

# AUGMENTING TOOLS

**SATYAM**



The work I have indulged myself in, is at once technical and personal. I have spent my time thinking through the problem of poverty from the standpoint of productive capabilities.

1

# PRE-OCCUPATIONS

= ( 08/APRIL/2016 )

# A Mountain Rill

Polemics/Pre-occupations  
Satyam Satyam



(01/MAY/2016)

# A Mountain Rill

Polemics/Pre-occupations

Satyam Satyam



"Marx argued that the crises which afflict capital are generated by capital itself, this for the simple reason that capitalist production is founded on the unequal, antagonistic relationship between the worker, who owns nothing but has labour-power, and the capitalist, ~~that~~ who owns the means of production." Pg. 31

"The fundamental inequality is what allows the capitalist to extort surplus-value and 'realise' it as profit through a system based on the general equivalent of money (the market). Exchange, distribution, & consumption explain nothing in themselves because there is a necessary disjunction between the worker as producer **Infrastructures** & the worker as consumer." (Hart & Nizkor: 22)

"In order to furnish the capitalist with profit, the worker must produce more than he consumes. The laws of equivalence which condition wage-system (\*an honest day's work for an honest day's pay) and the market (you get what you pay for) are derived and secondary with respect to this productive dissymmetry." Pg. 31  
(D 1994-20)



"For desire to produce, it requires machines (a form of auto-production), and, to the extent that this link is the fundamental connective principle which governs all life, every machine is a desiring machine. But this does not mean that every machine functions according to the same laws, or uses, by which it has been produced" Pg. 32 (D & Mott)

"Production capacity is the source of all value but is not itself a value. If the commodity fetish has a mystifying function, it is that it gives an equivalent ~~relationship~~ expression to an unequal relationship."

Uprising, like a tree does? no. Not like a tree, uprising that demands, even uses to its fullest - emergence. True emergence is different from

## INDIVIDUALS, THEIR PRODUCTIVE CAPACITIES;

## HOW COULD WE AMPLIFY AND STRUCTURE THEIR INHERENT POTENTIALITIES FOR LARGER AND MORE SYSTEMATIC ACHIEVEMENTS?

"the free worker has to sell his labour-power in order to become a 'factor' of production. As a consequence of this, the worker himself is produced as an adjacent part, peripheral to the production process which his labour constitutes in concert with the means of production. This is what Marx means when he says the worker is literally 'devalued' by capital." Pg. 33

"The specific illusion to be dispelled is that capital rather than labour is productive" - Marx

"Desire is immediately constitutive of reality" Pg. 29

"Every phenomenon refers to an inequality by which it is conditioned" Pg. 22

Two 18 Year Olds in Two Watch  
Making Factories

**HERE, WE DO HOPE TO FIND  
FACTORIES BEYOND MIND  
NUMBING REPETITIONS,  
BEYOND THEIR CLOSED  
GLOOMY DOORS - STUCK  
IN SPACE, AND BEYOND  
THE INHERENT ALIENATION  
FROM WHAT IS FINALLY  
PRODUCED**

"The Future is Already Here.  
It is just not evenly distributed"



de  
zeen magazine

Magazine  
Movies  
Jobs  
Watch Store  
Most Loved

« Newer story | Older story »

"Smart technology is a solution looking for a  
problem," says Rotterdam Biennale curator

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"Smart technology is a solution  
looking for a problem"



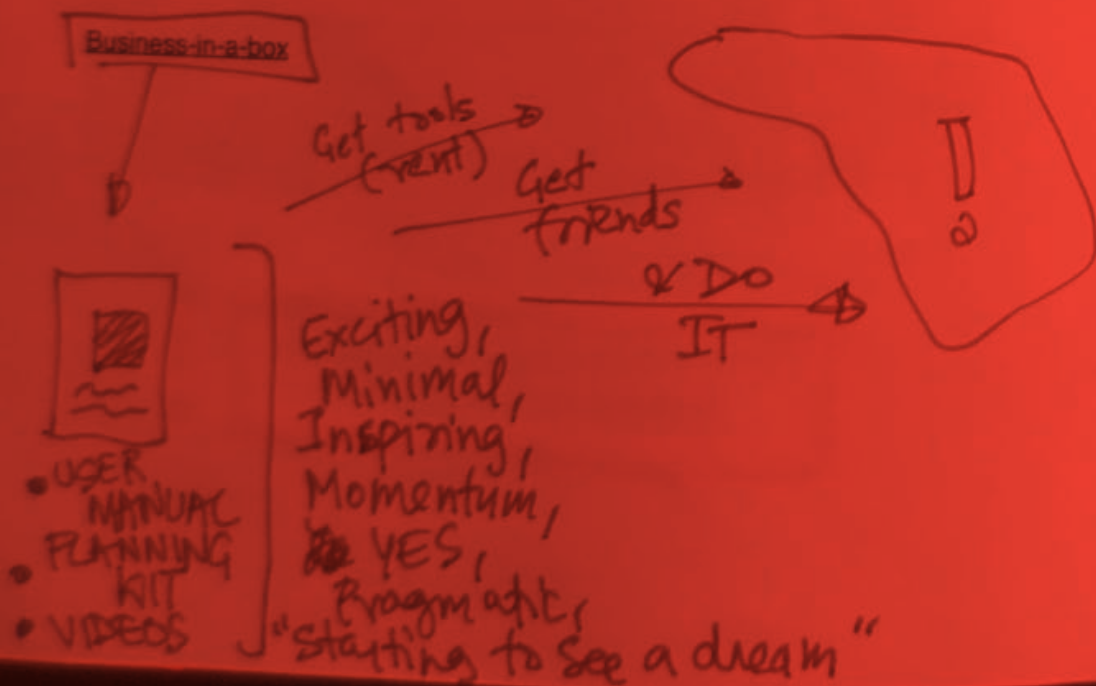
## Conversation with Dad: 2

MARKERLAB

Daily routine work; hobby projects on the sidelines; allowances for sidelines

consultancy for small design companies: video, web design

networks for tiny services - video, high end graphics, voice overs, Regulatory needs and so on



## Business-In-A-Box



<http://lucvanhoeckel.nl/portfolio/single-spark/>

A world where people took professional vacations to take a week or so out to go on a professional adventure. Maybe the plumber gets to make a café interior, the painter gets to come up with a film set, or a little singer gets to make an advertisement for a local brand.

## Current Ideas:

- Micro Manufacturing where things are produced by small remote groups, with small set of tools, paired with rapid digital methods to bring value
- Use of excesses such as waste streams, unemployed individuals, outdated skills
- A website allowing the individuals to be celebrated, curated/assisted in design by user submissions, bought from but also engaged with, skipped with allowing intense specificities to be consumed

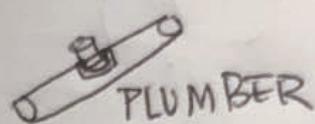

  
 HOW?

**WHAT NEW THINGS CAN  
THE AVAILABLE SKILLS BE  
REORGANIZED TO DO?**

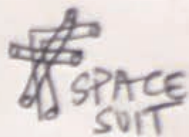
**CAN A PLUMBER'S SKILLS  
BE RESITUATED ONTO A  
SPACE SUIT PRESSURE  
SYSTEM CONTEXT?**



## Deterritorializing Skills



How? →

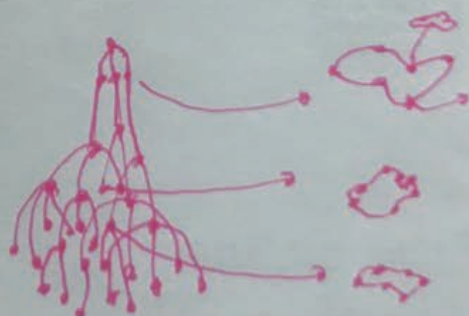


{ WHAT ELSE ? }

ITS A MUST  
TO GENERATE  
A "PRAGMATIC".



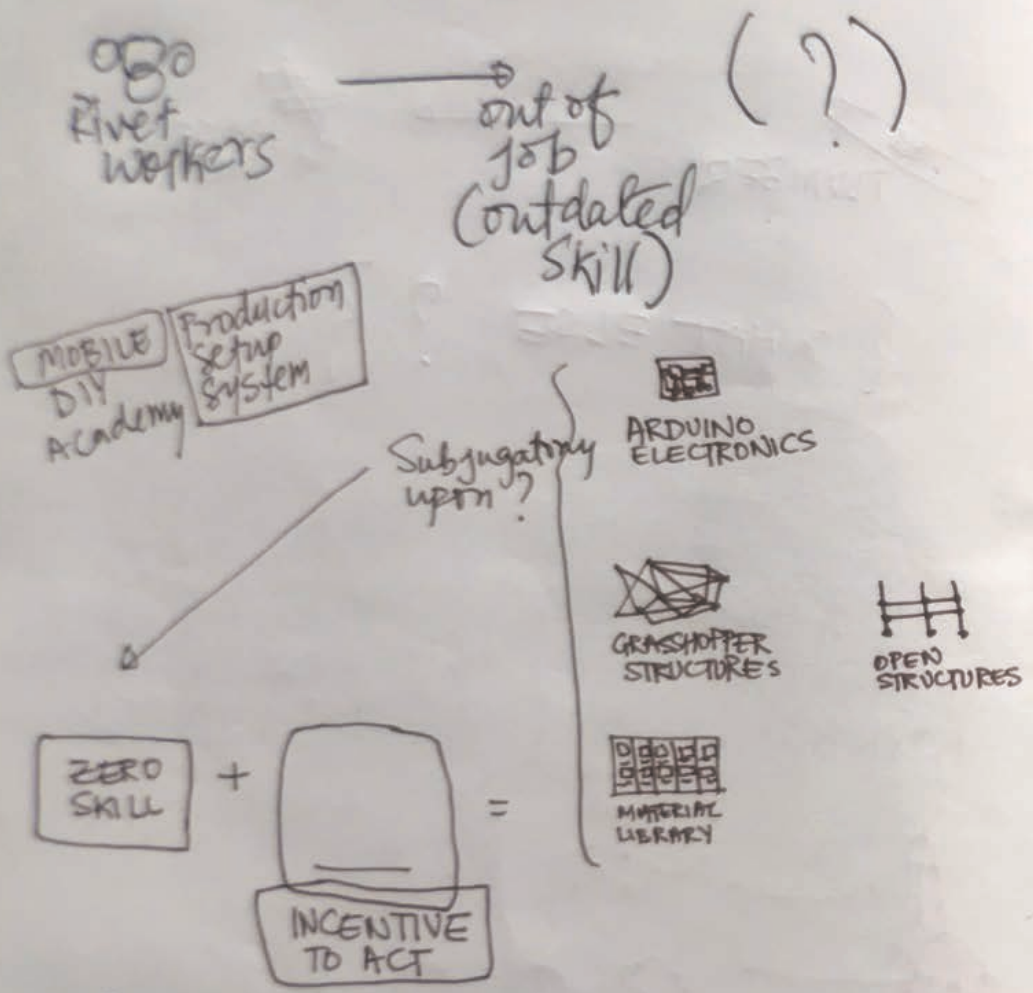
Everything  
Else is absolutely  
secondary!



MR. X STUCK IN  
A VERTICAL  
TRAFFIC...

LATERAL  
MOVEMENTS  
(TEMPORAL?)

# Infrastructure of Skills



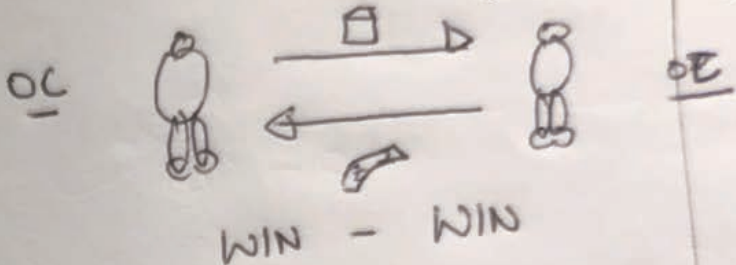
BEYOND THE PRAGMATISM OF THE CONSUMER/CAPITAL MARKET - THE PRIMACY OF PROFIT INCENTIVE:

Going Beyond the pragmatism of the market.

