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TEKNISKA HÖGSKOLEN
HELSINKI UNIVERSITY OF TECHNOLOGY

product innovation
project

blade *Symphony*



Multi-Purpose Household Cutting Machine



- Use Ultrasonic Technology to cut food
- new cutting machine should be miniaturized
- have a totally new design
- easily foldable to store it also in small kitchen



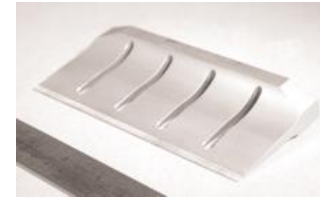
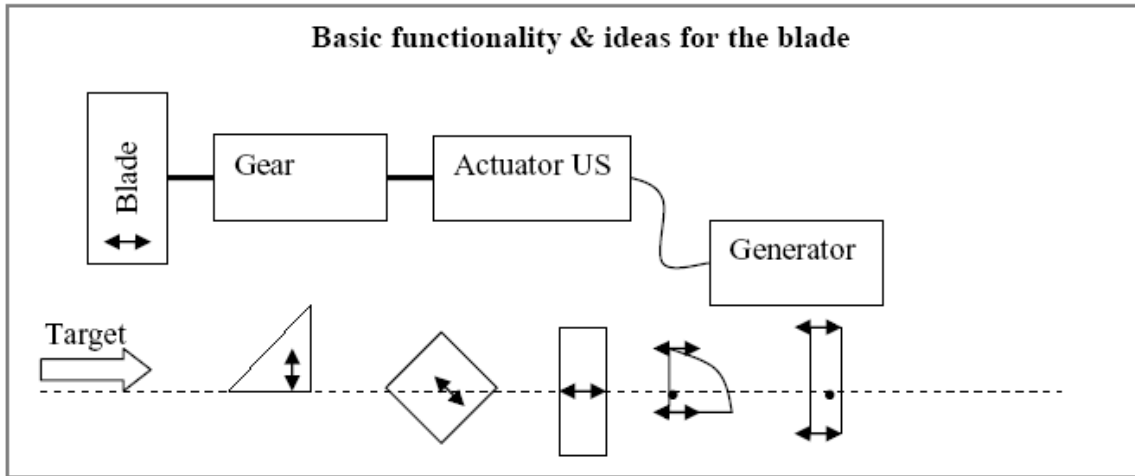
US Technology



Innovation

→ Ultrasonic Technology is not realizable in Household machines

Why Ultrasonic does not work!



1.000 €



1.500 €



500 €

3.000 €

- Blade is a resonating part
 - Components are big in size
- Cutting process needs to be automated
 - Same cutting speed necessary
 - Invisibility of Movement is dangerous
- Hand built Knife (Horn)

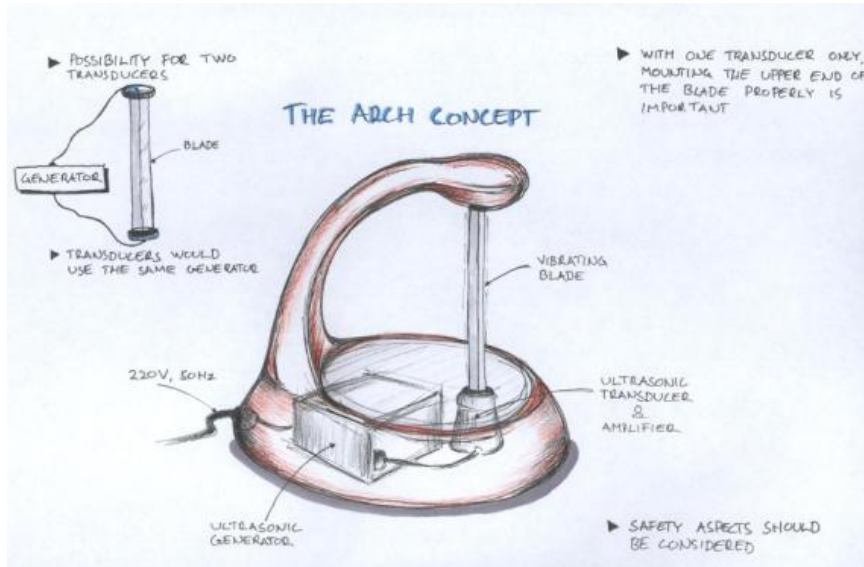
Too big in size!

