

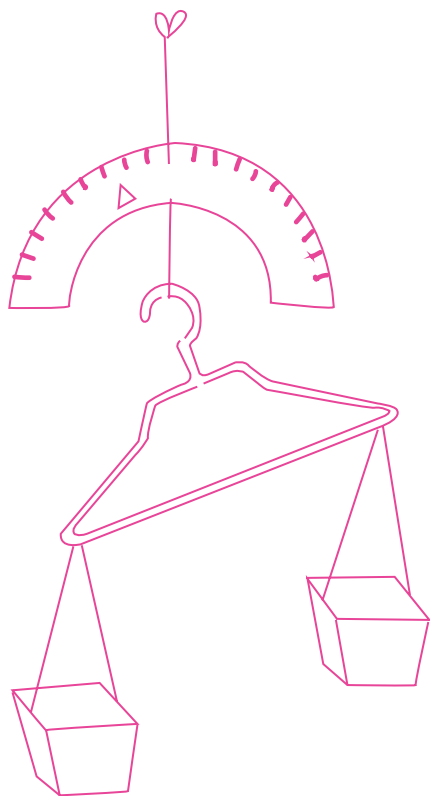


# scales

shorttermproject  
ID2 WS 2019

Anna Koppmann - Louie Eager  
Esmée Willemsen- Madison Bates

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## what’s a scale?

A weighing scale is a measuring instrument for determining the weight or mass of an object.

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**history of scales**  
timeline - how scales evolved

usage today

map - different units

weighing without scales

improvisation of scales

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**product research**  
kitchen scale overview

balance scale

spring scale

digital scale / TechRise kitchenscale

spoon scale / Rosenstein & Söhne

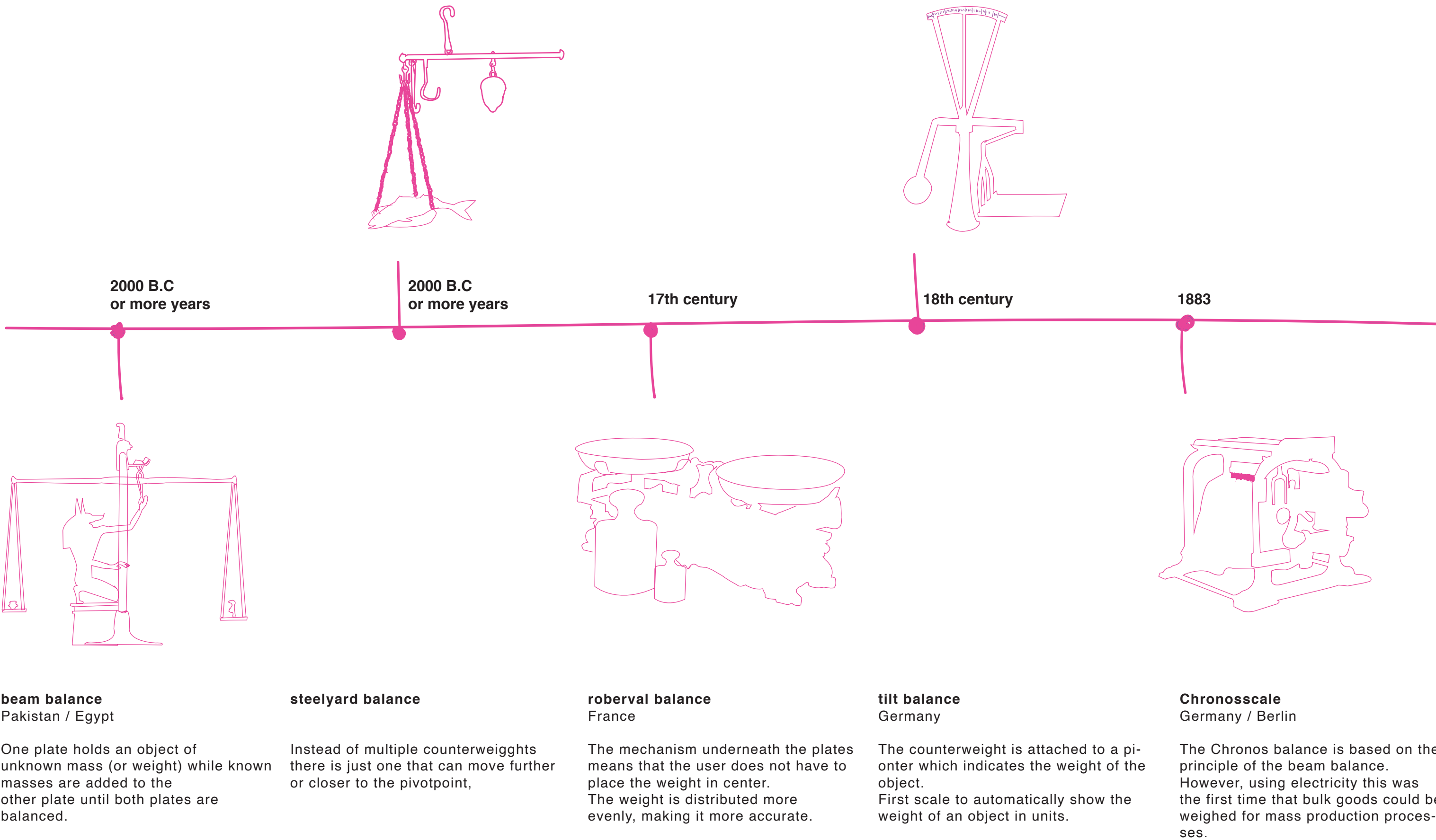
precision scale / Ascher digital pocket scale

comparision / analogue & digital scales

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57-60

**how does a scale look in the future?**



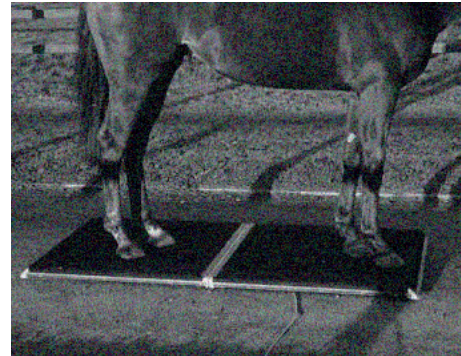


## body



### human

bodyscales have only been in home and medical use for 220 years  
(at home & medical /0 - 150 kg)



### animal

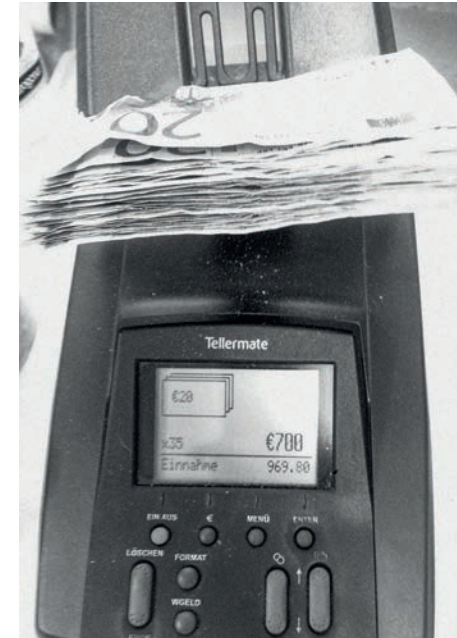
## labratory



### microbalance

used in chemical laboratories  
percise measuring of substances  
(1 mg - 0,001 mg)

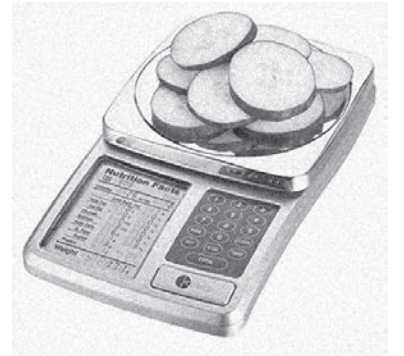
## money



## kitchen



### analogue



### nutrition scale

precise nutritional information for foods or liquids  
calculate calories, carbohydrates, and fats also some calculate vitamin k, potassium, magnesium, sodium

## trading



### supermarket



### market



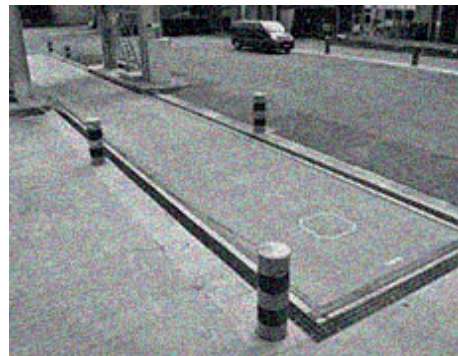
### mail

## transport



### train

large set of scales  
usually permanently built into the ground  
used to weigh entire rail or road vehicles and their contents