"This moment was not a promise,  
This we have snatched"

## Subverting Exchange

"Mobilising  
Sitting  
Wealth"



PRODUCTIVE  
IDENTITY



① Exchange  
OBJECT - MONEY

②

OTHER KINDS  
OF EXCHANGE?

① OBJECT-  
OBJECT

② ALTRUISM - ALTRUISM

③ PERFECTION - IDENTITY

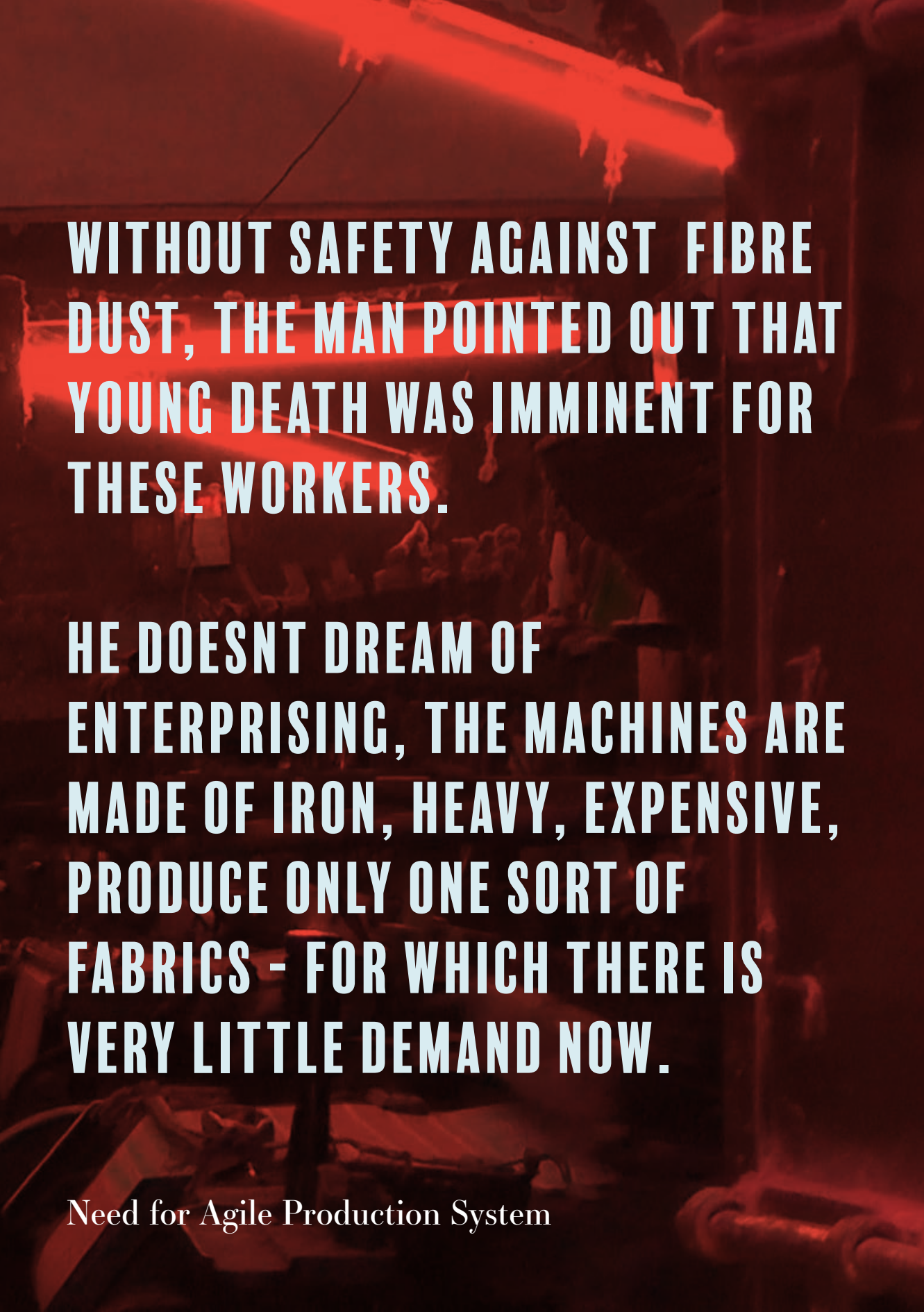
④

HOMOFABER

2

**AM I MAKING  
ANY SENSE?  
(PRIMARY  
RESEARCH)**





**WITHOUT SAFETY AGAINST FIBRE  
DUST, THE MAN POINTED OUT THAT  
YOUNG DEATH WAS IMMINENT FOR  
THESE WORKERS.**

**HE DOESNT DREAM OF  
ENTERPRISING, THE MACHINES ARE  
MADE OF IRON, HEAVY, EXPENSIVE,  
PRODUCE ONLY ONE SORT OF  
FABRICS - FOR WHICH THERE IS  
VERY LITTLE DEMAND NOW.**

*Need for Agile Production System*



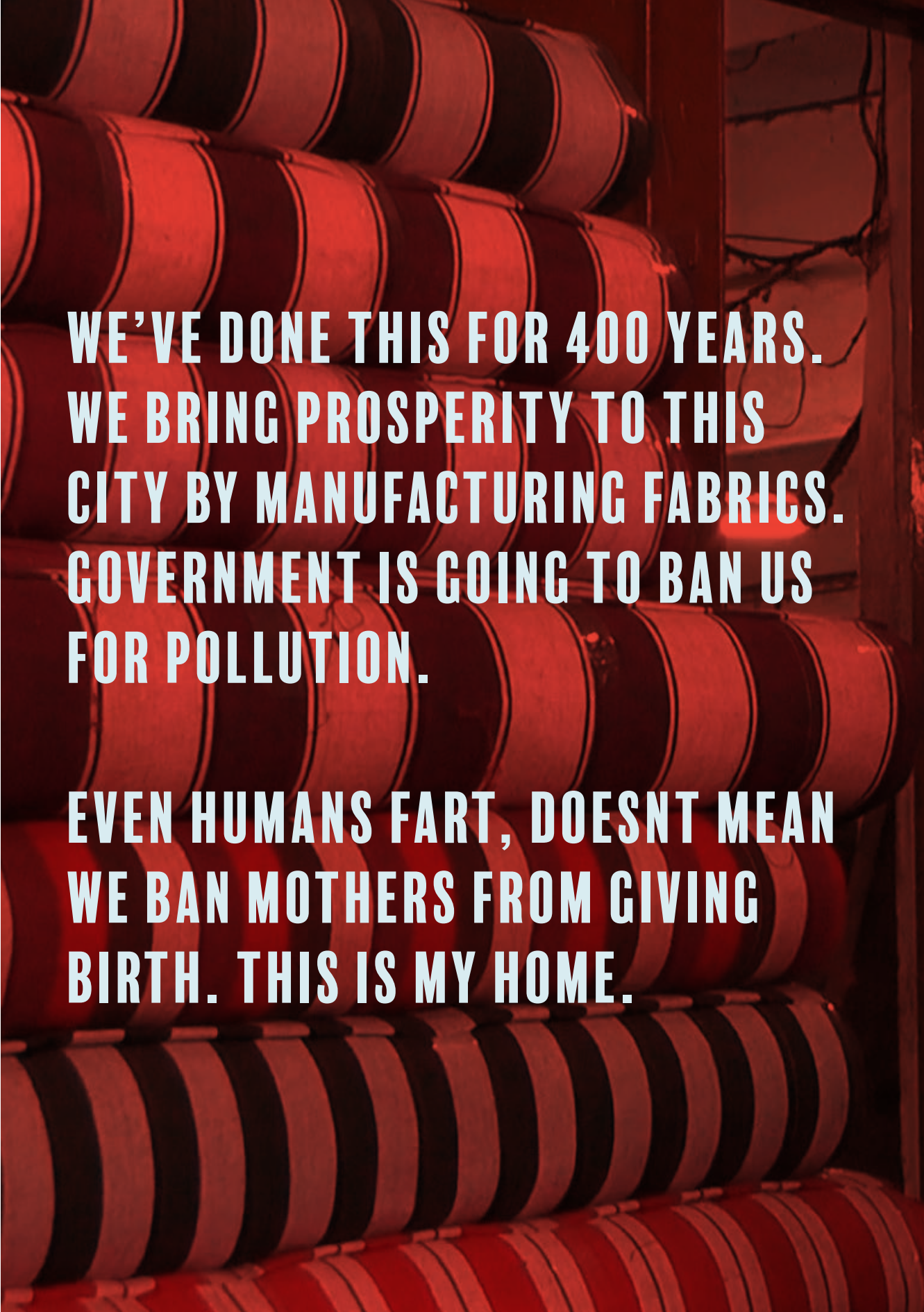




**IT IS POSSIBLE TO START ONE'S OWN BUSINESS MAKING MARBLE STATUES. THOUGH THE CHINESE CAST MARBLE HAS A BETTER SURFACE AND IS CHEAPER.**

**IT IS DIFFICULT TO COMPETE FOR HAND CARVED MARBLE STATUES.**

Molds from Hand Carved sculptures



**WE'VE DONE THIS FOR 400 YEARS.  
WE BRING PROSPERITY TO THIS  
CITY BY MANUFACTURING FABRICS.  
GOVERNMENT IS GOING TO BAN US  
FOR POLLUTION.**

**EVEN HUMANS FART, DOESNT MEAN  
WE BAN MOTHERS FROM GIVING  
BIRTH. THIS IS MY HOME.**





**MY SON, DAUGHTER, WIFE, WE ALL  
WORK HERE. KIDS WORK AFTER  
SCHOOL, I KEEP TEACHING THEM  
MY TECHNIQUES, THEY ARE FAST  
WORKERS.**

**I AM UNEDUCATED, CAN NOT  
READ BUT NOW MY KIDS GO TO AN  
ENGLISH MEDIUM SCHOOL.**

**ONE DAY I HOPE TO START MY OWN  
WORKSHOP FACTORY.**

		<u>Post</u>
<b>1</b>	<b>Sweepers</b>	<b>30</b>
<b>2</b>	<b>Carpenter</b>	<b>02</b>
<b>3</b>	<b>Mason</b>	<b>02</b>
<b>4</b>	<b>Welder</b>	<b>02</b>
<b>5</b>	<b>Plumber</b>	<b>02</b>
<b>6</b>	<b>Painter</b>	<b>02</b>

a vacancy call from densely populated  
suburban India

# AVAILABLE CAPABILITIES IN A COMMUNITY

On the left is presented a clipping from a typical call for job applications in non-urban parts of India.

The list is interesting for it nails down quite well the actual skills available at hand in such places. To this list one could add other somewhat trivial skilled workers such as drivers (for cars, vans, buses, etc.), Mobile phone repairers, Internet cafe managers, tailors and electricians.

It can be argued that lists which are very similar to these apply as well to large parts of the world. At the very least similar lists can be drawn for any other part of the world.

A list, showcasing what capabilities are at hand amongst a community to peruse its desires.