Too expensive!

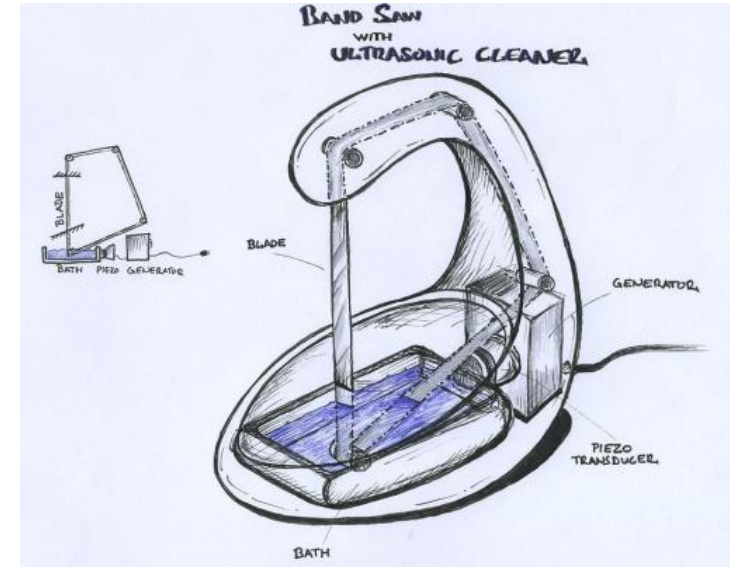
Ideas and Concepts without Ultra Sonic



Arch Concept



Band Saw



Prototype and Cutting Pre-tests



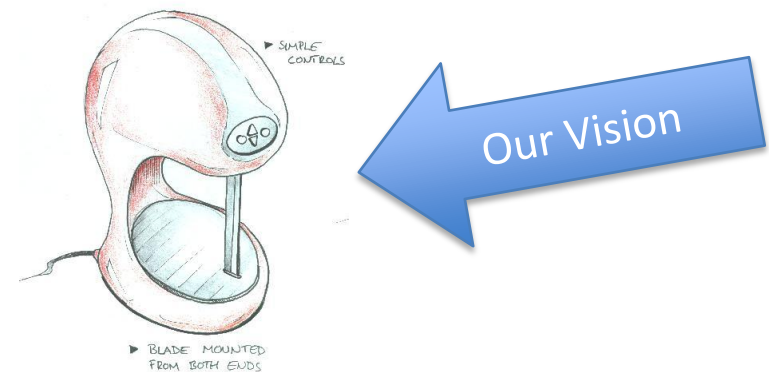
First Prototype Parameters

- RPM 3000
- Blade length 8 cm
- Modified Parts
 - Turntable (smaller deviation)
 - Lifting rod



