a product, be that the feasibility to get the product to market or the feasibility of the product selling.

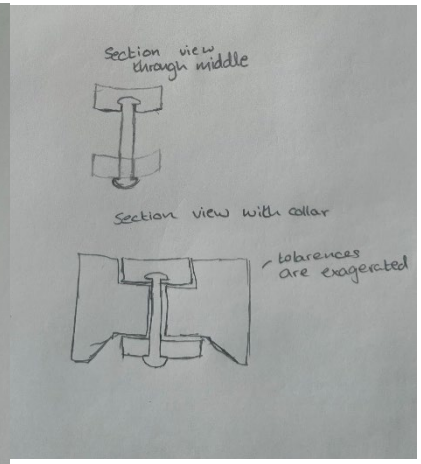
The Yarn winder scored highest on these criteria

Concept Development

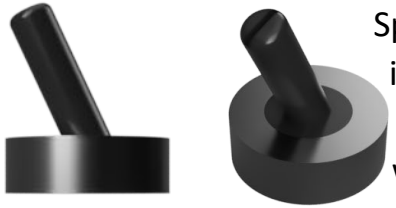








Basket with a support rod to keep the yarn from tangling. This part goes on the outside of the part of the kitchen system used to secure the attachments.



Spindle which rotates to turn yarn into a ball of wool. Locks into the kitchen system with small parts which stick out (not shown here)

Things left to explore

- Angle for spindle which works best
- Height of support rod that works best
- Preventing wool from tangling on basket

If I had more time, I would do cardboard and 3D printed mock-up to test out the things listed above.

Front, side, and 3D views of the Design

Yarn winder design on simplified version of the Intelli-Sense Kitchen System

Feasibility

Through CAD I have run a few simulations to ensure that this design would work. Based on this and the similarities to existing yarn winders (which are all mechanical) I believe it execute is function well.

I have taken great care to ensure that this product is easily manufacturable with injection moulding and will fit with the current specification of the kitchen system.

User Experience

The colours have been selected from original colour scheme of the kitchen system, so to tie in with it.

The attachment easily attaches by playing it down and twisting like the other attachments for the kitchen system. It may require two hands to attach it.