3



# MAPS OF IDEAS

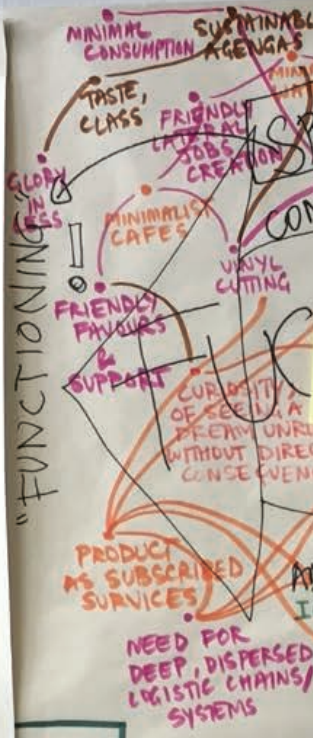
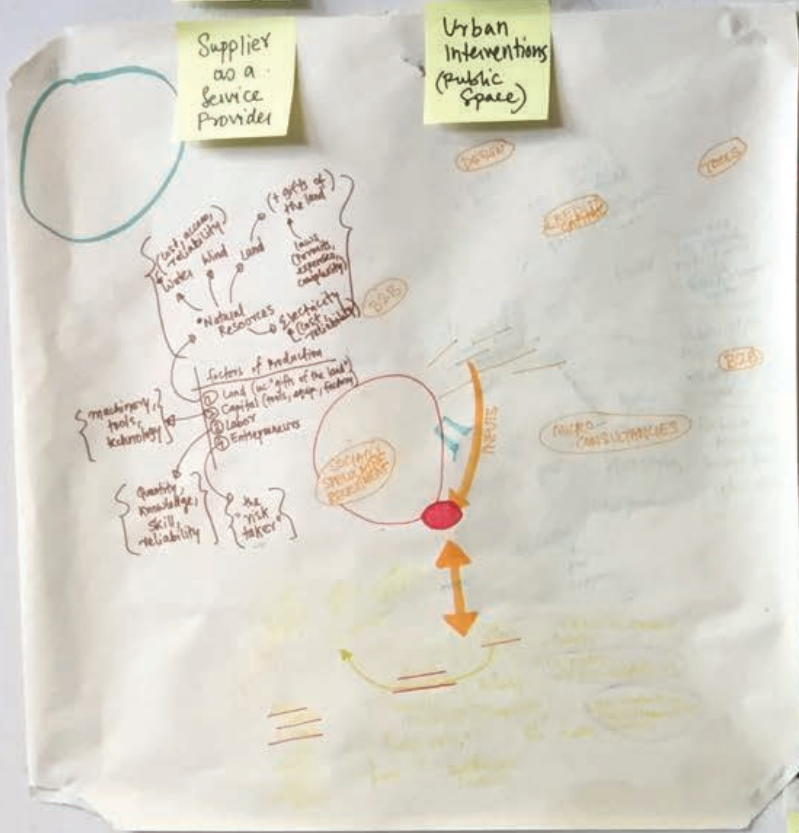
linked  
Upgradation  
Schemes &  
Products ?

Rambo  
[Retail Box  
for Rickshaw  
Pullers]

BAMBOO;  
Costingated;  
plastic sheets  
WHAT?

Supplier  
as a  
Service  
Provider

Urban  
Interventions  
(Public  
Space)



#1

Products  
as Service  
{class of  
models}

Social  
Growth  
Principle  
(confidence)

Narratives  
of Prosperity  
(Local)

WORK  
ENVELOPE  
OF THE  
BODY

Statistical  
Targetting  
(risk  
aversion)

Existing  
Social  
Formations

Friends  
& Family  
(Speculative  
recruitment)

POVERTY  
&  
MATERIAL  
DEPRIVATION

Enabling  
Networks  
(Mobile, Credit  
& What?)

MICRO-  
FINANCE  
(Capital  
Capacity)

LINKAGES  
WITH  
LARGER  
FIRMS

FURTHER  
MANUFACTURING

Aggregatable Vacuum  
Former (Briefcase)

UNIT-AGGREGATE  
STANDARD-PERSONAL

APP-ocentric  
Urban  
Product-Service

Jugaad

Growth Principles

EUFIC  
BINARITY

is this a question of DELIVERY?

"Function-ings achieved"

LOGIC OF RND  
CAPACITY TO ACT

TOOL MATERIAL SKILL, PROFIT, PROGRAMME

DISPERSED SUPPLY CHAINS

MAPPED CARDBOARD PACKAGING ON DEMAND MAKERS

MINIMALIST, MODULAR SYSTEMS AVAILABLE THROUGH THE SYSTEM

EMERGENCY OF IOT Implementation

RELIABLE DY MACHINES

UNIVERSITY EQUIPMENT (CNCs, Moulds, etc.) Ready for Hire

"FUTURE" EFFECTS

CURATED BUSINESS RECIPES AVAILABLE ONLINE

Research!

CAPACITY SYSTEMS "CAPABILITIES"



CONFINED TO LOCAL MARKET (brokers!)!

High Demand Medium (Market access)

LOCALLY AVAILABLE [SKILLS MATERIALS TOOLS]

DE-CAPITALIZATION (Capital intensity)

PRAGMATIC MINIMALISM INFORMATIONAL SPECIFICITIES

RENT TO RUN

functioning Capabilities

Enabling Technologies (Existing Networks)

FUCK AMBLYA SEN!

Social  
Growth  
Principle  
(Confidence)

Narratives  
of Prosperity  
(Local)

WORK  
ENVELOPE  
OF THE  
BODY

Statistical  
Targetting  
(risk  
aversion)

Existing  
Social  
Formations

Friends  
& Family  
(Speculative  
recruitment)

POVERTY  
&  
MATERIAL  
DEPRIVATION

MICRO-  
FINANCE  
(Capital  
Capacity)

LINKAGES  
WITH  
LARGER  
FIRMS

Supplier  
as a  
Service  
Provider

FURTHER  
MANUFACT-  
URING.

UNIT-  
AGGREGATE  
STANDARD-  
PERSONAL

NETWORKING  
(SHARING)

CRITICAL  
SYSTEMS  
"CAPABILITIES"

APPEALS

BUSINESS  
RELIEF  
INITIATIVE

Enabling  
Technologies  
(Existing  
Networks)

CONFINED  
TO LOCAL  
MARKET  
(brokers/  
traders)!

LOCALLY  
AVAILABLE  
[ SKILLS  
MATERIALS  
TOOLS ]

High  
Demand  
Medium  
(Market access)

functioning  
Capabilities

DE-  
CAPITALIZATION  
(Capital  
intensity)

PRAGMATIC  
MINIMALISM  
INFORMATIONAL  
SPECIFICITIES

FUCK  
AMBATYA  
SEN!

RENT  
TO  
RUN

E.O. Wilson  
ants  
behavior

FUNCTIONING

MINIMAL CONSUMPTION SUSTAINABLE AGENSAS

EXCESS

TASTE, CLASS, FRIENDLY LATERAL JOBS CREATION

SPECIFIC COMBINATORY

Growth Principles

MINIMALIST CAFES

VINYL CUTTING

FRIENDLY FAVOURS

SUPPORT

is this a question of DELIVERY?

"Function-ings achieved"

CURIOUSITY OF SEEING A DREAM UNROLL WITHOUT DIRECT CONSEQUENCES

PRODUCT AS SUBSCRIBED SERVICES

SENSING, INTELLIGENCE

AMARTYA SEN IOTSEN

SMARTPHONE

POS

CARD PAYMENT

NEED FOR DEEP, DISPERSED LOGISTIC CHAINS/SYSTEMS

APP(ED) PASSIVE PRODUCT + APP (ASSISTANCE, RETAIL, INFO, NETWORKING, SHARING)

TOO MUCH SKIN PRO

Research

#1

CAPACITY SYSTEM "CAPABILITY"

cial with

EXES

COLLECTIVE HOPE, FEARS  
FUTURE "EXPECTATIONS"  
CONTINUES  
CONTEXT  
LOCAL RESOURCES

BY ALLOWING LATERAL MOVEMENT FOR THE FRIENDS.  
UTILIZING IT  
FRIENDS KNOWING THEIR ABILITY OF SOMEONE YOU KNOW (MUST)

LOCALLY VIRAL NARRATIVES OF PROFIT  
SERVICE PROVIDER SHARING PROFIT

LOGIC OF AND CAPACITY TO ACT

MAKING MONEY

MINIMALISM

MEDICAL GROceries Hardware  
(EXISTING)

DISPERSED SUPPLY CHAINS

SENSE OF IoT Implementation

MAPPED CARDBOARD PACKAGING ON DEMAND MAKERS

VINYL CUTTING AS SERVICE

Exploiting DIY tech

MINIMALIST, MODULAR SYSTEMS AVAILABLE THROUGH THE SYSTEM

low credit non-guaranteed loan

RENTABLE DIY MACHINES

"FUTURE" AFFECTS

CURATED BUSINESS RELIEFS AVAILABLE ONLINE

UNIVERSITY EQUIPMENT (CNCs, moulds, etc.) Ready for Hire (shops)

Thesis

perhaps,  
the only way out is  
through enabling  
small scale  
production.