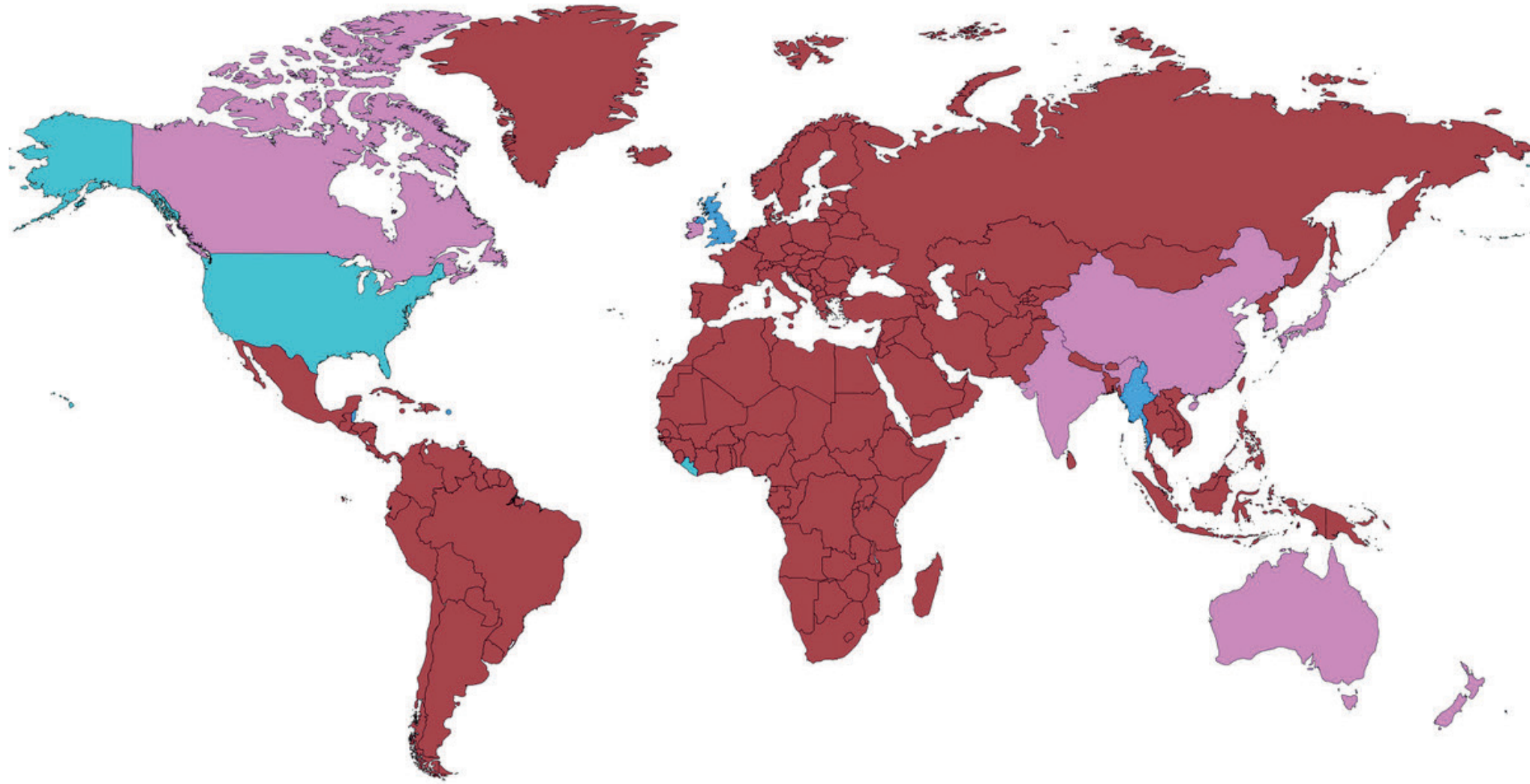
### car

## airport



### luggage

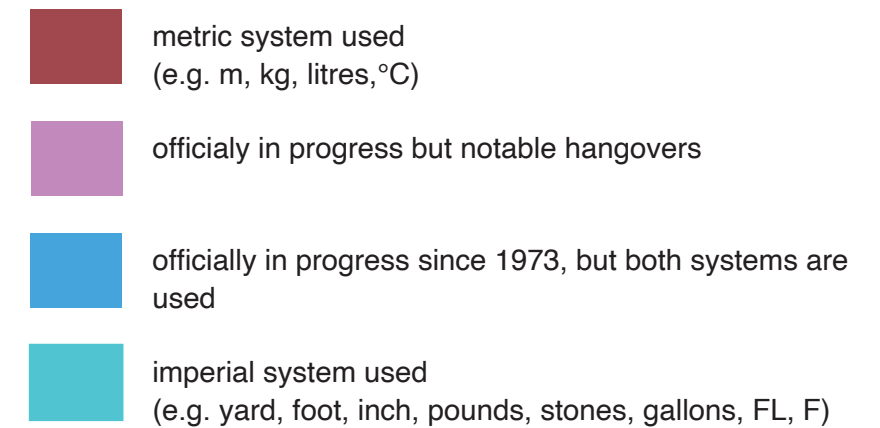




## different units

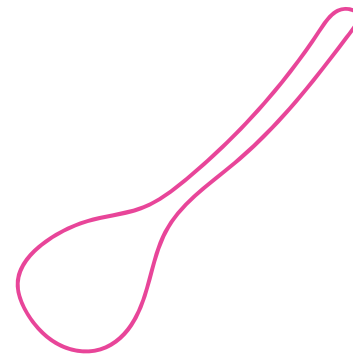
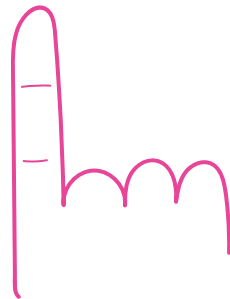
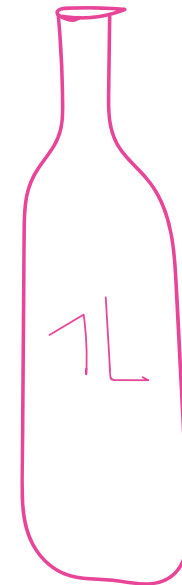
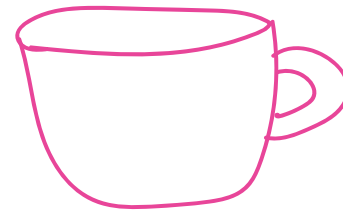
During the french revolution in the 18th century the metric system was introduced because 250.000 different units of measure were introduced in France. As France and other European countries colonised the world, the metric system was adopted more.

The UK came up with their own imperial system in the 19th century and brought it to America where they still use it. Today most countries use the metric system apart from the US, the UK and some of their former colonies (Myanmar, Liberia). The UK are still in a transition period where a lot of the older generation are more familiar with the imperial system.



# alternative methods for weighing

10



## common use

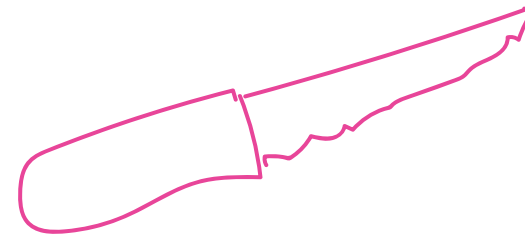
Even though people across the world use the standard form of measurement we still use quite improvised methods of weighing.

For example one litre of liquid, a block of butter or a package of flour are all familiar masses and can be used to compare the weight of other objects without having to use a scale.

Certain kitchen tools also help with weighing ingredients and are in common use in recipe across the world.

And if you don't have any of these you could still use parts of your body. For example your fingertip.

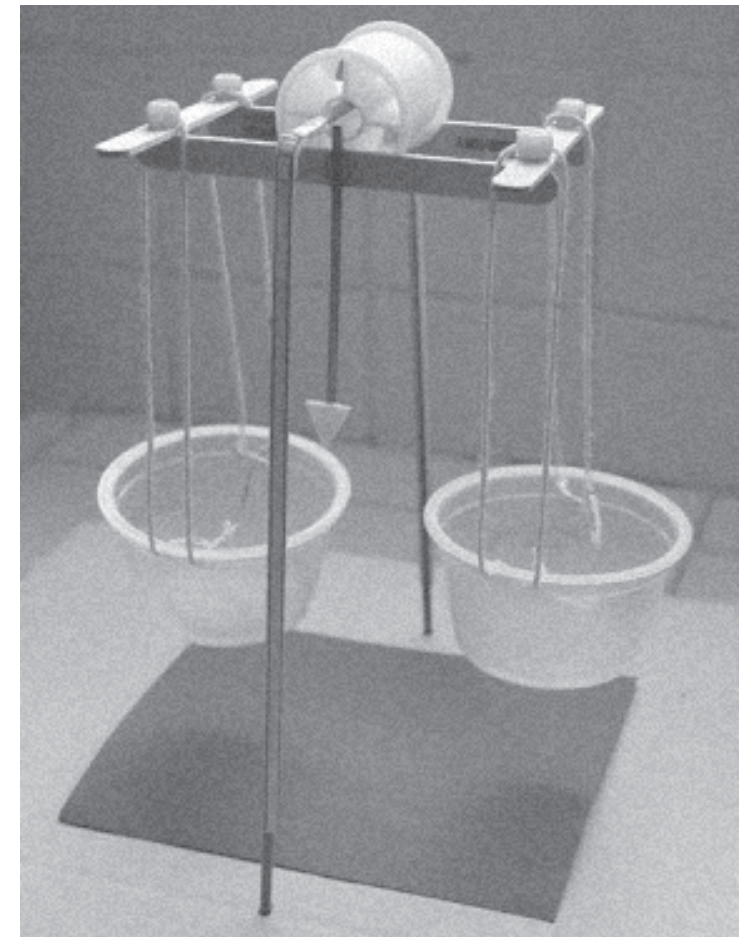
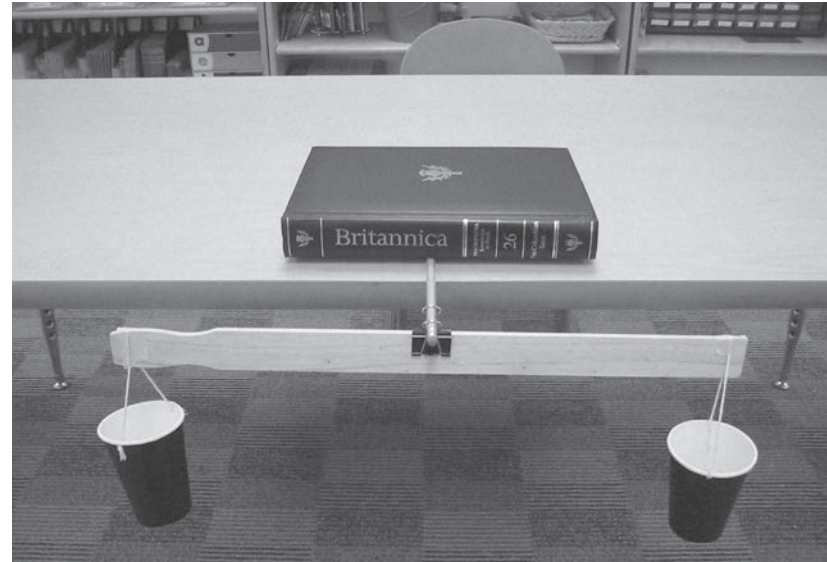
In certain parts of the world people have developed their own form of measuring and even in Western countries like the UK they still use human hands to measure a horse.





# improvisation

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balance scale



spring scale



digital scale



spoon scale



pocket scale





name  
**stube kitchen scale**

size  
**21 x 32 x 12 cm**

color  
**white, silver (metal),  
blue with black and  
gold stube logo**

weight  
**2275g**

material  
**stainless steel tray**

produced in  
**West Germany**

use  
**kitchen scale e.g. baking,  
cooking etc or market/shop scales  
hospital / weighing babys**

year of production  
**1950s**

scala / units  
**grams and kilograms,  
measures from 0-12kg**

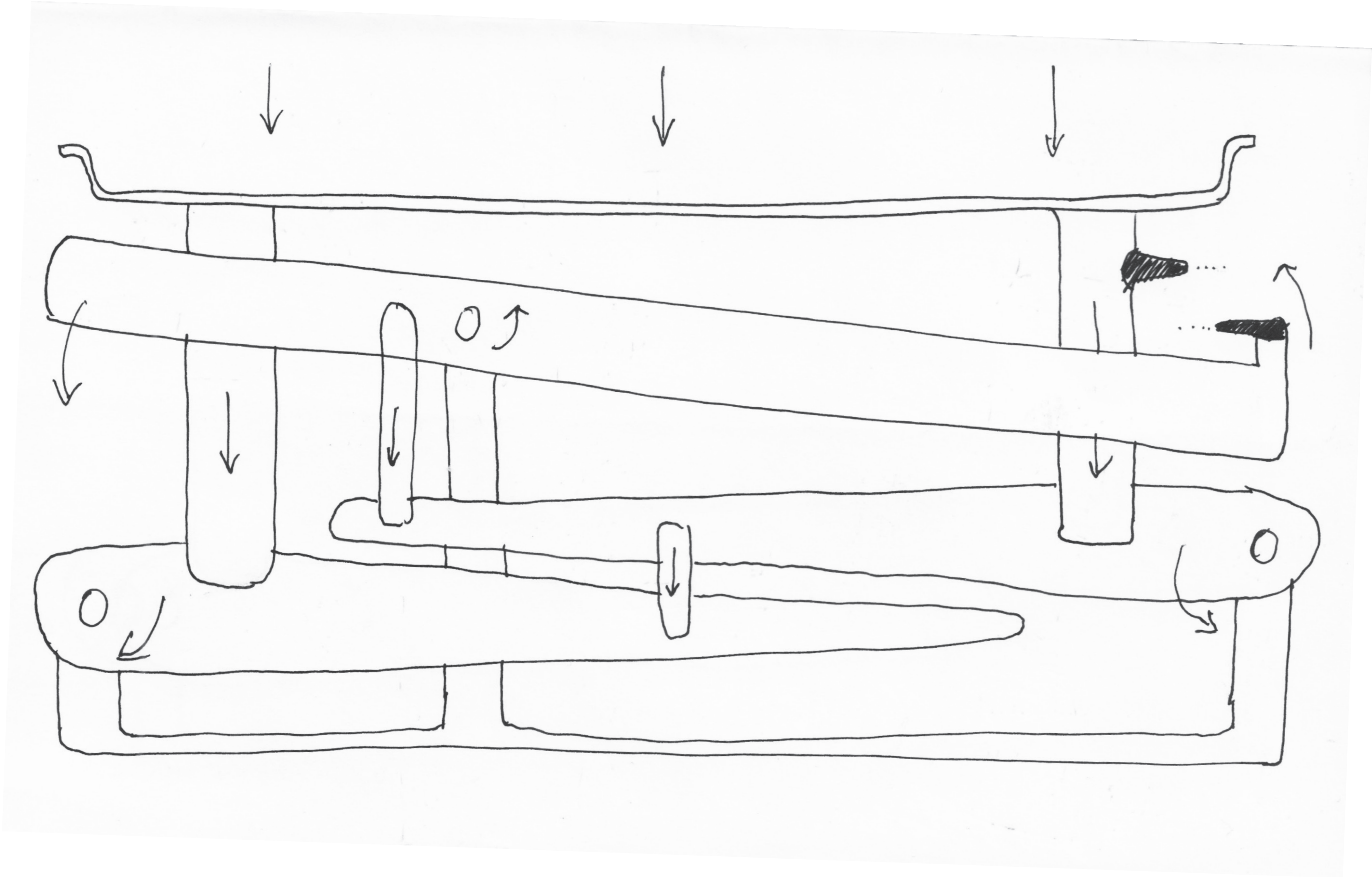
price  
**5€ (at fleamarket)  
on ebay for approx. 40 euros,  
unsure on original price**