Problems

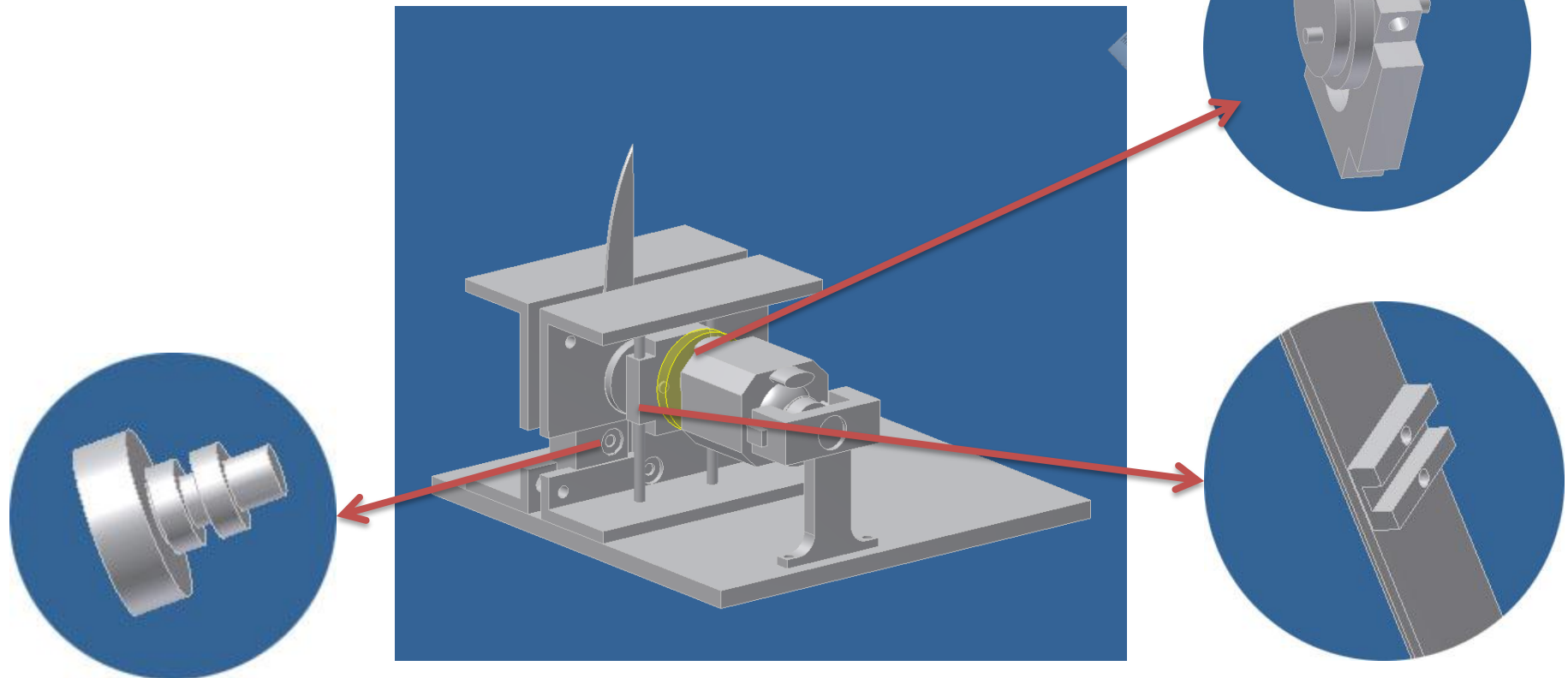
- Blade not sharp enough
- Side vibration of machine
- Noise
- Size