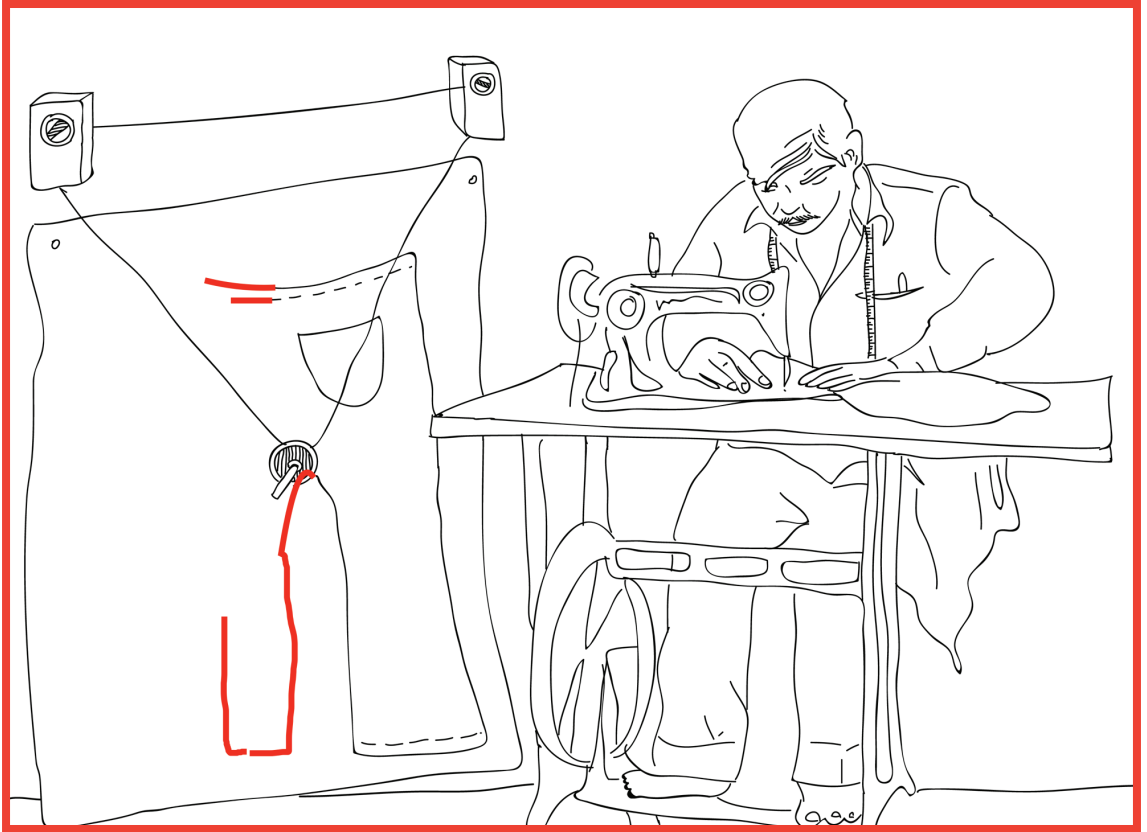


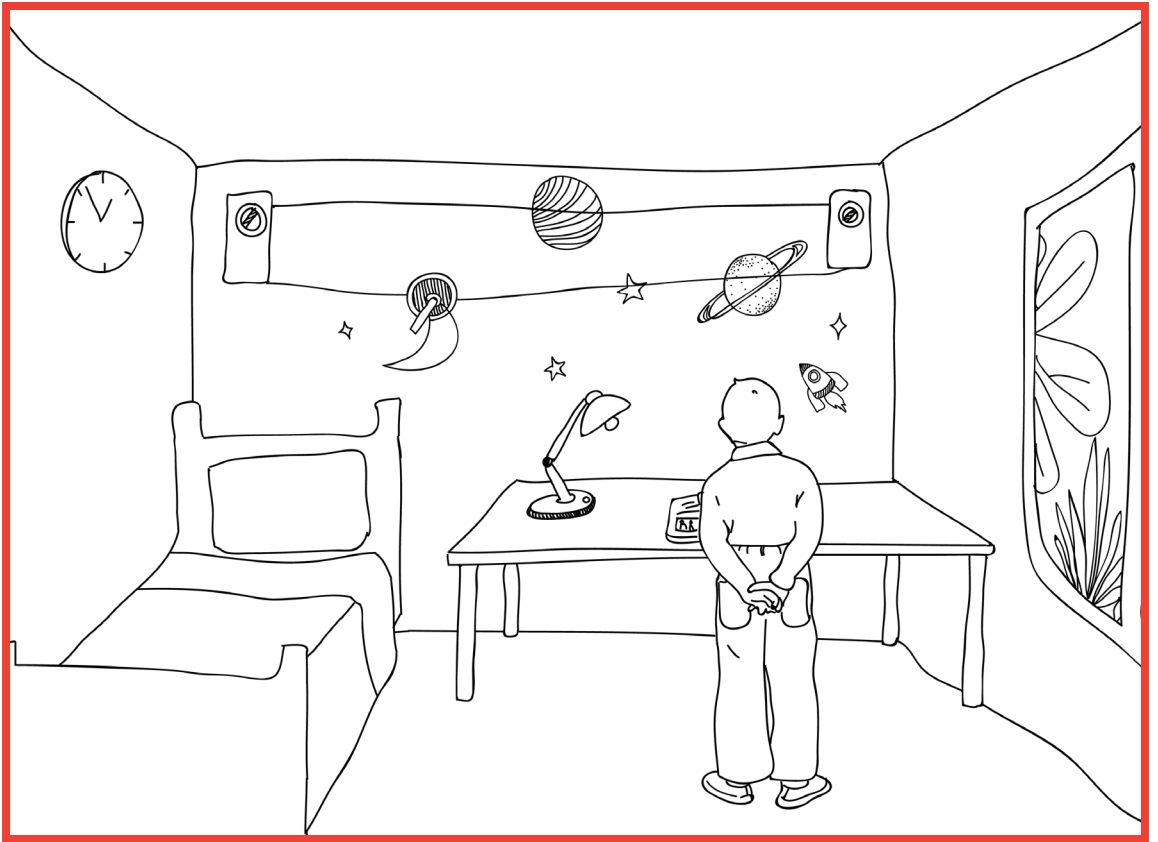
**BRIEF**

**DESIGN MODERN  
CAPABILITIES  
THROUGH WHICH  
THE DISFRANCHISED  
COULD PURSUE NEW  
AMBITIONS**

4

**EXPLORING  
FORMER AND  
PLOTTER  
THROUGH  
IMAGE MAKING**





Development of an appropriate style  
with Illustrator, **Anoushka Advani**







MIXING OF THE OPIUM,  
PATNA, CA. 1857 BY SHIVA LAL



# THE USE OF COMPANY PAINTINGS

*Professions stuck in time*

Company paintings were painting made between the 19th and the 20th century, made by Indian artists under a British patronage program.

These were Indian paintings seeking to incorporate western traditions of perspective and volume.

These paintings as a collection are almost ethnographic in their outcome. Each painting focusing on a single profession, there are series that explore family professions (the fisherman couple, the mason couple, etc.). We see all sorts of craftsmen, ceramic factories, opium production, the forgers, and so on.

These paintings were shocking to me, it was difficult to grasp how little has changed between the capabilities of the local carpenter in the last 200 years.

Back home in India, the carpenters use identical tools to those in these paintings. Some of their handles still hold the forged manufacturing dates going back to early 20th century.

While India has developed from the point of view of national accounts, it remains strangely stuck in time where most productive individuals reside. They could be replaced by their equals from 2 centuries ago.

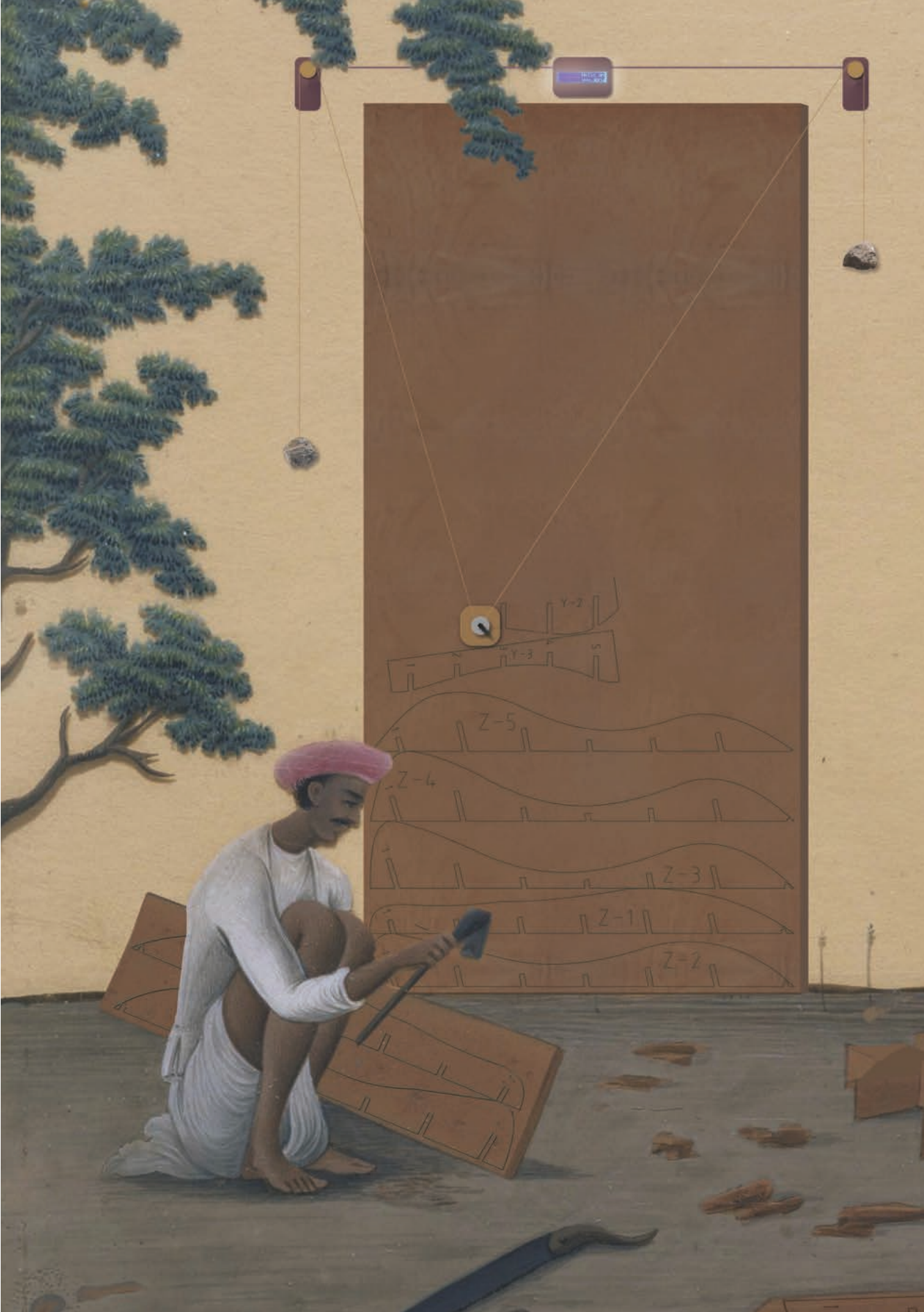


CARPENTERS MAKING CRATES,  
PATNA, CA. 1857 BY SHIVA LAL











4



**PLOTTER :  
DRAWING AS  
INTERVENTION**

# POVERTY AND COMPLEXITY



Complexity of patterns as in the case of marbelled leather or of form as in the case of the architectural space on the left; there is much that accessible complexity can bring to the poor in terms of capabilities.

These examples perhaps form a 'cutting edge', a futurism even, one which proceeds with the capabilities available at hand in poor communities into futuristic directions. Taking the familiar skills, the vernacular methods, the available resources and constructing through them a sort of modernisation.





The building on the left has a computationally variable facade programmed in response to various environmental factors.

The facade hence had to be fabricated one panel at a time, ensuring each panel has specific openings based on their position.

The facade was produced by local automobile mechanics who were handed printouts of all the panels.

These printouts were pinned to sheets of steel and cut out by hand using hammers and chisels.

Here, the trivial capabilities of the locale were multiplied in its capabilities through the mere intervention of printed out outlines.

Perhaps, this is a cutting edge of sorts as well.



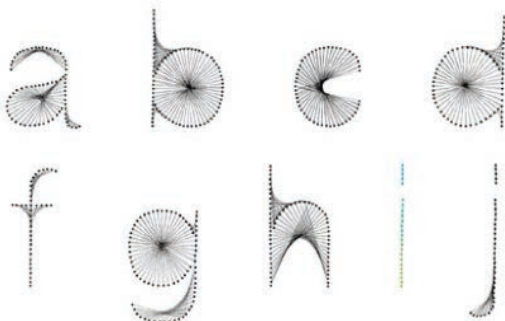
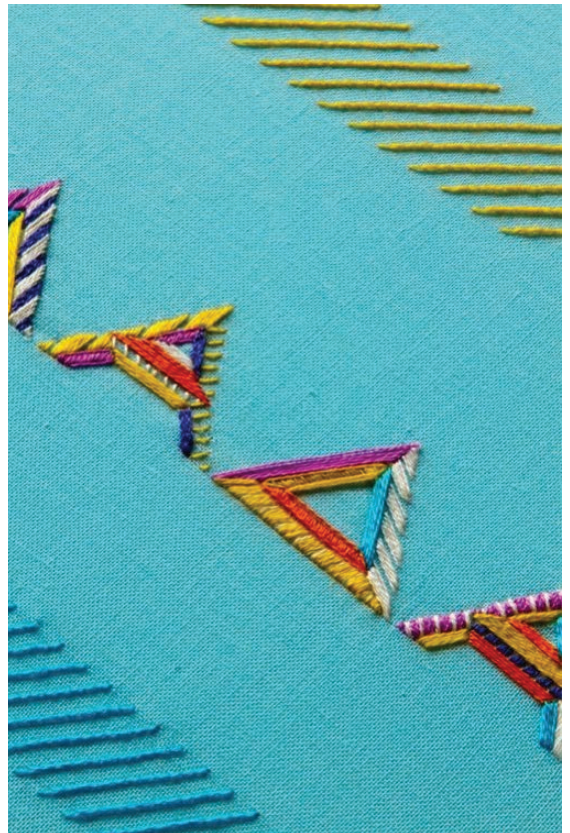
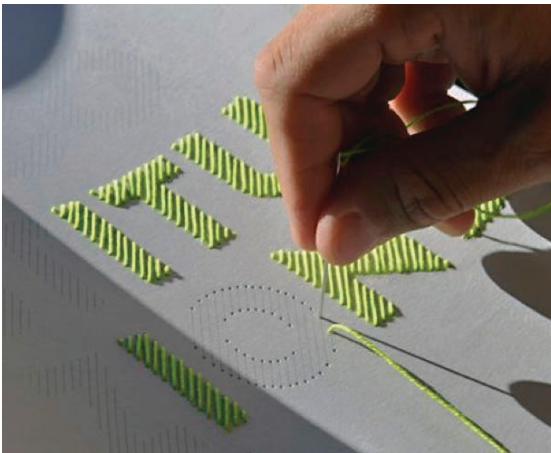


Here, I had used 2d print outs in order to make an organic form. Following the lines on the printouts, the wood was cut using a hand saw, and the fabric with kitchen scissors.

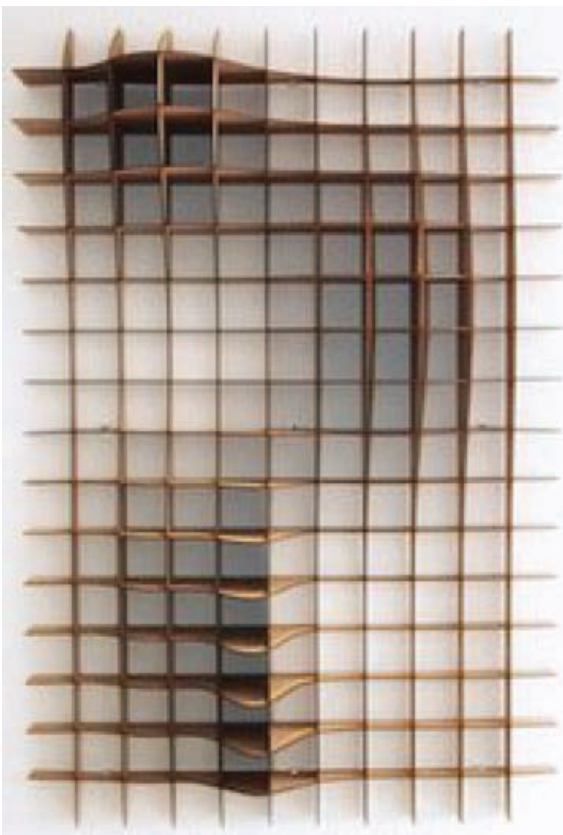
With the intervention of precise full scale drawings, my capabilities in conjunction with my hand saw were radically expanded.