EBAY REVIEW

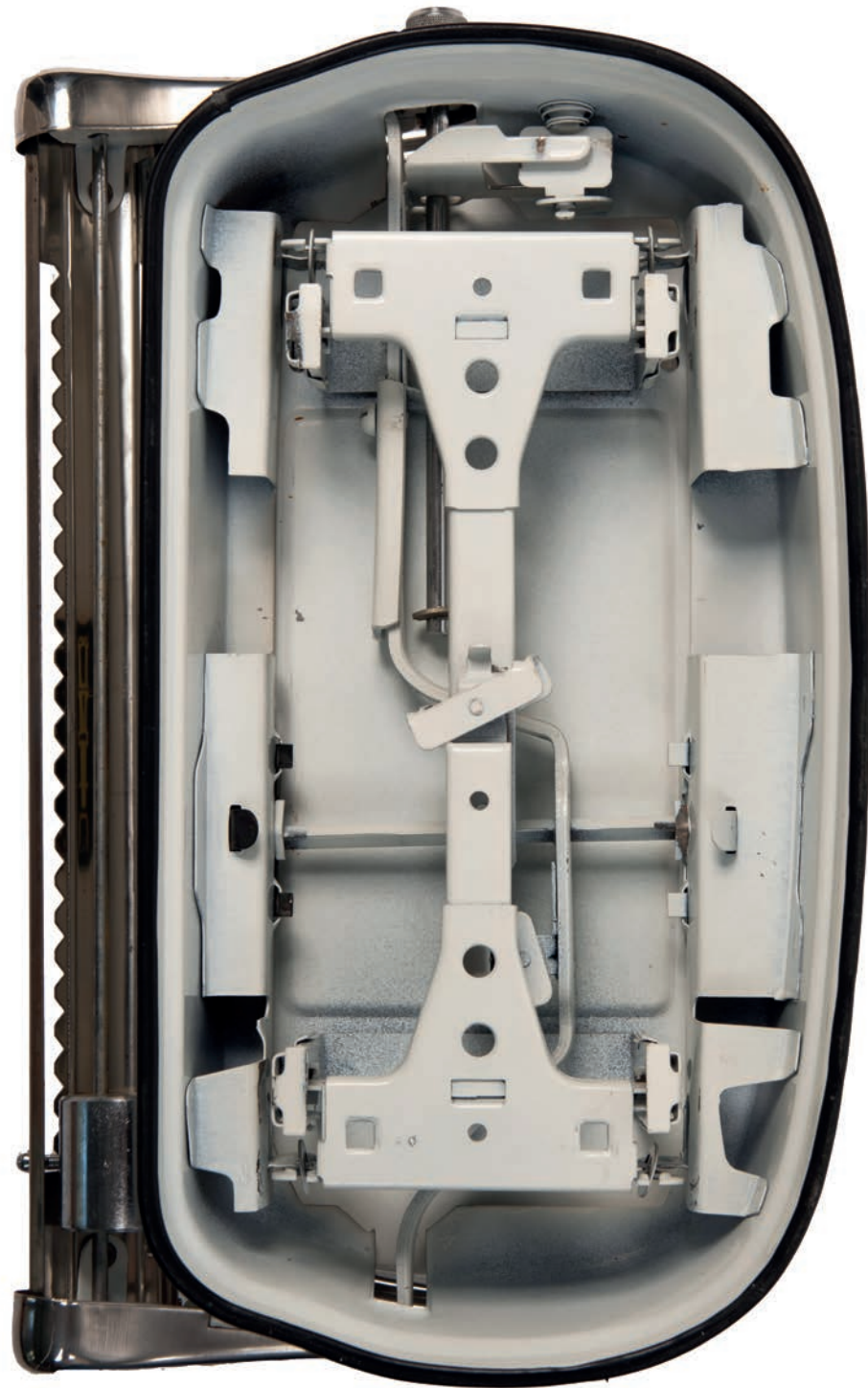


Angelika Schneider:

‘I love my Stube kitchen scales, they look really chic on my kitchen counter. It’s a good thing too that I like the aesthetic as they are so heavy I would not be able to move them! They were an inheritance gift from my grandma so it was quite hard to figure out how they work but now I know they are very reliable’







## RELIABILITY



- longlasting -> still works
- strong, stable materials and connections
- the counterweight never changes

## REPAIRABILITY



- not possible without distroying it
- need of professional tools
- > almost impossible to repair parts
- > parts are glued and welded



materials

**stainless steel tray**  
**small plastic handle**  
**white powdercoat (spray)**  
**rubber**

joines of connection

**spotwelding / bending / riveting**  
**bolting**

used productionmethods

**pressing / punching metal**

conclusion

**it probably took a lot of time to make**  
**not meant to be repairable**  
**the object itself is technically accurate but its the human error that makes using it inaccurate**





name  
**unknown**

size  
**16,5 x 22 x 24 cm**

color  
**white with tan face  
and red dial, font is black**

weight  
**1283g**

material  
**stainless steel tray**

produced in  
**unknown**

use  
**kitchen scale e.g. baking,  
cooking etc**

year of production  
**1970s**

scala / units  
**grams and kilograms,  
measures from 0-2kg**

price  
**5€ (at fleamarket),  
unsure on original price**

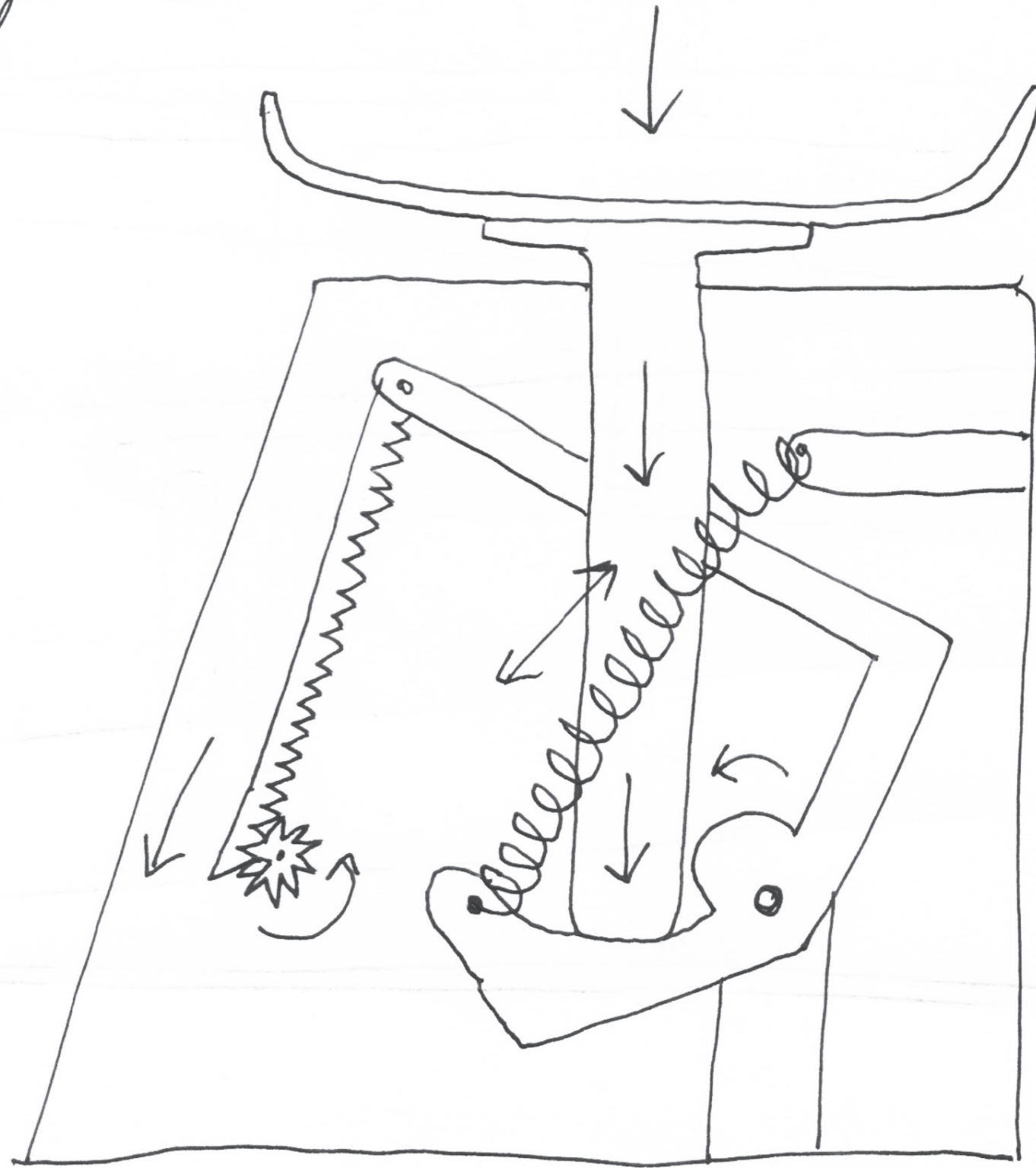
## EBAY REVIEW



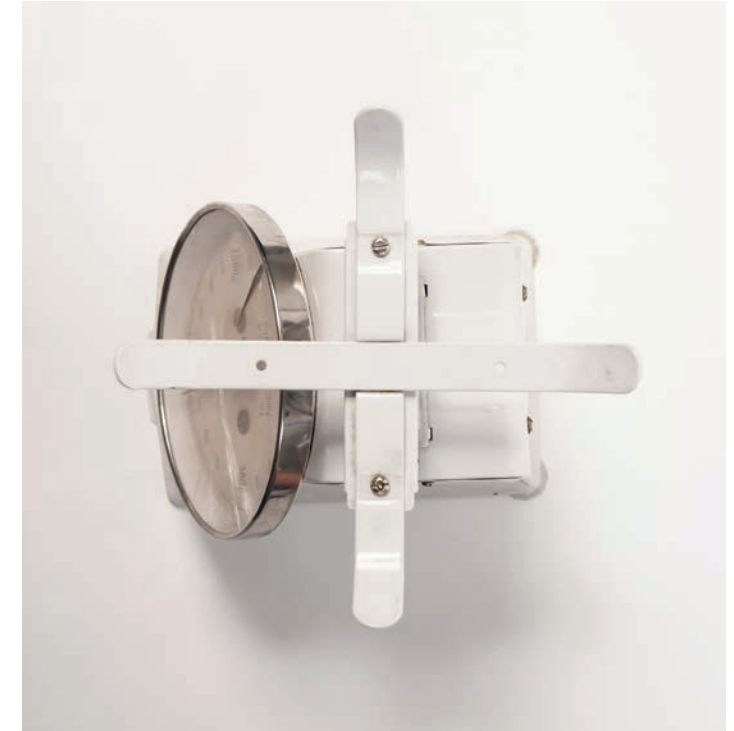
Susan Brown:

'I bought these on eBay for €30, I liked the retro aesthetic however, the spring must be broken as I can't get the dial to go back to zero. I have to use my glasses to read the measurement as the scale is so small.'

1970s Spring tension scales.







## RELIABILITY

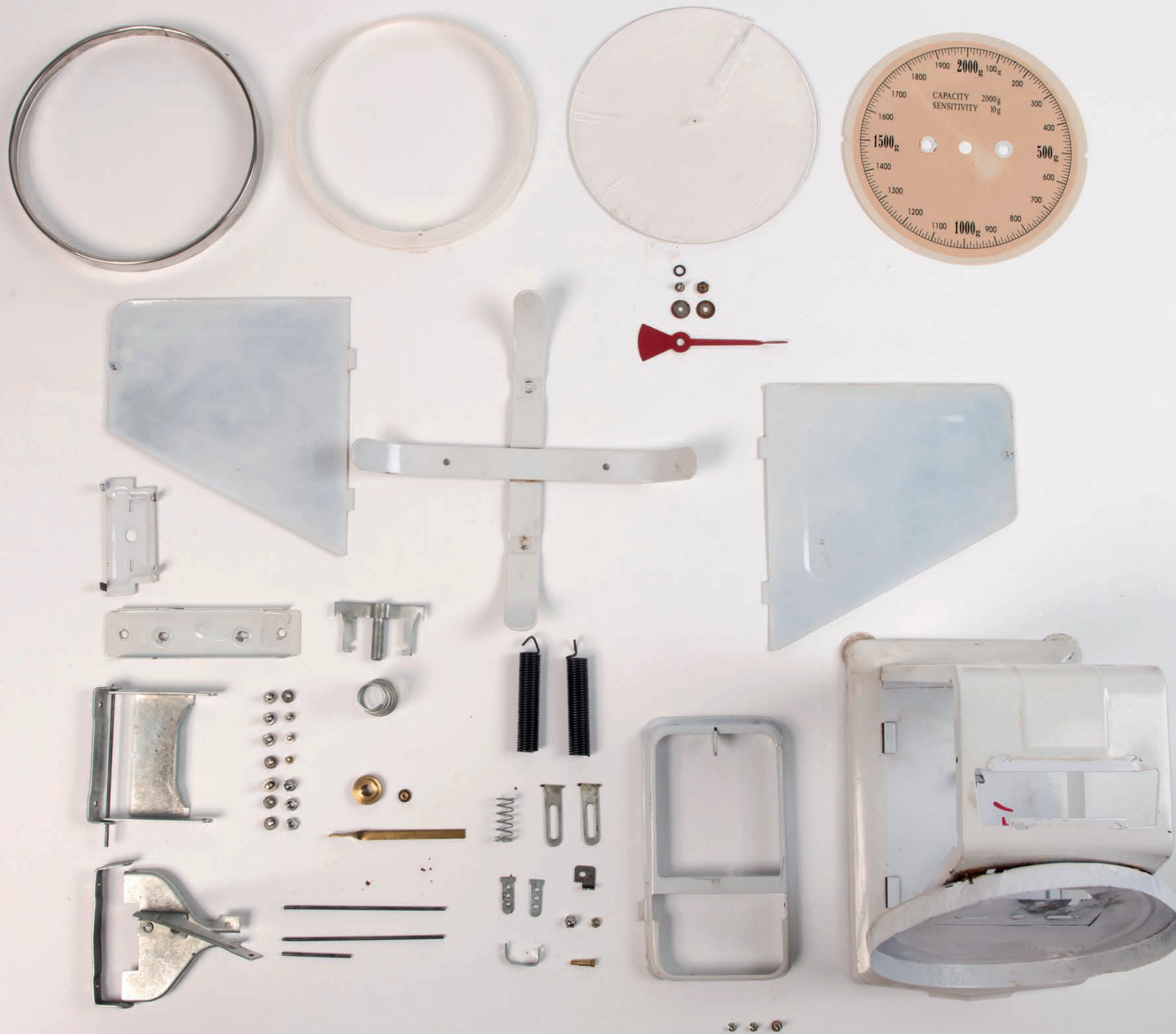


- cheaper quality
- doesn't work
- the accuracy of the spring will only last a certain amount of time