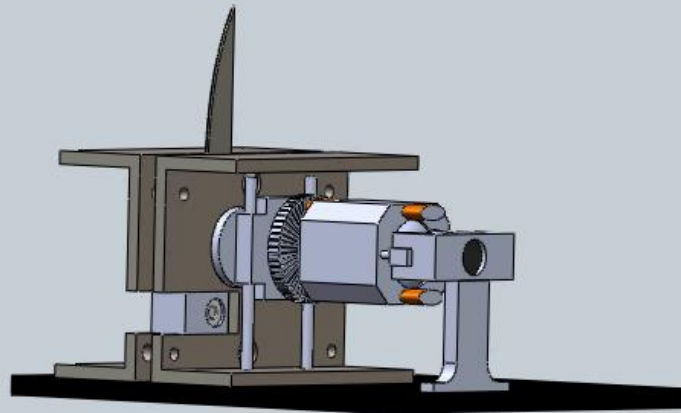
Technical Prototype



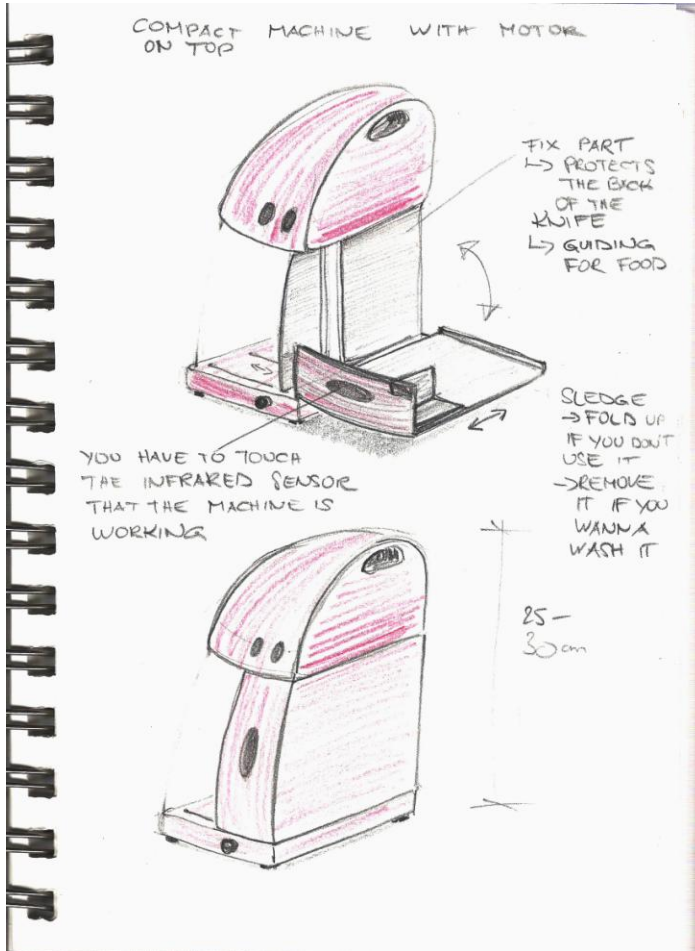
Reverse Steam Engine Principle



Technical Prototype



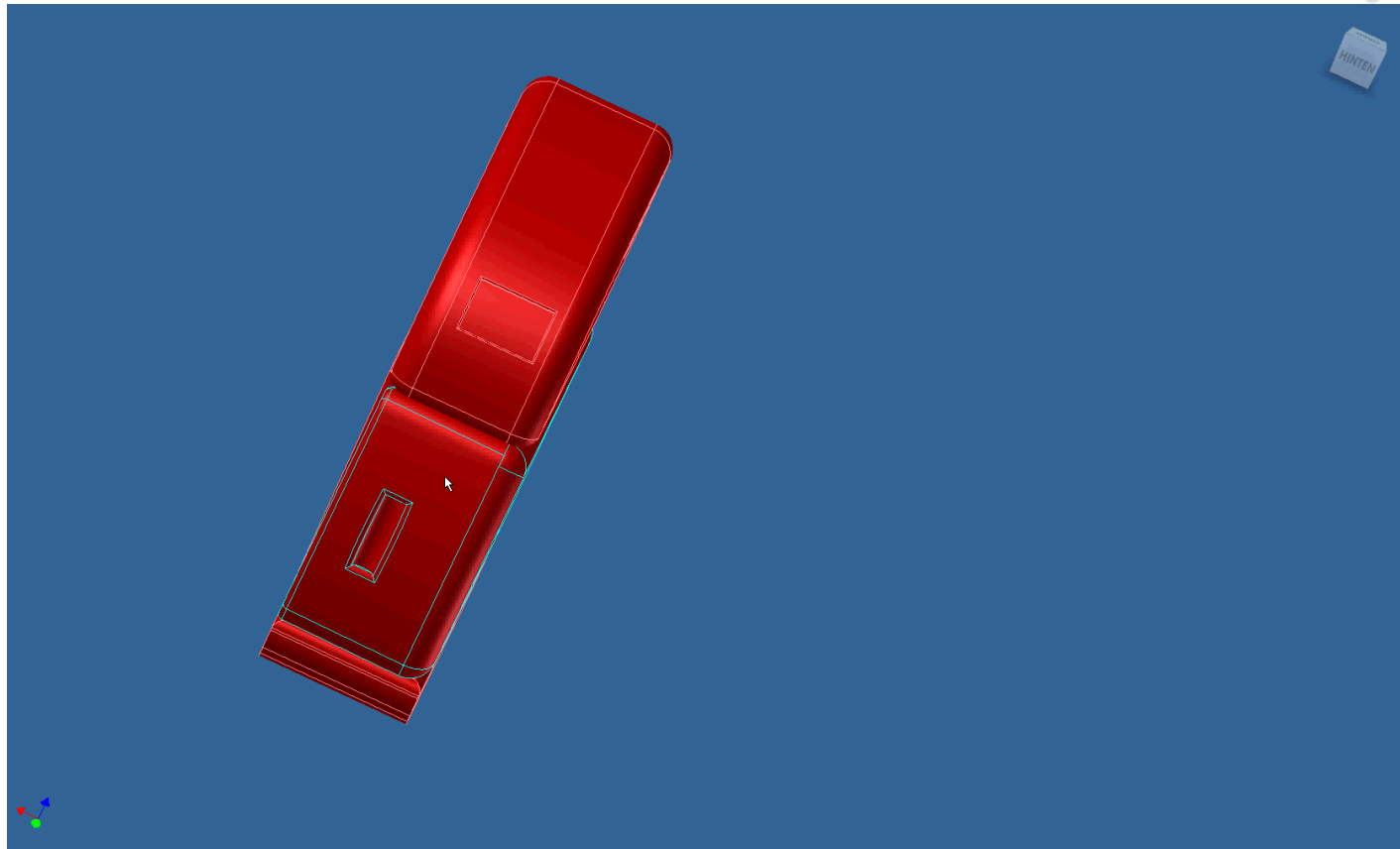
Design Prototype



- New technology
- New Design
- Compact Size
- Foldable

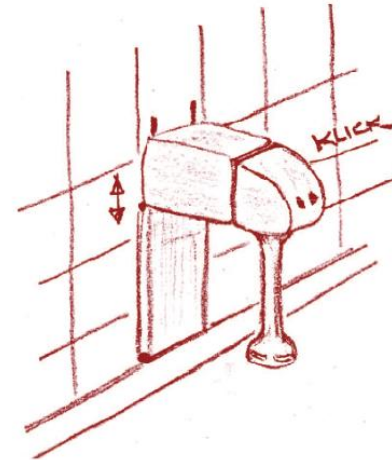
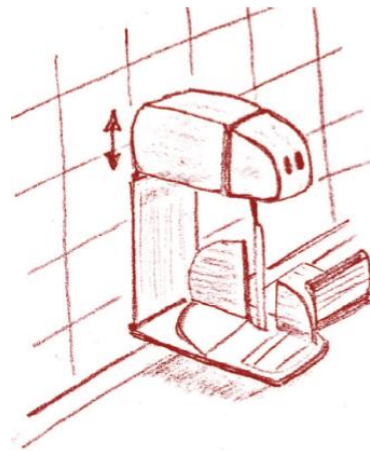
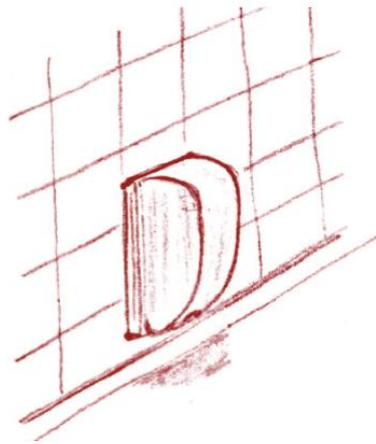


New Multi-Purpose Cutting Machine

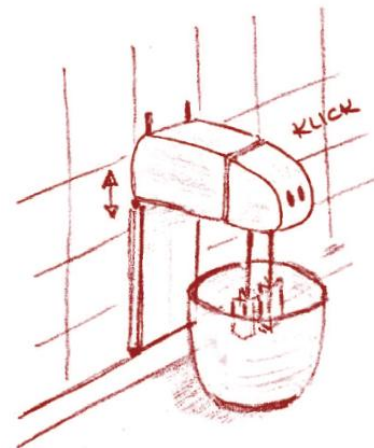


Charming. Chameleonic. Cute.

Future Vision



- Foldable on a wall
- Changeable Front
 - Knife
 - Mixer
 - Blender



Collaborations/Contributors



PHILIPS

sense and simplicity

Model-Shop & **FUN**ction Development
PHILIPS *Consumer Lifestyle* Klagenfurt
Jürgen Ressmann & Roland Waldner

Laboratory Facilities

Michael Bader & Manfred from MEL Laboratory

Wooden Parts

Alois Zenz - Tischlerei Zenz



Introduction to Ultrasonic Cutting in Medicine

Dr. Wolfgang FEIL

Ultrasonic Cutting for Industrial Purposes

Ing. Wittmann - Branson GmbH

Product Development Project Finland

Organising Team in Finland



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