# The Intervention of Drawings: Bring complexity to traditional skills







# COMPLEX MOLDINGS THROUGH FABRIC TEMPLATES



The least that is achieved here, is a radical departure from the trivial potentialities of the poor carpenter, or the rogue tailor.

No more can these items, or productions of the poor can be dismissed as mere handicraft. The complexity also brings immense value and perhaps mystique to the “handicraft”-ness of these productions.

Here, **sophisticated modern technology meets the handicrafts** through the medium of drawings.



# DIY Machines for drawing templates

The DIY and open source variants must not be fetishised.

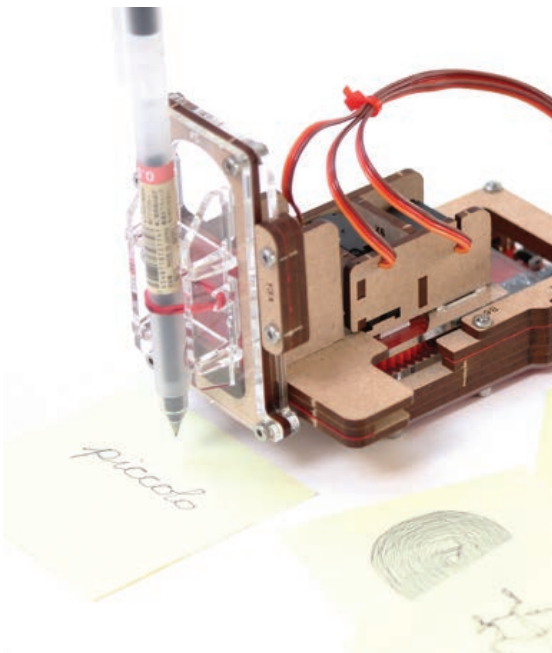
They are designed as systems for artistic purposes and **are strictly NOT CAD plotting devices.**

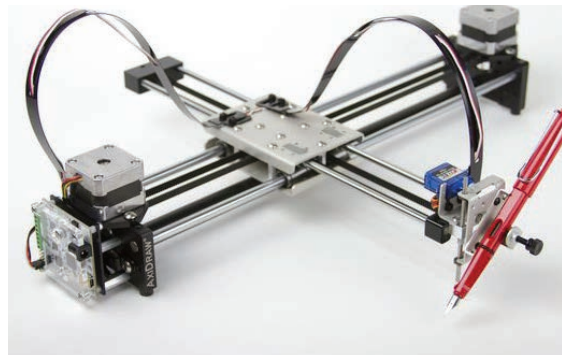
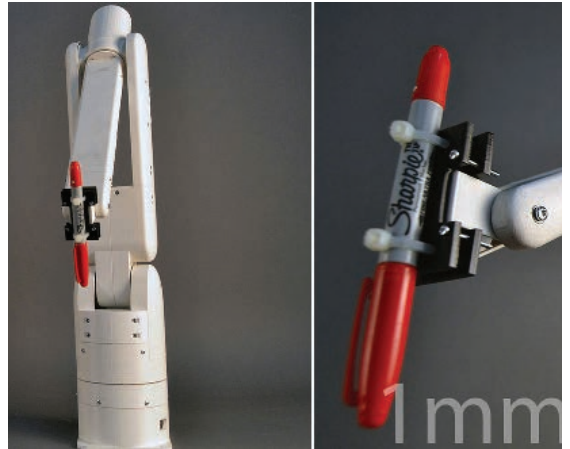
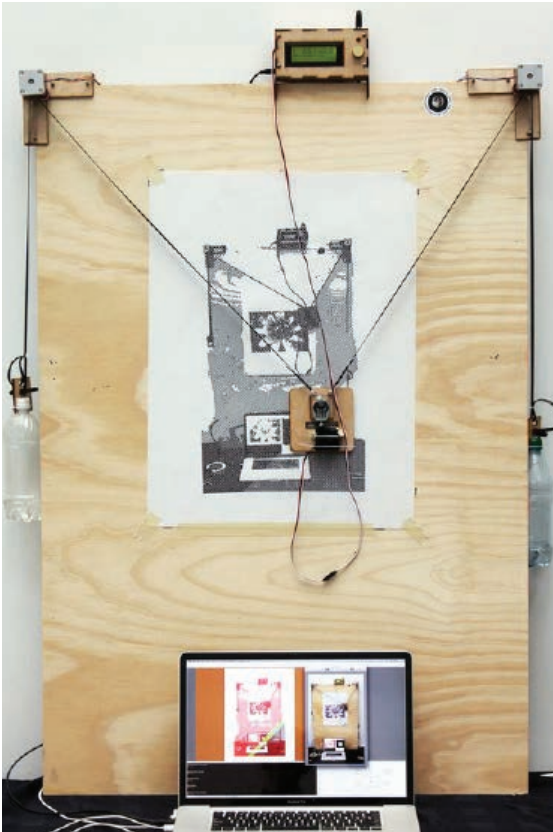
They require various specific skills (Programming knowledge, ability (and access to) rapid prototyping tools, **require a lot of troubleshooting**, some **knowledge of electronic circuits**, and often **pre-assume access to a personal computer.**

Despite these burdens they do not seek to guarantee trouble free repeatable usage, and are almost strictly not user friendly. They assume a constant state of “hack me” or else **they refuse to be consistently usefull.**

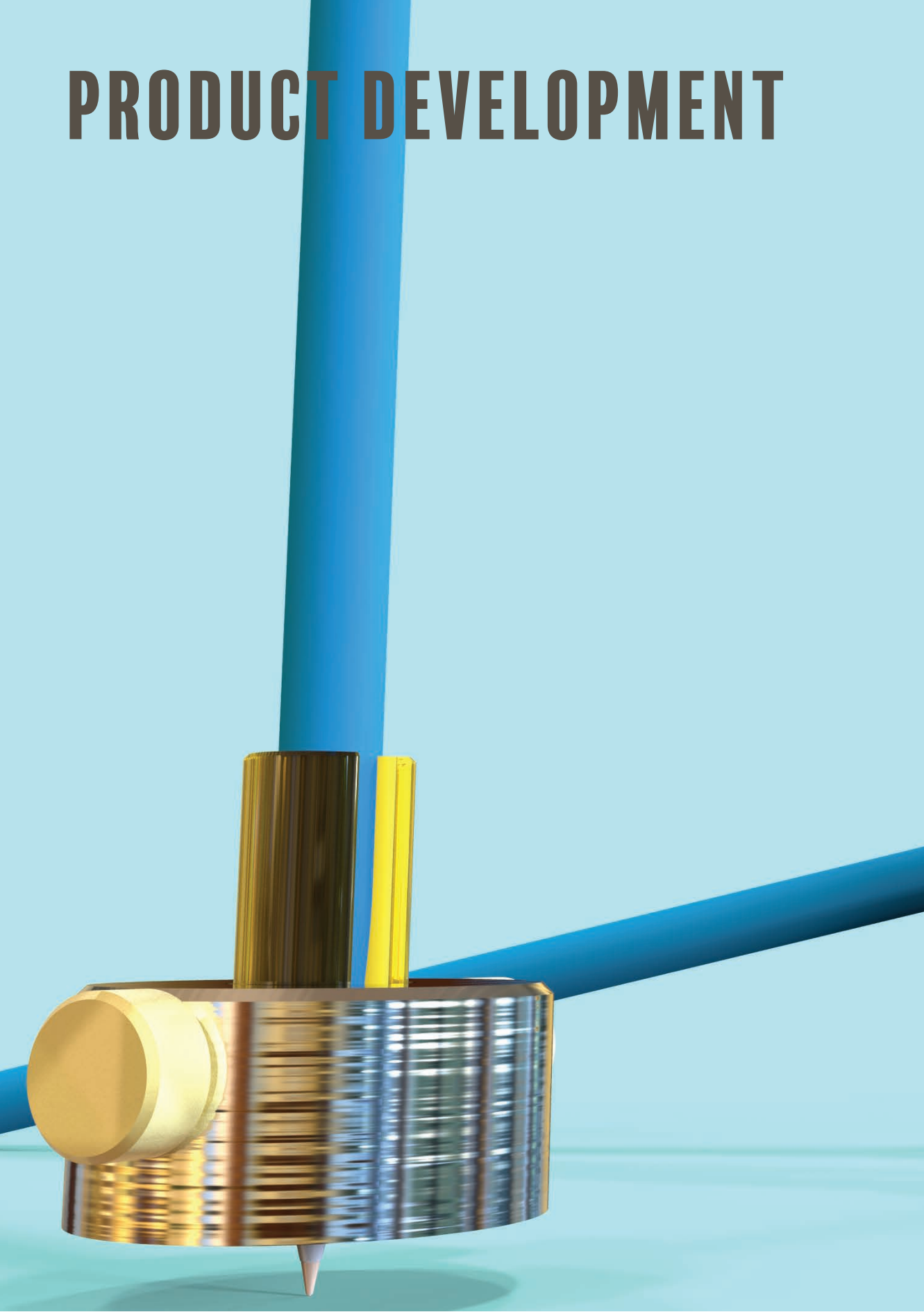
They **are hardly accessible** to the disfranchised beyond a certain highly educated class of hobbyists.

Despite these major pitfalls the cheapest variants shown costs £230.





# PRODUCT DEVELOPMENT

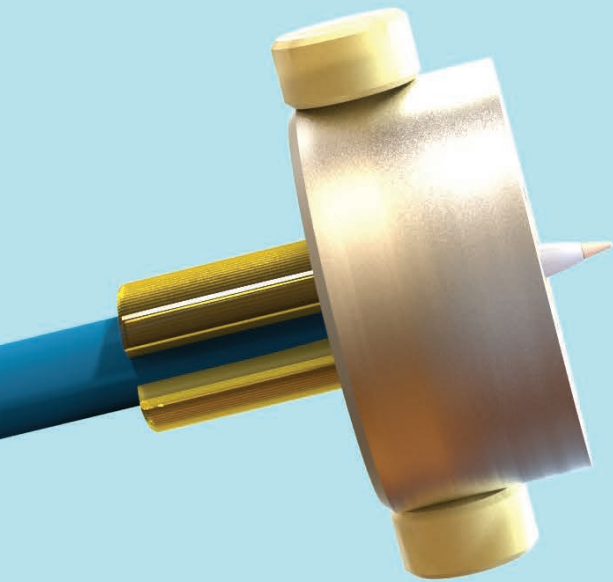




Over various iterations, the underlying process of fabricating the part has been refined and reduced.

The final iteration has the desired functionalities with only 3 parts, this is in contrast with the original assembly of the pen holder which had expensive machined parts and up to 13 parts.