## REPAIRABILITY



- possible to get most parts apart but not possible without destroying some
- need of professional tools
- > parts are glued and welded
- parts are not in good condition (rust, broken front)



materials

steel / brass /aluminium  
white / red lacquer (spray)  
plastic / printed plastic

joines of connection

**spotwelding / bending / riveting**  
**bolting / screws**

used productionmethods

pressing / punching metal

## conclusion

- more efficient production / less parts
- use of screws
- mass manufacturing
- spring loses tension over time





name  
**TechRise Küchenwaage  
Digitalwaage mit  
Tara-Funktion, LCD Display,  
Hintergrundbeleuchtung,  
Auto-Off, Glaswaage zum  
Kochen/Diät/Backen, 11lb 5kg**

size  
**20x16x2,5 cm**

color  
**white with blue display  
and black feet**

weight  
**518g**

material  
**stainless steel tray**

produced in  
**China**

use  
**kitchen scale e.g. baking,  
cooking etc**

year of production  
**2018**

scala / units  
**g, oz, lb, ml,  
measures from 1g – 3000g**

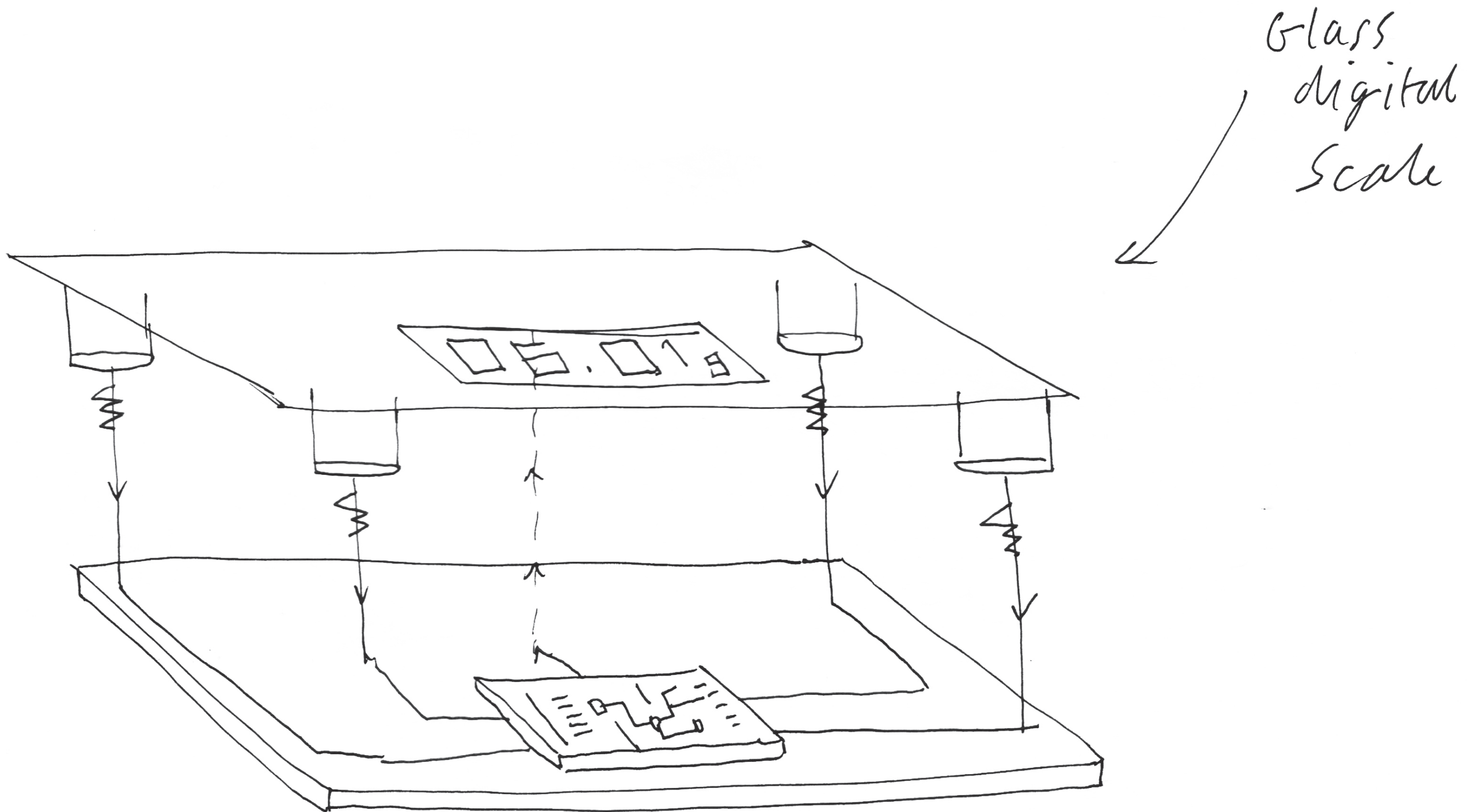
price  
**9.99€ (bought on amazon)**

AMAZON REVIEW



Thomas Böhm:

‘I bought these to use when baking with  
my daughter, they are super easy to use,  
clean and store. I would recommend the-  
se to anyone’





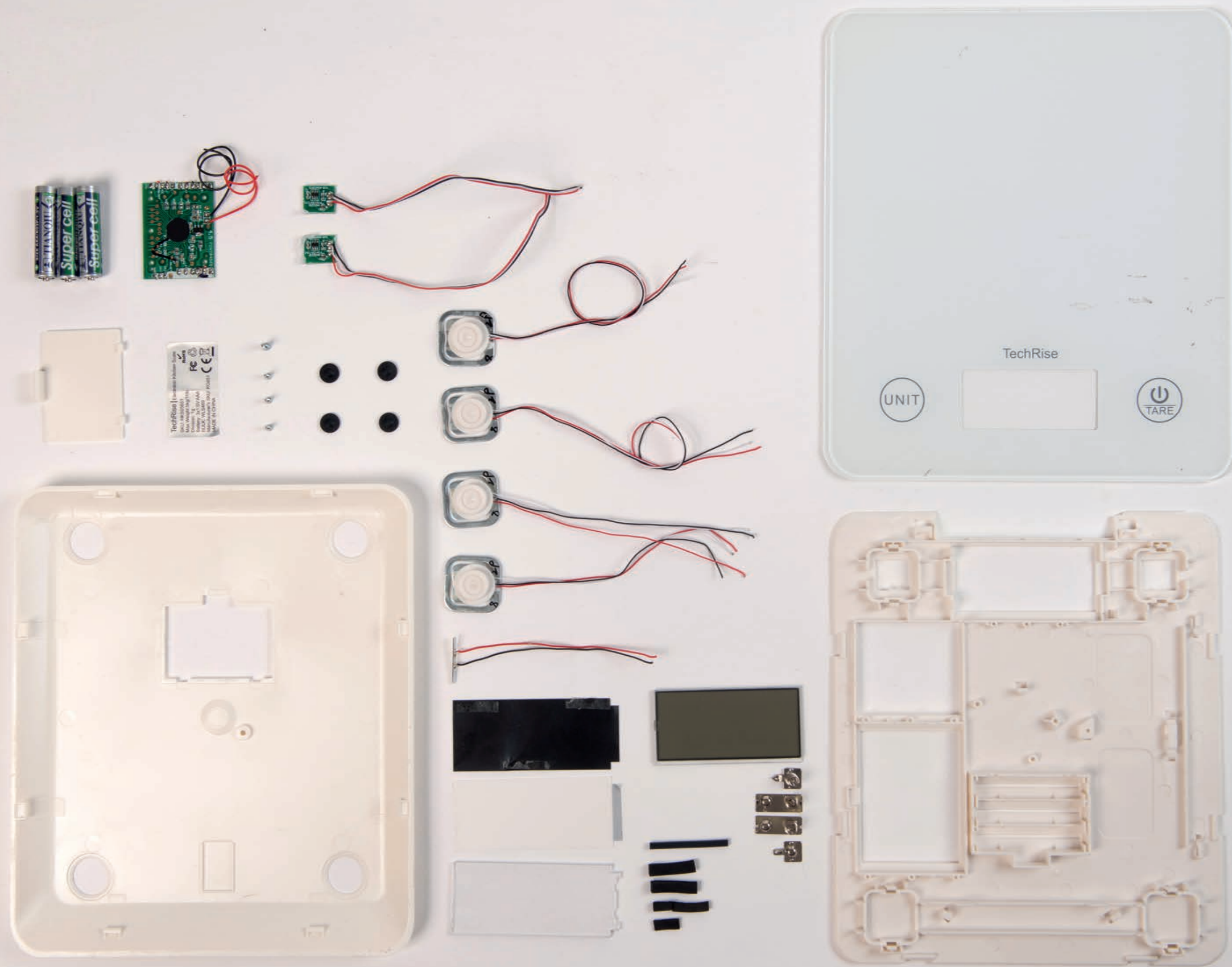
RELIABILITY  
★★★★☆

- longlasting
- quality
- userfriendly / works well

REPAIRABILITY  
★★★★☆

- a lot of parts were glued together / hidden screws underneath stickers
- need of common / mostly available tools (screwdriver)
- if you want to repair it you need technical knowledge but possible (depends on parts)





materials

**Steel screws and springs / tempered glass / LED display / Lithium Battery / Plastic (type?) / rubber feet / tin / circuit board (copper, fibreglass, plastic, epoxy resin) / glass coating / copper wire with plastic coat**

joines of connection

**screws / soldered connections / glue**  
**circuit board - surface wiring / wiring threw the card**

used productionmethods

**injection molding**  
**circuit board - surface wiring / wiring threw the card, components are soldered into place / melting)**  
**pressed metal / lasered metal / glass coating**

conclusion

**generally it works quite well but the production methods haven't considered reparability or recycling processes.**



name  
**Rosenstein & Söhne  
Löffelwaage: Digitale  
Löffel-Waage für Pulver  
und Gewürze, bis 300 g,  
LCD-Anzeige  
(Waage für Kleinstmengen)**

size  
**5 x 3 x 22 cm**

color  
**white with grey**

weight  
**52g**

material  
**plastic / rubber/ glass**

produced in  
**unknown**

use  
**spoon for weighing small  
amounts of food,  
liquid or medication.**

year of production  
**2009**

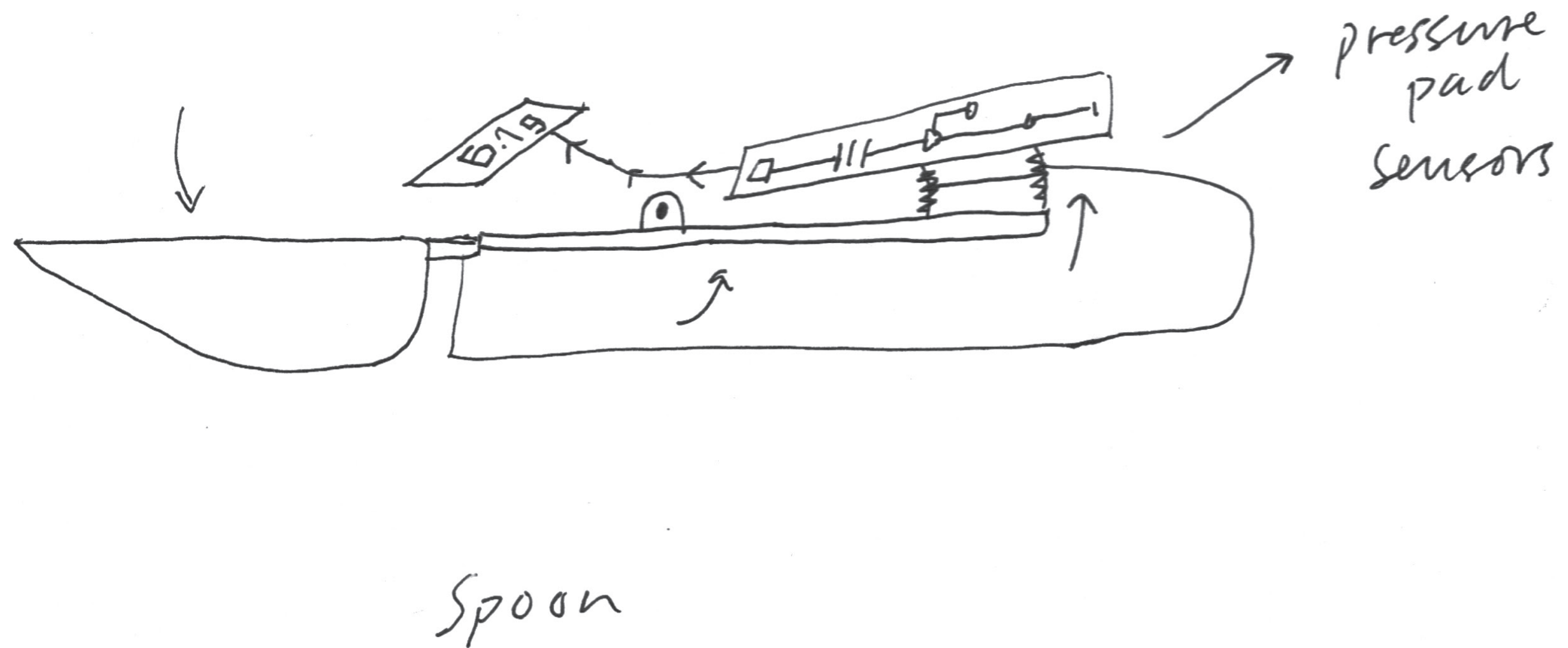
scala / units  
**grams and ounces,  
measures from 0.1g – 300g**

price  
**6.95€ (bought on amazon)**

AMAZON REVIEW



Sasha95:  
  
'Absolutely Inaccurate!!! as soon as the  
spoons position is moved the measure-  
ment display changes. Online it also says  
that you can weigh objects from 0.1g  
however the package instructions say 1g'







## RELIABILITY

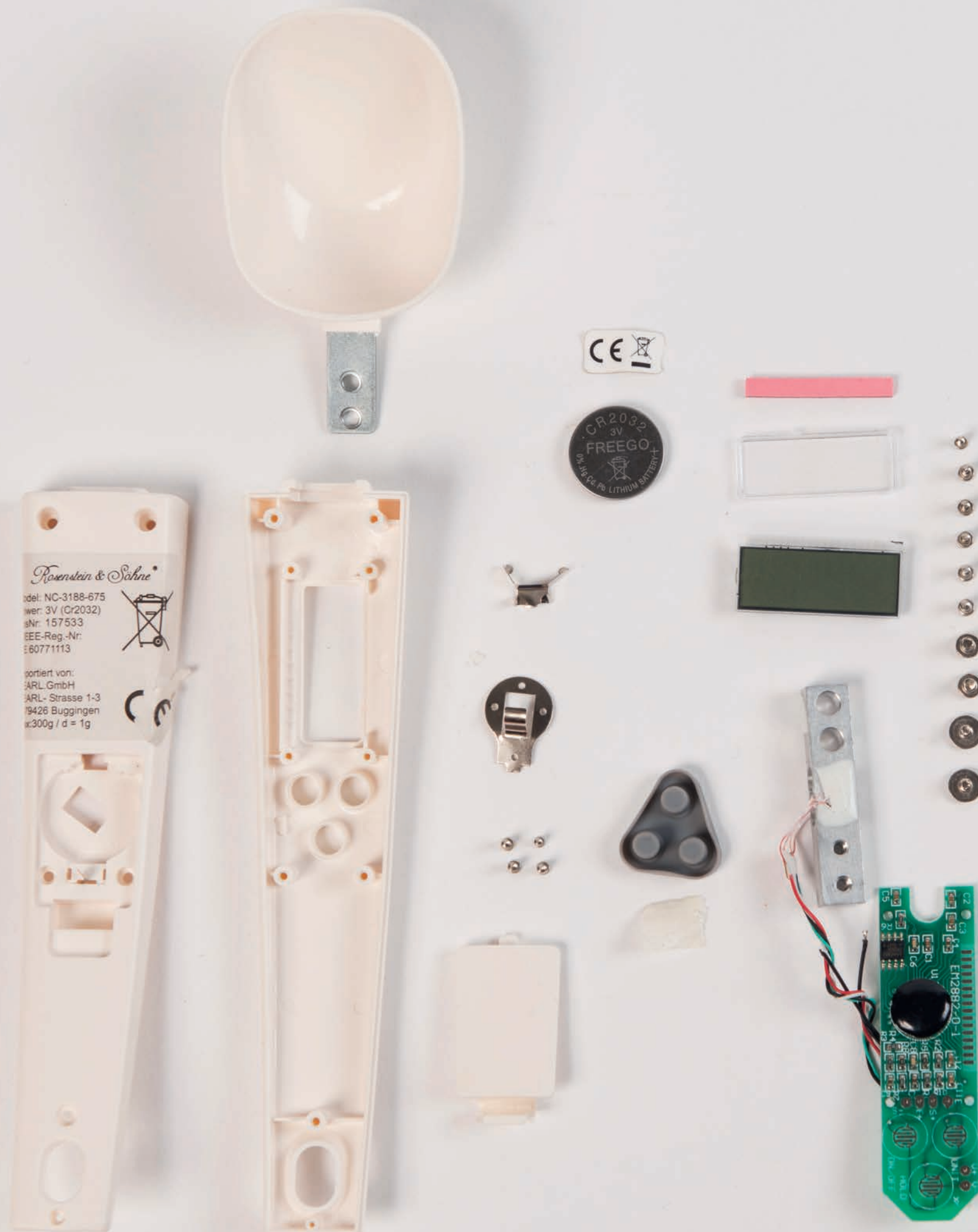


- very cheap quality
- movement of the handle leads to inaccuracy which defeats the idea of it being handheld

## REPAIRABILITY



- easy to take it apart
- need of common / mostly available tools (screwdriver)
- one part is glued (bowl + handle)
- if you want to repair it you need technical knowledge but possible (depends on parts) but people probably wouldn't do it because the materials are cheap and can't be used for other things



materials

**steel screws and springs**

**LCD display / Lithium Battery**

Plastic (type?) / rubber

**circuit board (copper, fibreglass, plastic, epoxy resin)**

glass coating / copper wire with plastic coat

joines of connection

**screws / plug-in system / soldered connections / glue**

used productionmethods

### injection moulded parts

circuit board - surface wiring / wiring threw the card, components are soldered into place / melting)

**pressed / punched metal**

## conclusion

its trying to be remeniscent of past times when people used spoons to measure things. It's a gimmick.





name  
**200g/0, 01g Taschenwaage -  
Ascher digitale Taschenwaage,  
200 x 0, 01 g, Taschenwaage  
Feinwaage Digitalwaage  
Goldwaage Münzwaage**

size  
**12,8 x 7,8 x 11,9 cm**

color  
**black and silver (metal) with  
white buttons**

weight  
**113g**

material  
**plastic / rubber/ glass**

produced in  
**unknown**

use  
**scale for weighing small  
amounts of substances  
e.g. pharmaceuticals or  
measures objects like gem  
stones or jewellery**