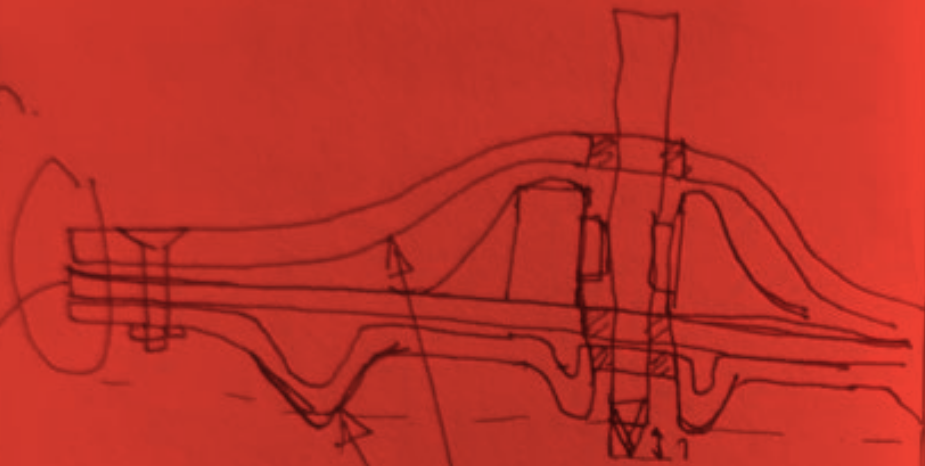
1. Motor Mounts (Left and Right)
2. Suspended Pen Holder (Bottom)
3. Electronics Box (connected to the two motor mounts)
4. Suspended Weights



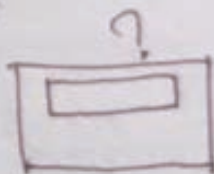
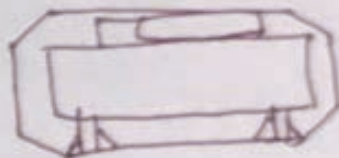
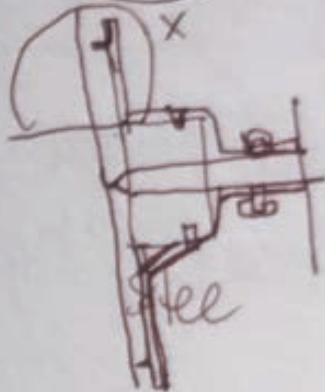
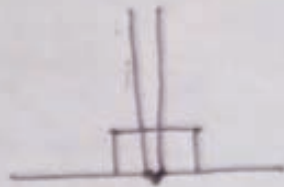
Grade?

Steel or Copper?

transparent  
yellow  
bronze





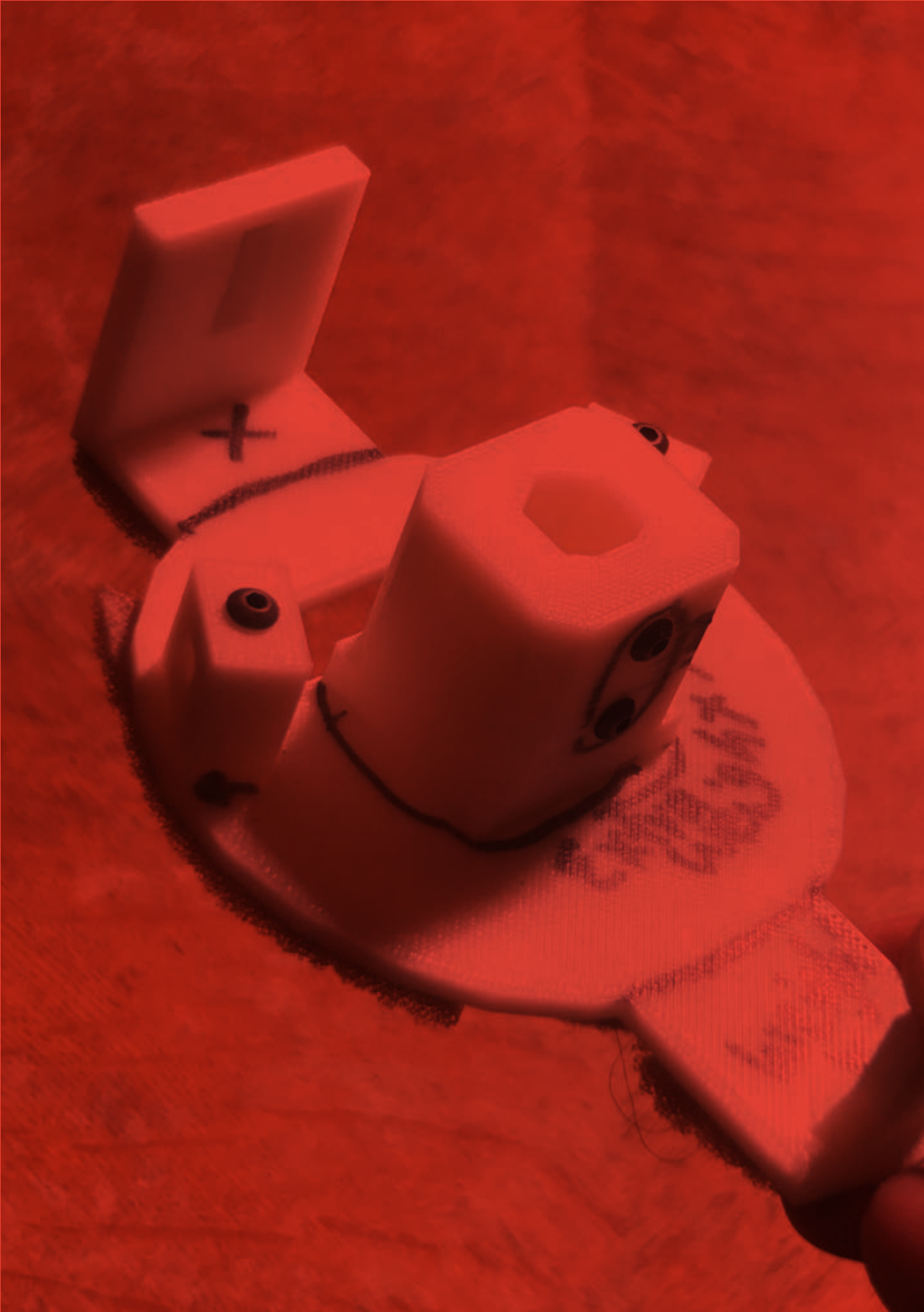


feedback mechanism

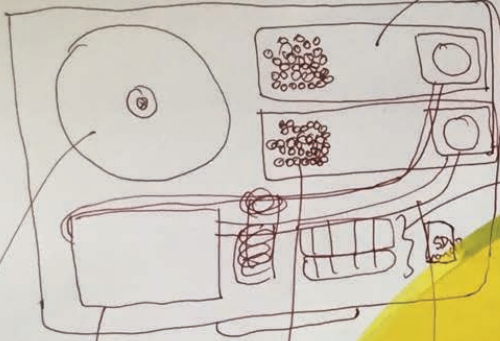
X Printer



quick release!



# Cardboard Briefcase



- ① design aches
- ② 3d print
- ③ Fabricate

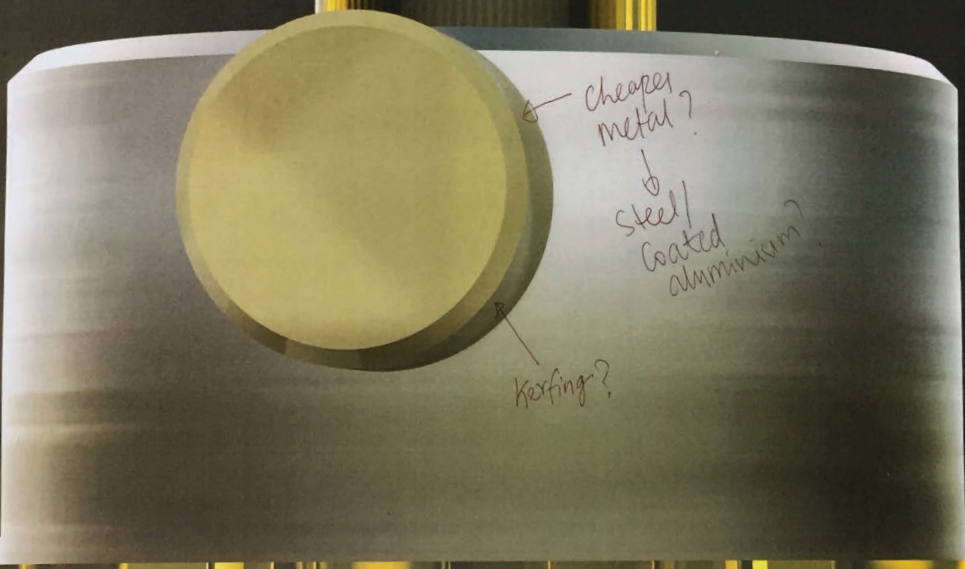
- ① Canvas cover for bricks or so chgs?

- ~~① alter dimensions~~
- ② Mock up (3d print)

- ① first design
- ② 3d print

- ① find beads
- ② spray paint?

- ① flat cover or heat shrink?

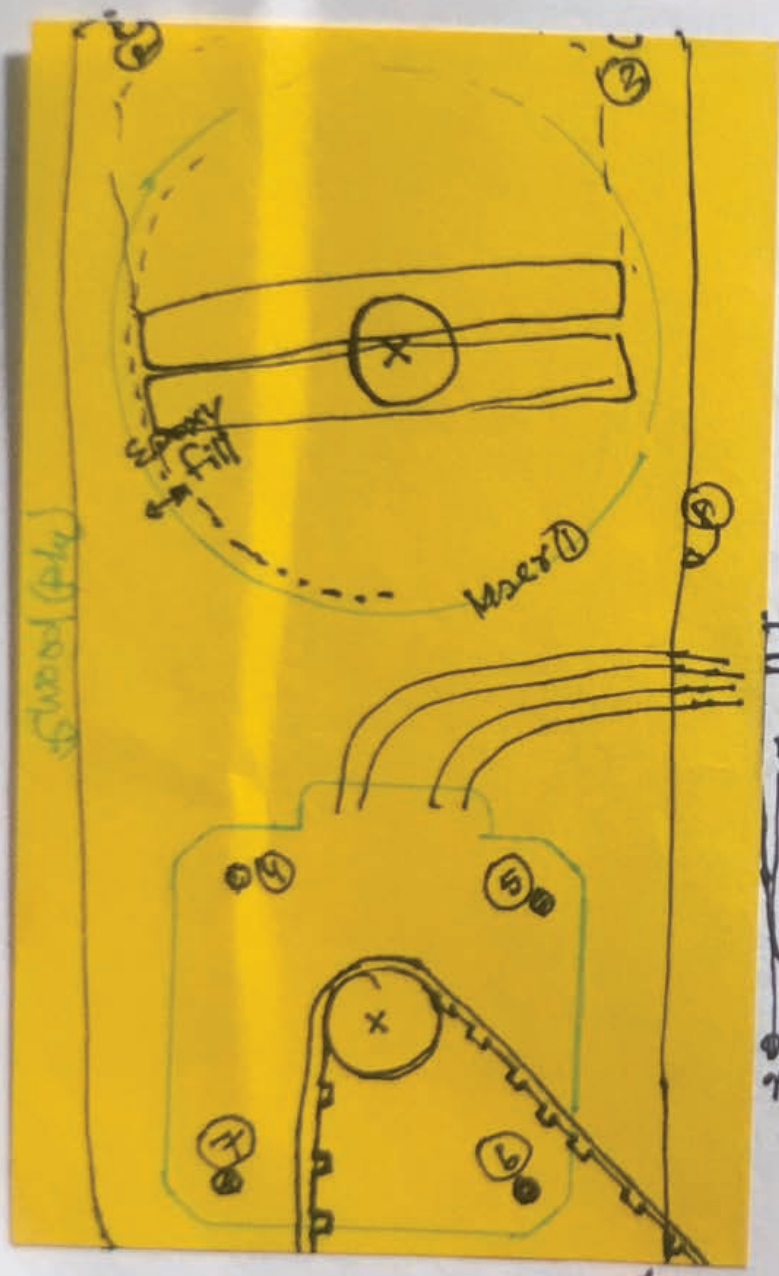


- cheaper metal?
- ↓
- steel / coated aluminium?
- ↑
- kerfing?

+ white band





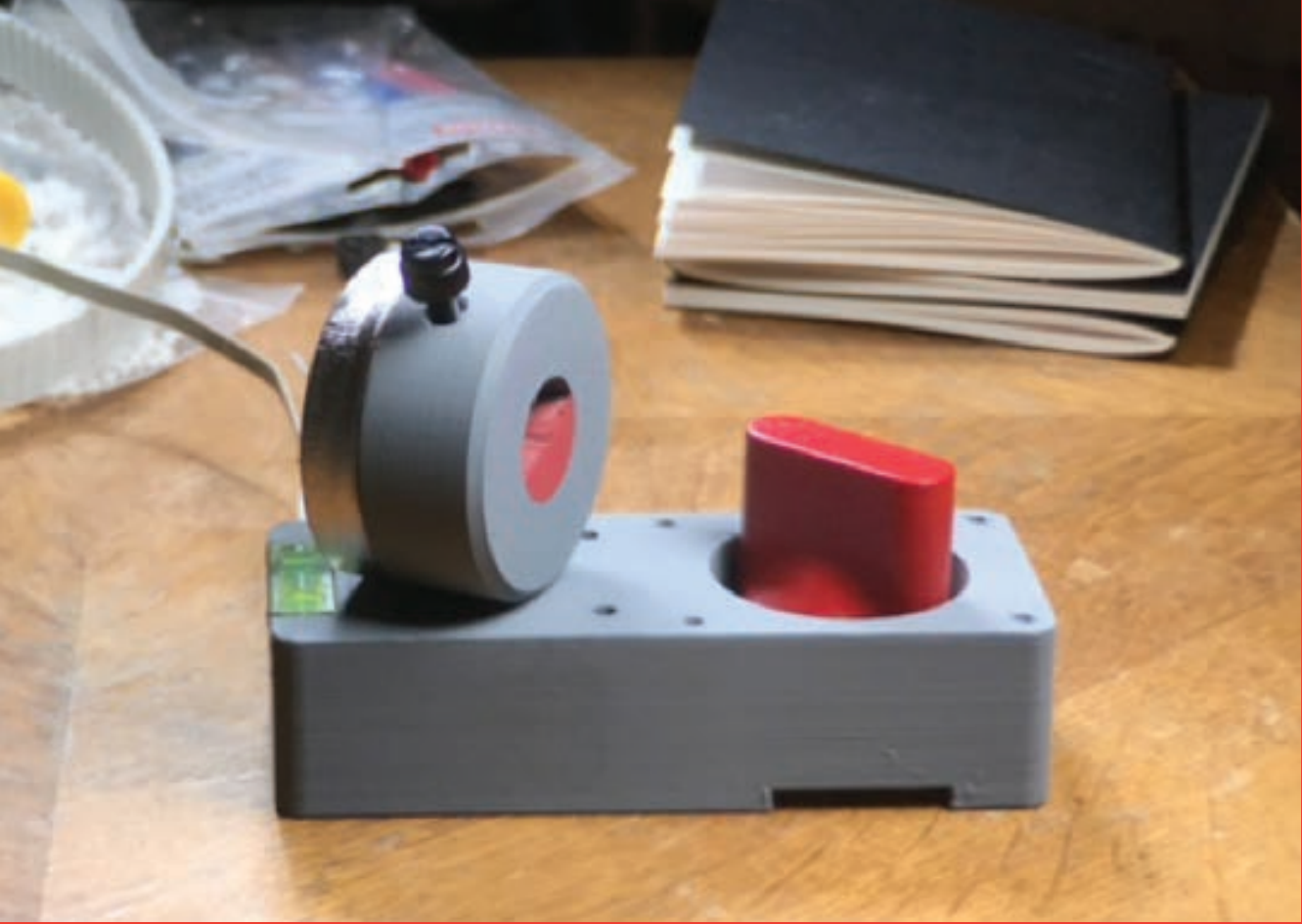
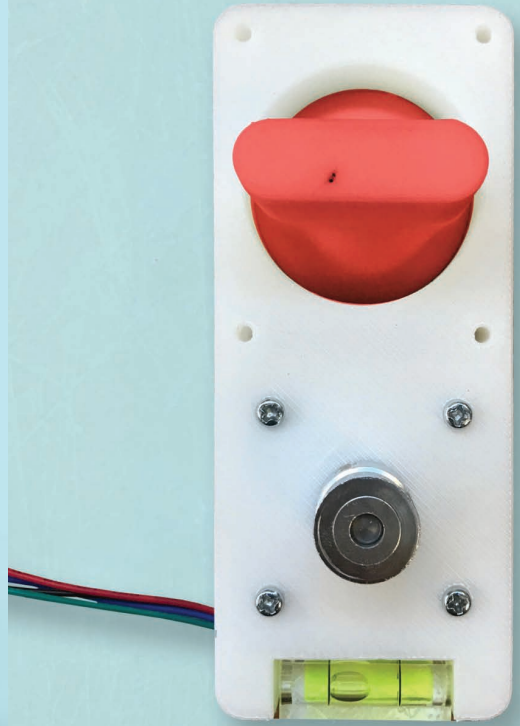
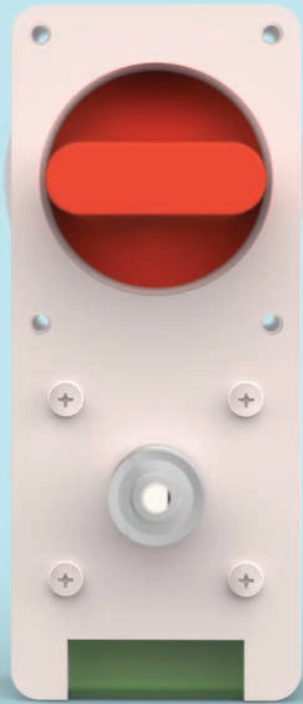


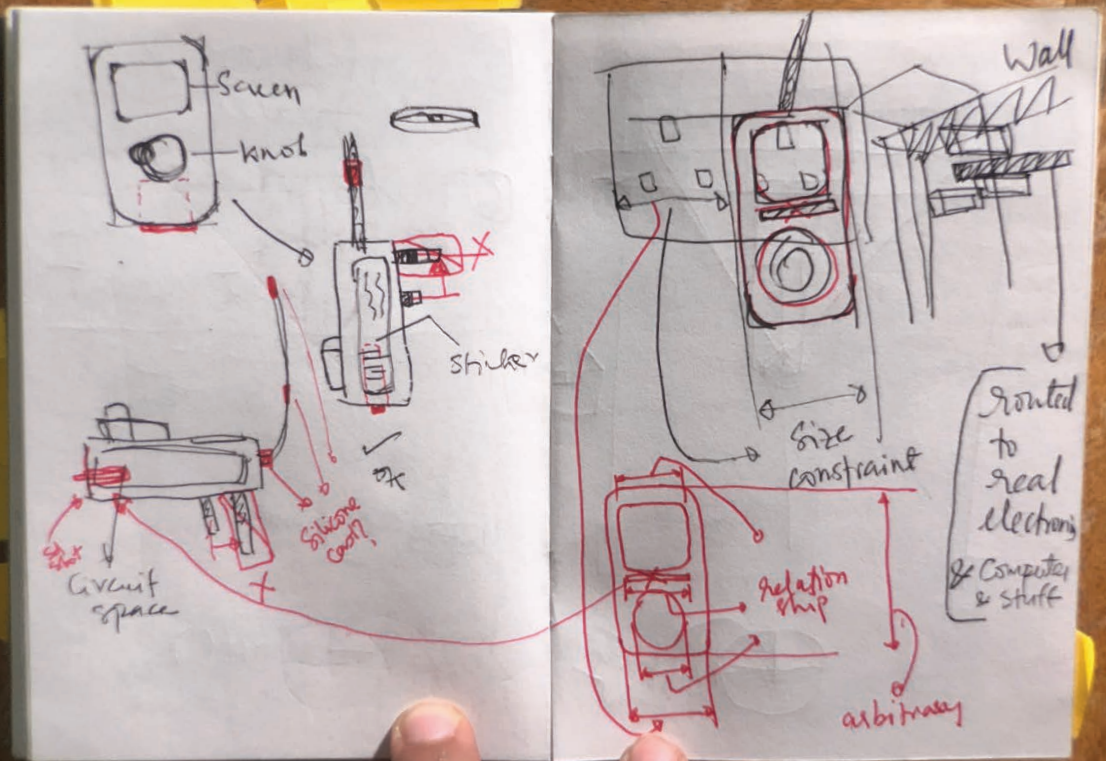
rubber gasket











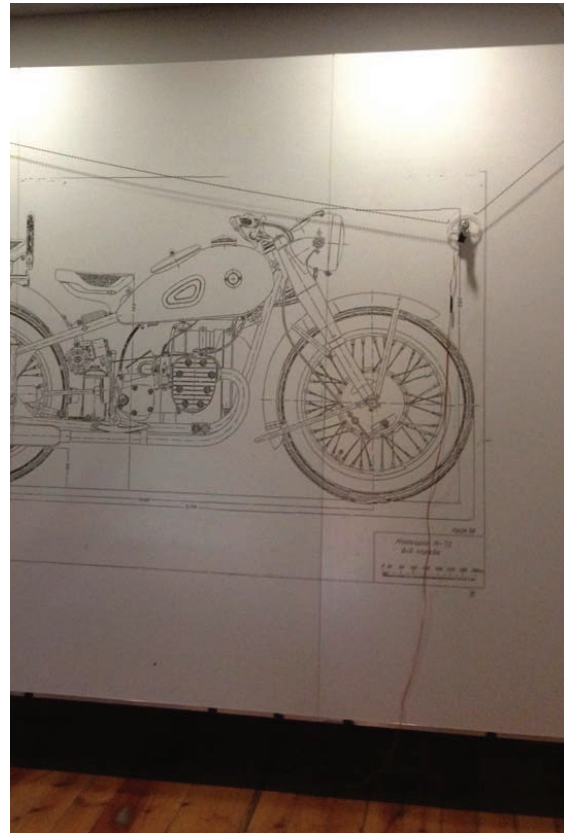


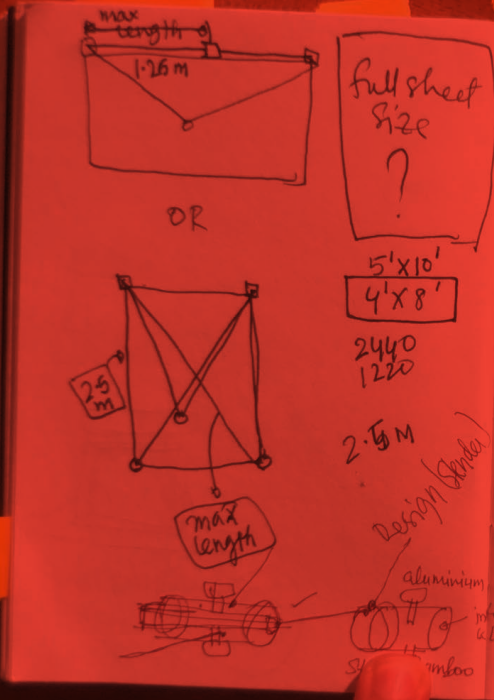


# DRAWING AS A SERVICE

The inclusion of suction cups in the design of the motor mounts, allows for the drawing machine to be temporarily installed on glass windows and home walls allowing for the person to be able to provide precise drawings a service.

This allows it to become relevant to the market opportunities such as home decorations, wall paintings and glass window display decorations.





full sheet size ?