year of production  
**2016**

scala / units  
**g, oz, ozt, dwt, gn and ct,  
measures from 0.1g – 200g**

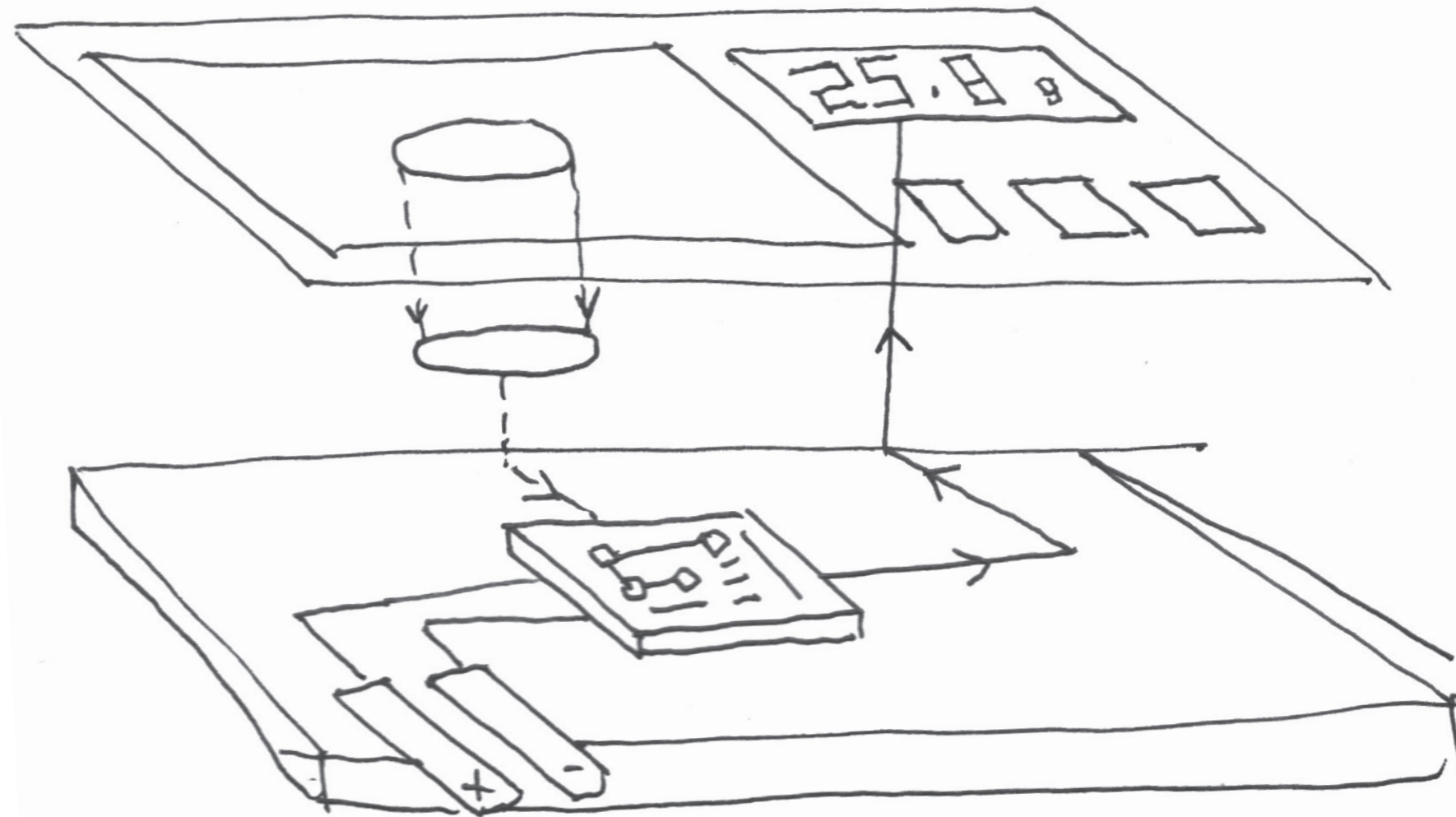
price  
**9.99€ (bought on amazon)**

AMAZON REVIEW



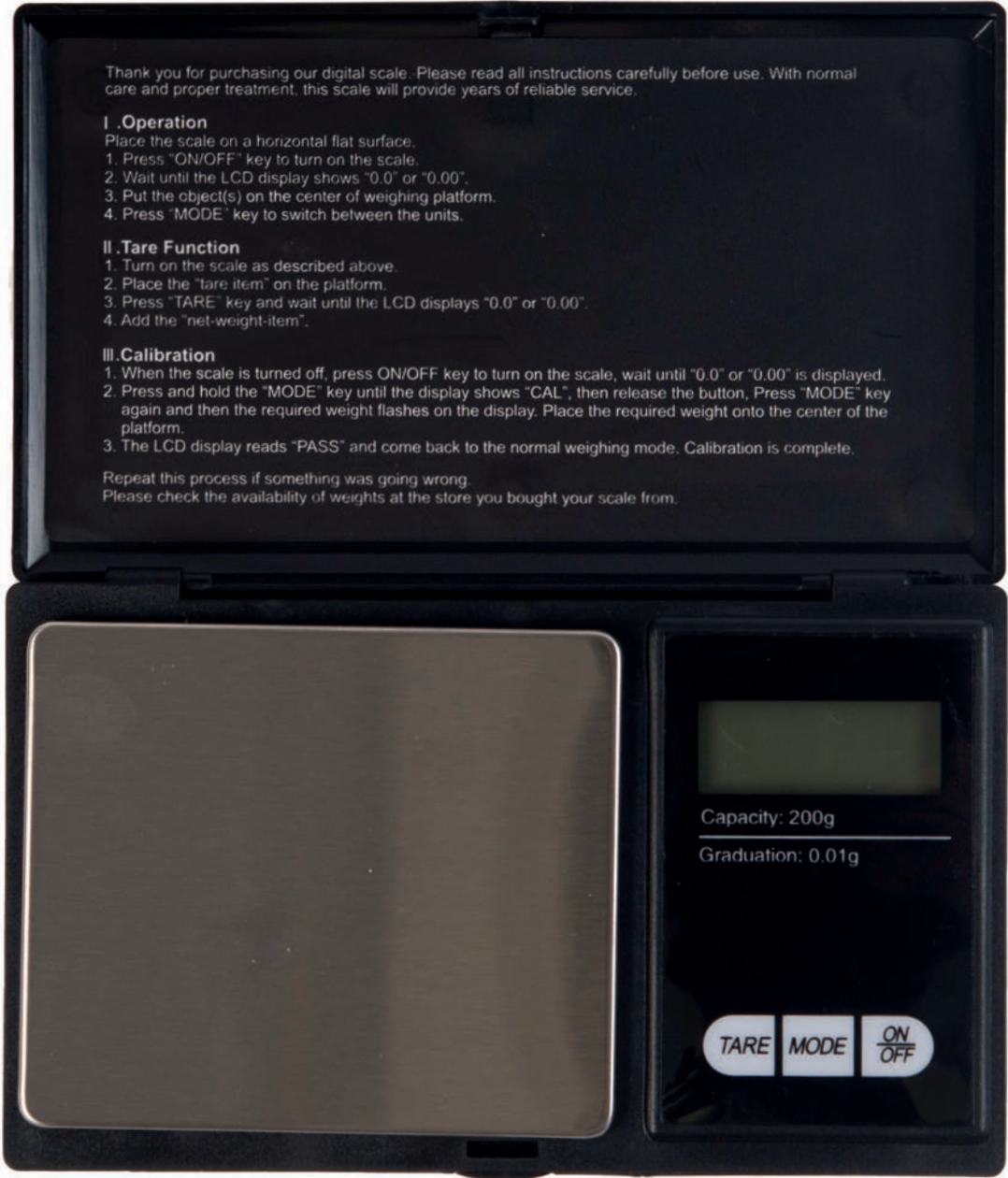
Simone Kern:

‘Super lightweight, fits straight in my  
pocket so easy to carry to work. Just four  
stars because the top fell of after one  
week of usage.’



*small digital scale*





RELIABILITY

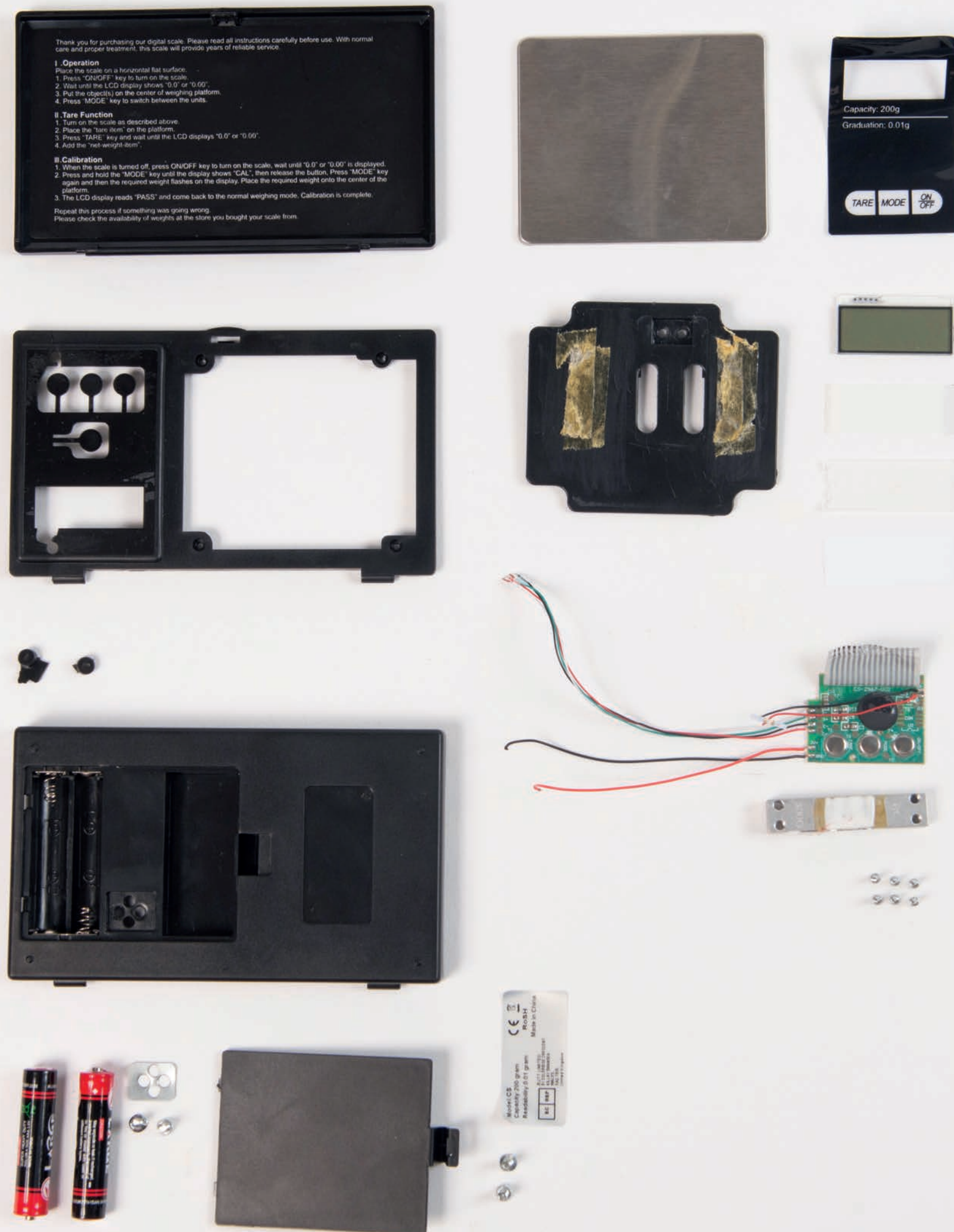


- cheap materials / compared to the more fragile glass scale the value of the product will be disregarded by the user and won't last as long
- weighing is precise

REPAIRABILITY



- plastic got destroyed while opening it
- easy to take it apart
- need of common / mostly available tools (screwdriver)
- if you want to repair it you need technical knowledge but possible (depends on parts)



materials

**Steel screws and springs, stainless steel weighing platform, LCD display, Lithium Battery, Plastic (type?), circuit board**

joines of connection

**screws / plug-in system / soldered connections / glue**

used productionmethods

**injection moulded parts, punched and pressed stainless steel circuit board - surface wiring / wiring threw the card, components are soldered into place / melting)**

conclusion

**All the digital scales use almost the same mechanisms but the outer bodies are targeted at different markets.**

**This shows the overproduction and unnecessary consumerism in our society today.**

ANALOG

DIGITAL

energy

No need to turn them on – no batteries required.



Need of batteries but can be made to be solar powered.

weight

more parts and strong materials (metal) = heavy



small / light materials (plastic) = lightweight

units

units are limited (one per scale)



selection of units

accuracy

harder to get an accurate reading  
more chance to make a mistake



mostly terra funktion via one button  
clear & easy handling / autimatically recalibrates

repairability

if the mechanics fails tmesuaring is affected



batteries need to be replaced  
easy to disassamble  
need of digital knowledge to repair

recyclability

Can be hard to figure out how they work and therefore hard to fix if broken/replace parts that might have deteriorated.



A lot of parts glued together so difficult to take apart. Lots of hidden screws as well making it hard to disassemble.  
mostly cheep production methods - pieces easely brake

price

kitchenscale at Amazon: 20 - 30€



kitchenscale at Amazon: 10 - 20€

aesthetics

Better visually, an object you would keep on a counter.



not much character / qute clinical / the user do- esn't feel as attached to the product

communication of functions / handling

The reading on analog scales might be less detailed/accurate and are not as easy to read, this means that measuring errors are likely to occur



Easy to use – just turn on and go, and they automatically turn off after use

cleaning

openings and area diffucult to reach



easy to clean / not so many places to collect dust

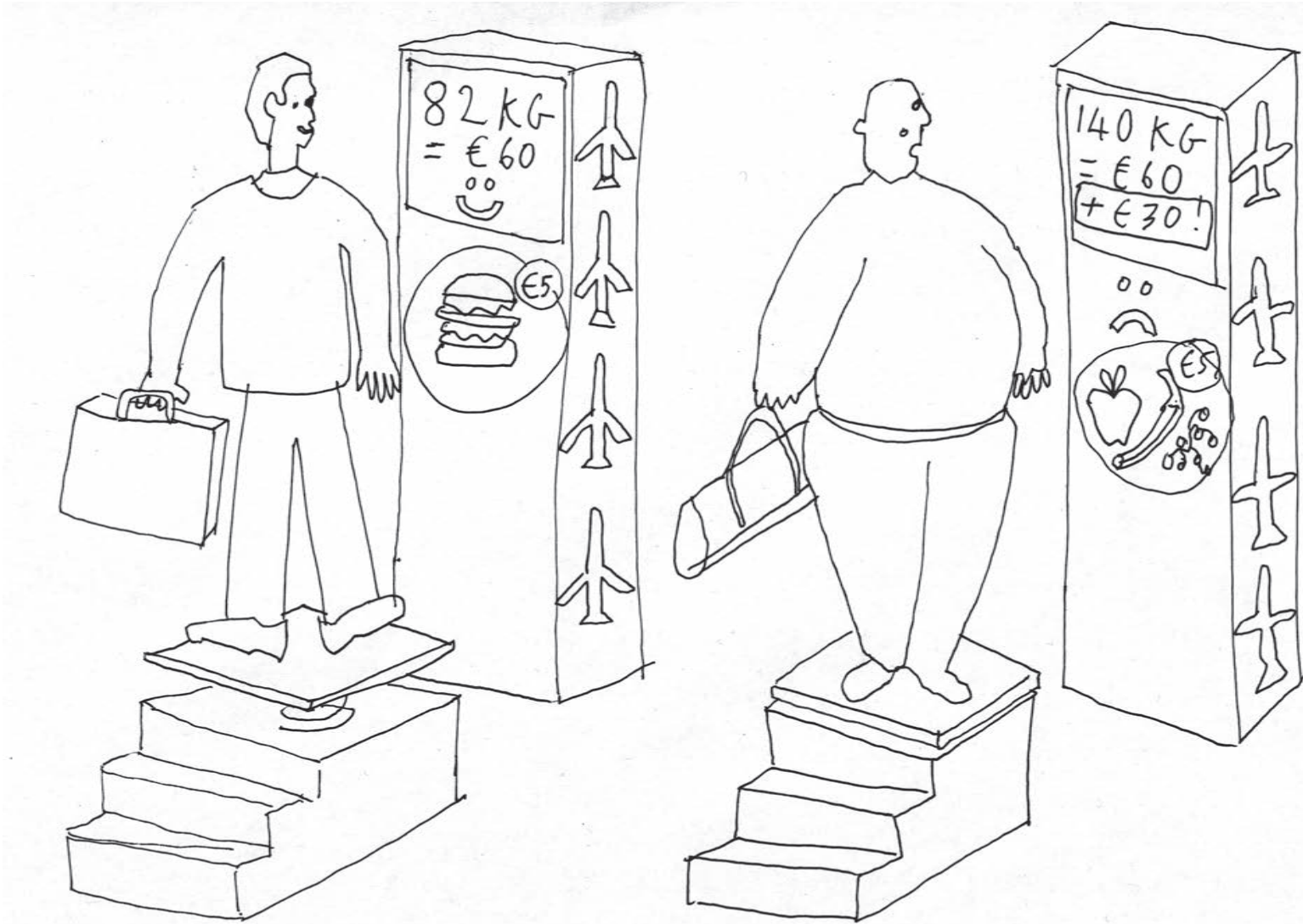


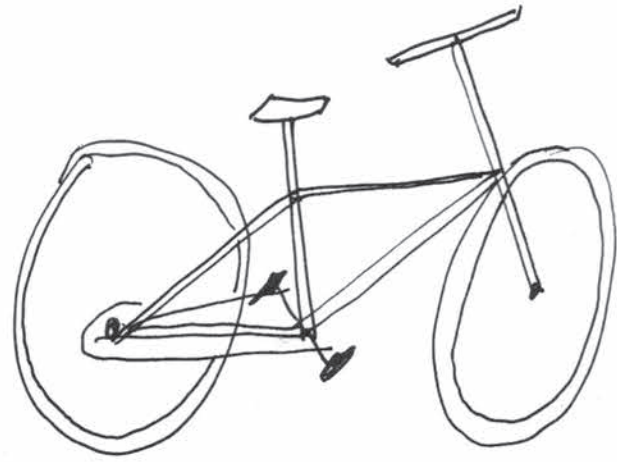
how does a scale look in the future?

58

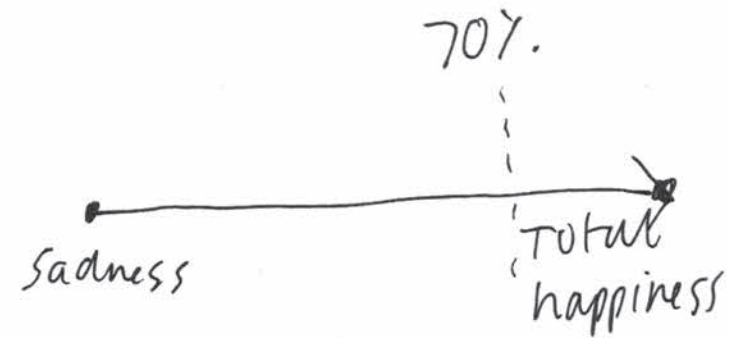


Phone scale / App





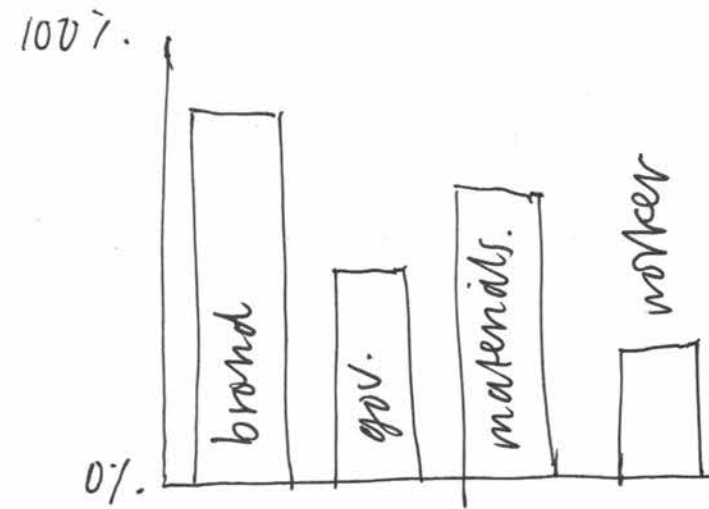
● ● ●  
CO<sub>2</sub> usage of object  
(red yellow green)



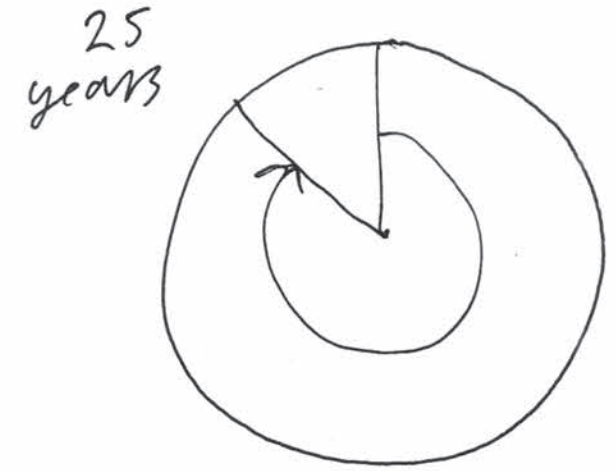
how happy the  
object will make you.



6,000 Km travelled  
in production



Where is your money  
going?



objects' life  
expectancy

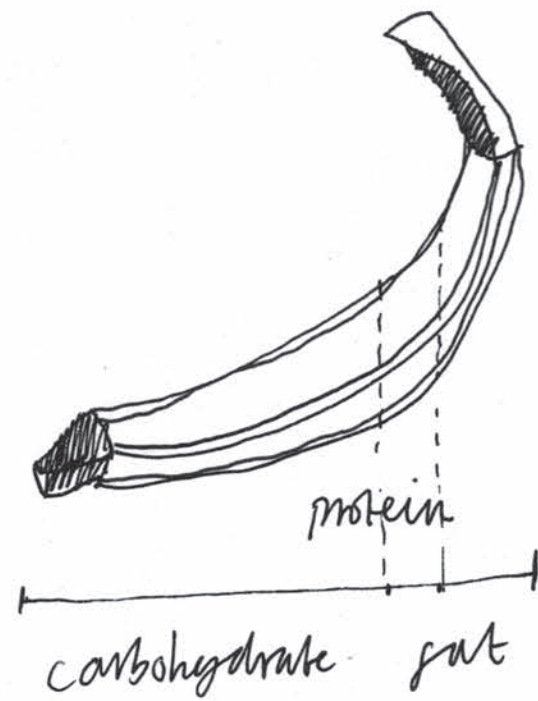
ethics of  
factory where  
object was produced.



green yellow red

shopping for new objects.





10 km

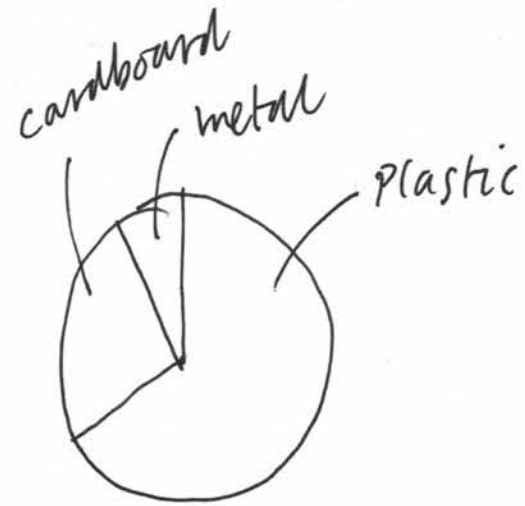
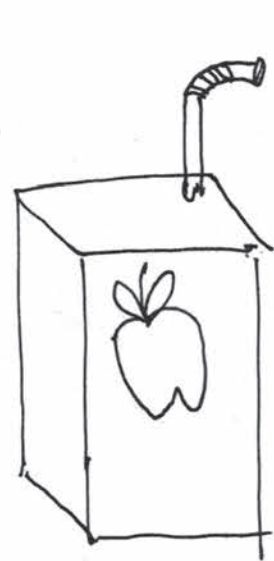
30 km

3 km

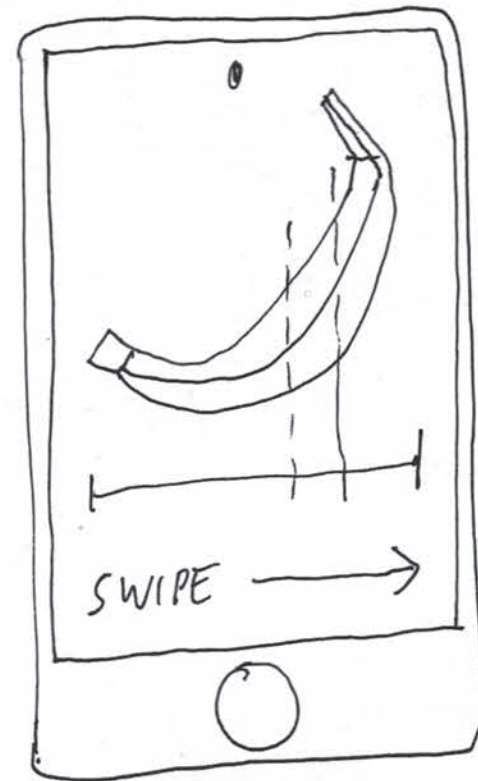
x 200



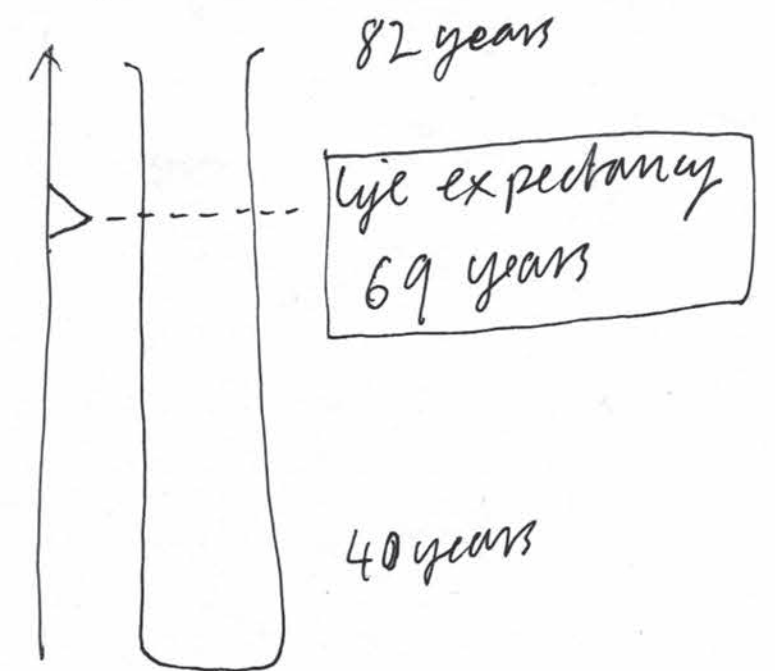
"You will make 10% waste, based on your history."



(red yellow green)

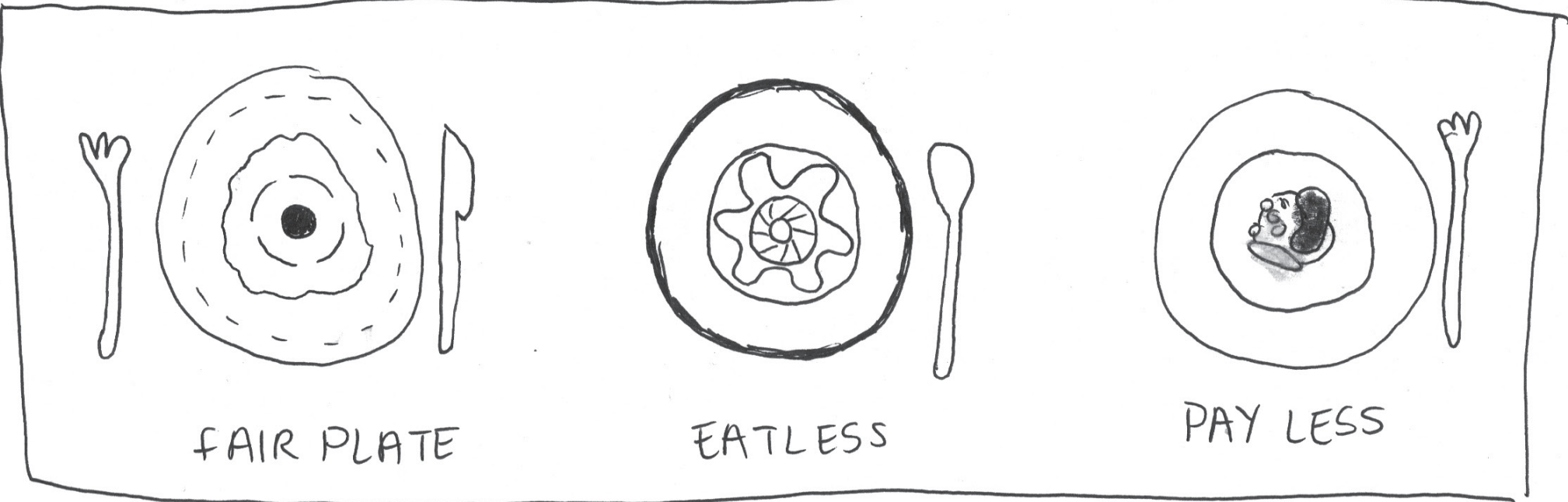


Thursday



Groceries Shopping





FAIR PLATE

EATLESS

PAY LESS

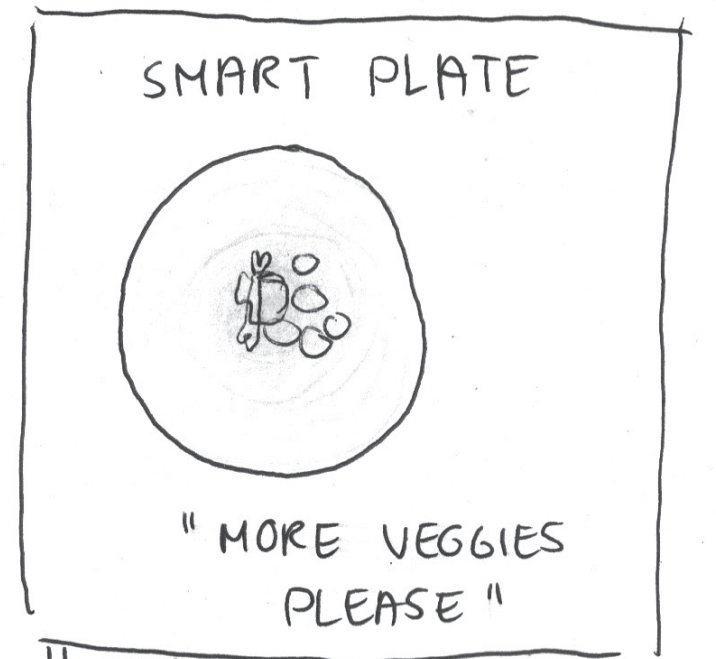
ANALOG



=>



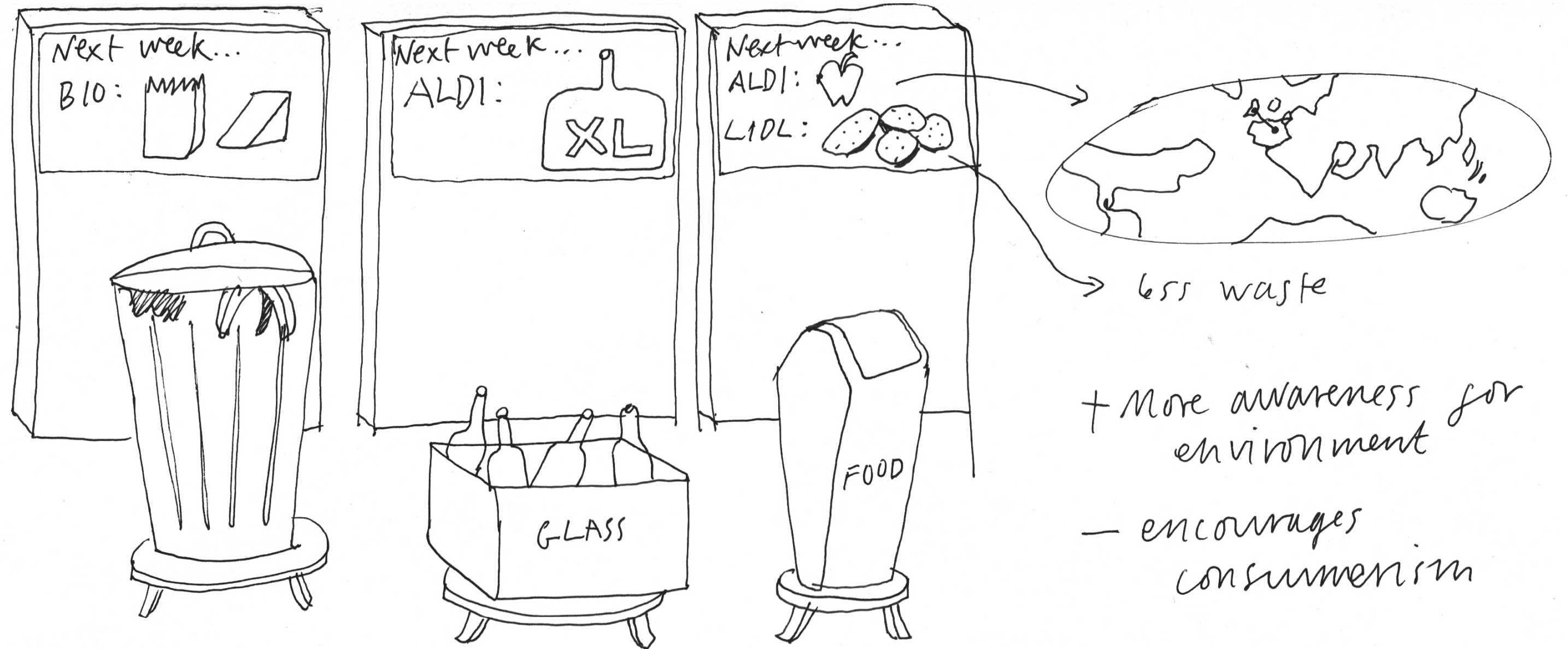
WASTE  
LESS



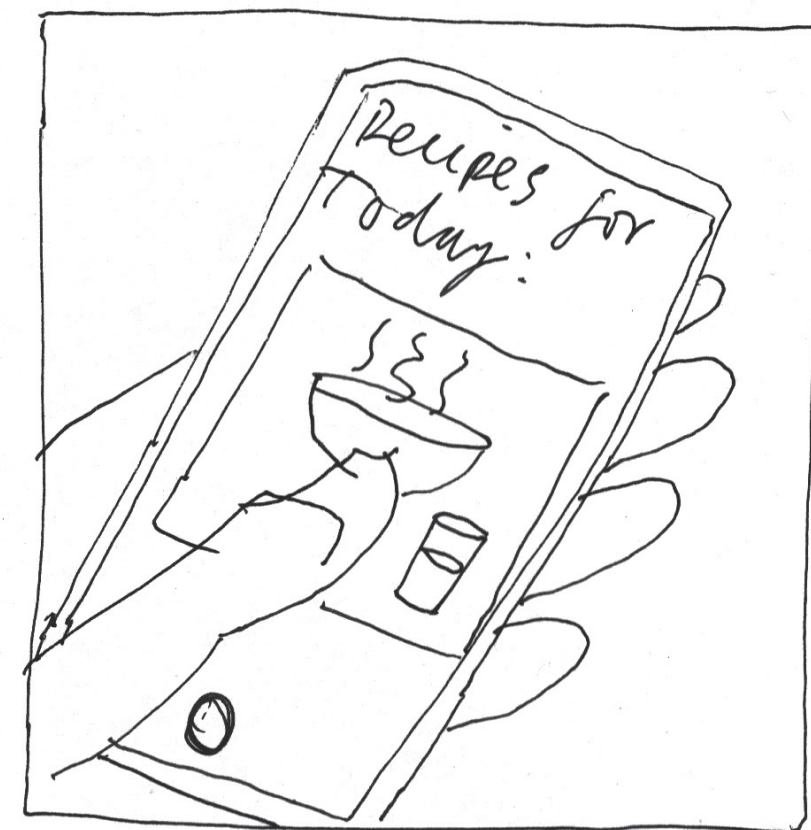
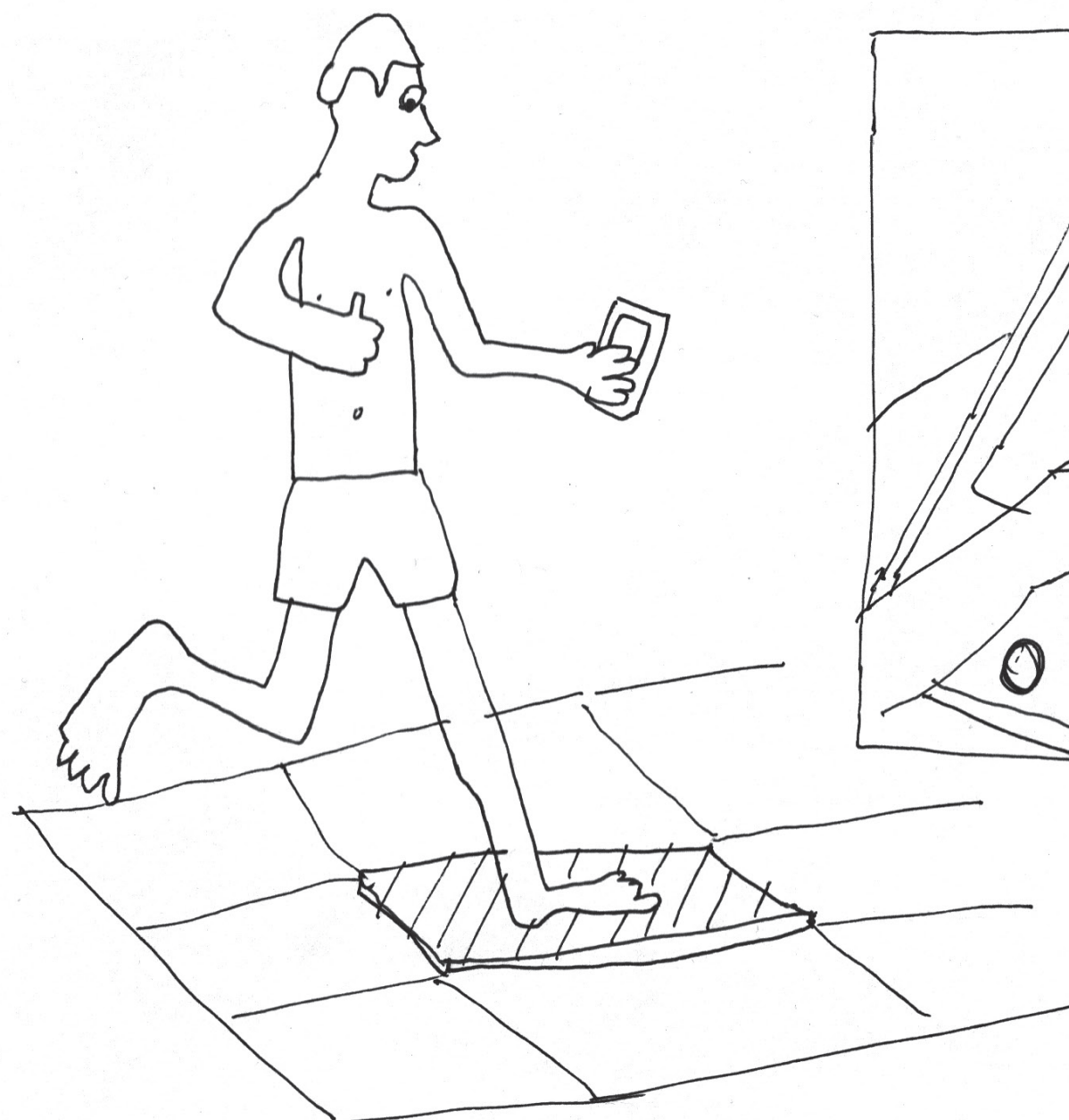
" MORE VEGGIES  
PLEASE "

DIGI TAL

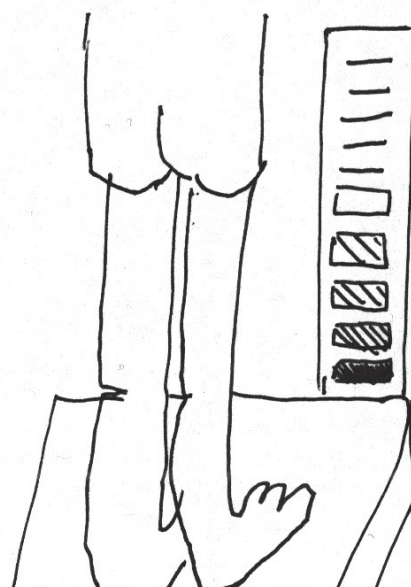
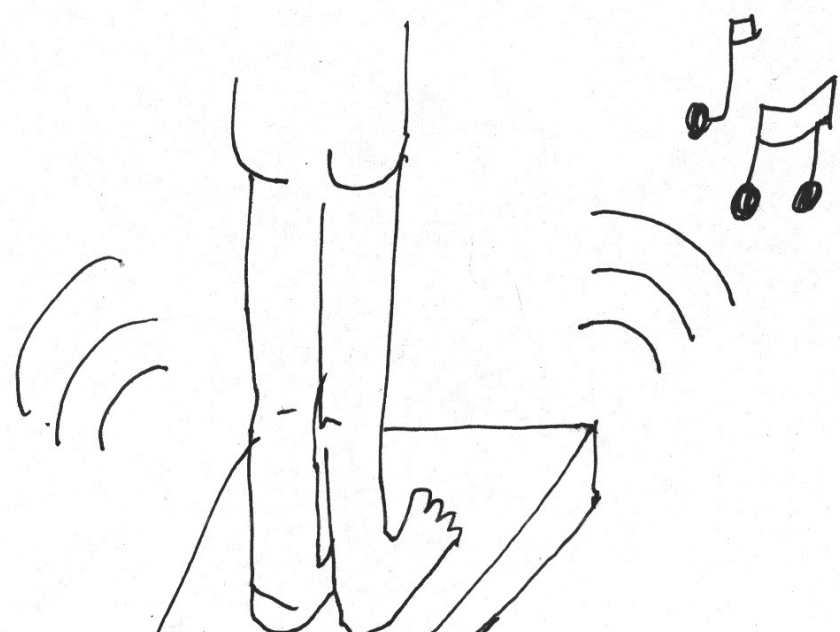








• More subtle  
• less direct.





# scales

**shorttermproject**  
**ID2 WS 2019**

Anna Koppmann - Louie Eager  
Esmée Willemsen- Madison Bates