5'x10'

4'x8'

2440

1220

2.5 m

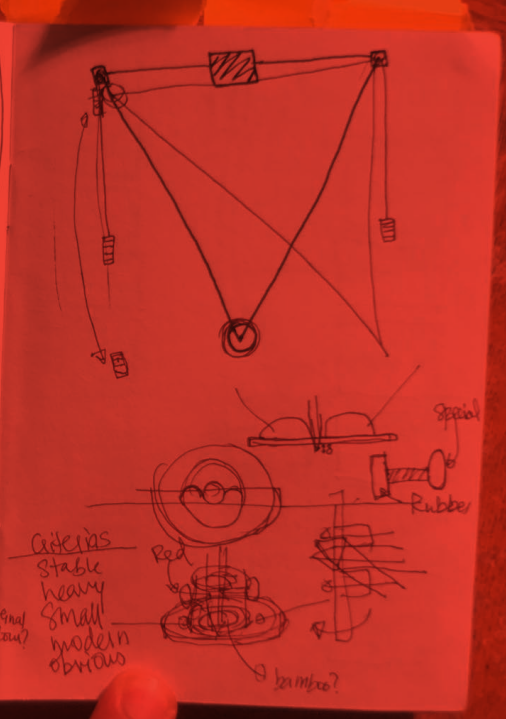
Design (Sketch)

aluminium

in (and below)

st

mbao



adidas

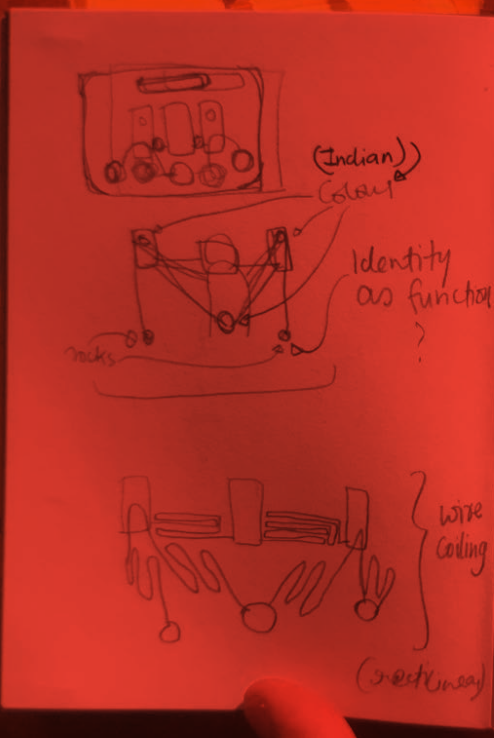
Stable

heavy

Small

modern

obvious

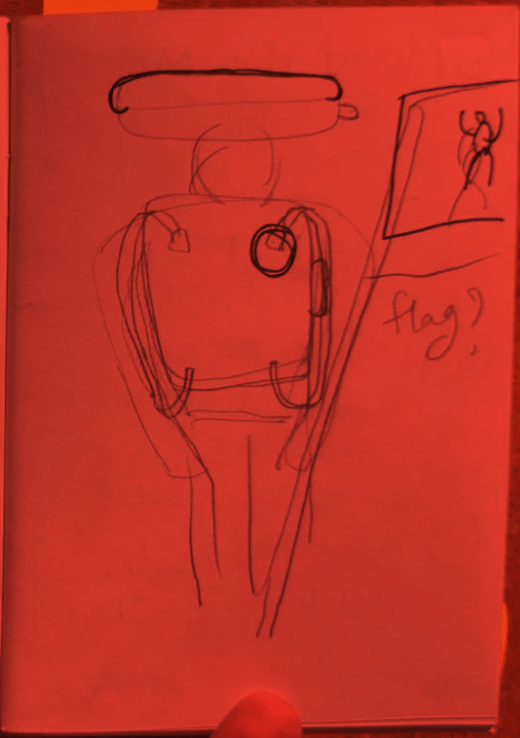


(Indian) colour

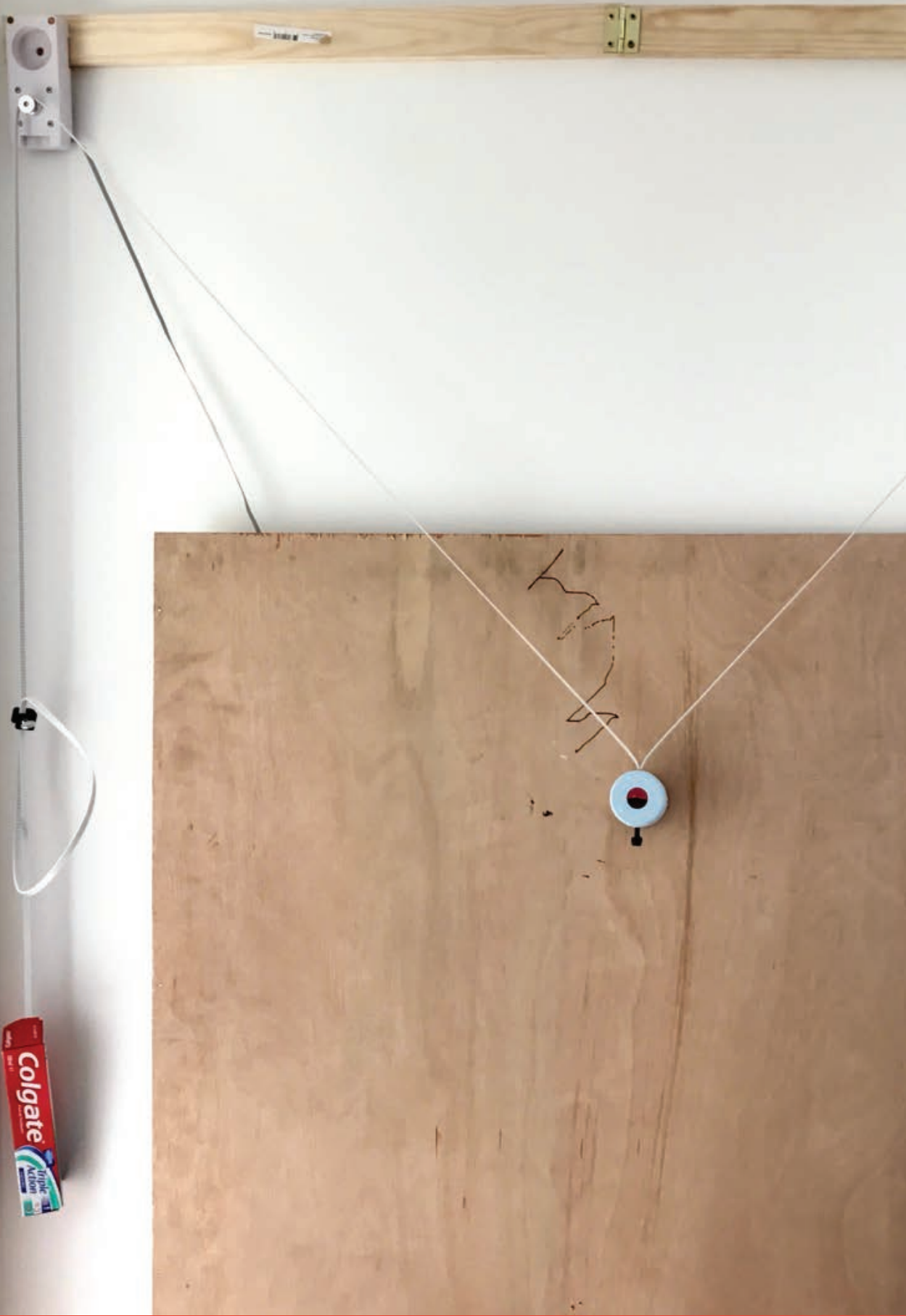
Identity as functional ?

wire coiling

(rect/unsay)



flag?



A close-up, artistic photograph of a plotter's pen nib and a circular component with a barcode-like pattern, set against a light blue background. The pen nib is red and black, and the circular component is black with a white barcode-like pattern. The word "PLOTTER" is centered in the image in a white, sans-serif font.

PLOTTER





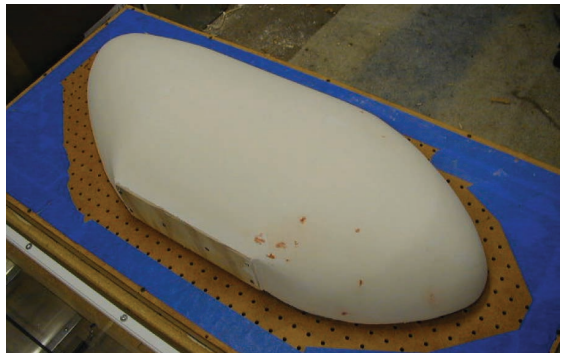
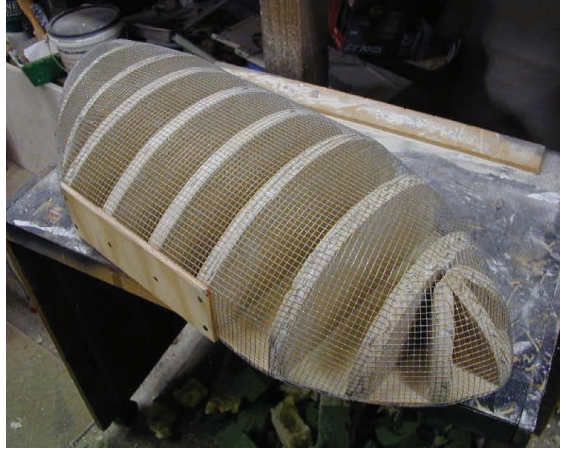
The local Tailor 2.0



The Bus Scavenger 2.0

# 2D Templates to 3D Molds

2d templates drawn using the plotter and cut out



*from the handmade  
to the manufactured*

4

**FORMER :  
REPEATABILITY  
FOR OLD SKILLS**

# Bringing mechanical reproduction to Traditional skills

There are craftsmen all over India, that spend all their days, making again and again the same objects - archetypal forms from mythology.

They find themselves outcompeted in terms of price and finish by manufactured items which look the same but are often lighter (on the account of being cast Resin or Jesmonite), and smoother (on the account of being molded).



The skill of the hand, alongside the precise repetition of the machine. It would be too utopian to imagine such a scenario, if it were not for sheet plastics and the process of 'Vacuum Forming'.

The process of vacuum forming means a sheet of plastic can be heated and formed over an object (often called a mold). The sheet of plastic in assistance of the vacuum would then shrink onto it to adopt its shape tightly and minutely.



# New Capacities, Old Skills

These examples showcase fairly straightforward examples of vacuum formed sheet plastics alongside castings made using vacuum formed molds.

This tapestry has variety, emerging from the agility of the process. *This agility allows various handmaking skills to find reproductive capacity through this device.*







# Machinic Typology of Vacuum Formers

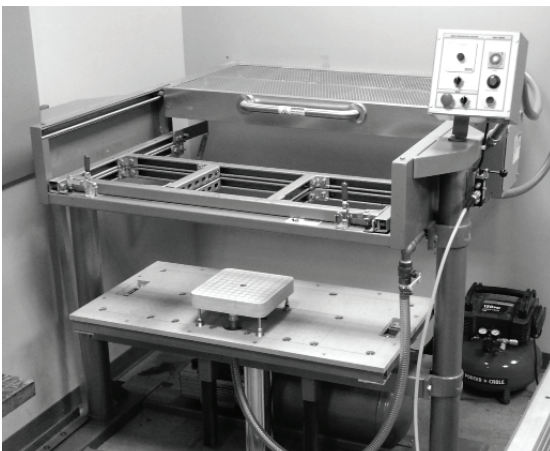
The DIY and open source variants of vacuum formers are useful and recommended. However, there are layers of assumptions that make them **unfit for our context**.

Their biggest **assumption often seems to be access to powerful vacuum cleaners**. These are in themselves at least £90 in cost.

Also **assumed is access of sufficiently sized room heaters**, and the ability to wire and deploy a temperature regulator. These are indeed fairly reasonable assumptions to make for regions with substantial periods of cold temperatures and household incomes that make vacuum cleaners widely available.

Alongside these assumptions, the DIY typologies of formers are meant to be fixed in place and are hence often **assume a permanent access to a building** with electricity.

Given these assumptive limitations of the western DIY typologies, one might need to buy one from a manufacturer. These unfortunately are priced upwards of £700 (also assuming access to a vacuum cleaner).





## The other ways of vacuum Formers

*Exploration of machinic typology has been a key method used in this project. This method allows me to catalogue and critique the ecology of variations within a typology, These variations can be historical (patents, outdated variants), open source, adhocist hacks and specialist mutations. Within such a catalogue, one can assimilate various intelligent strands of ideas, and pragmatic opportunities.*

# Mobility of production capacity matters

The enterprises of low capital, often require the ability to pursue market opportunities on the feet.

They can seldom afford for opportunities to knock at their remotely situated doorsteps. They have to pursue them physically, and explore the dynamic market geography.

The tools have had to be carried to the most lucrative market opportunities. Food

processing machines on wooden carts or steel grinding machines on bicycles. There is ad-hocist logic at play between the means of production (tools and raw materials) and the transport that both houses these systems, transports them and acts as the liminal informal shop.

This logic is perhaps crucial to recognise as a pragmatic vernacular of the productive poor.





# PRODUCT DEVELOPMENT





From the standpoint of product development, the former demands certain rigor. At once, the design needs to perform comfortably as a briefcase, while being able to deal with heat elements, generate vacuum conditions, provide spaces for vacuum fans, pumps and temperature regulators.

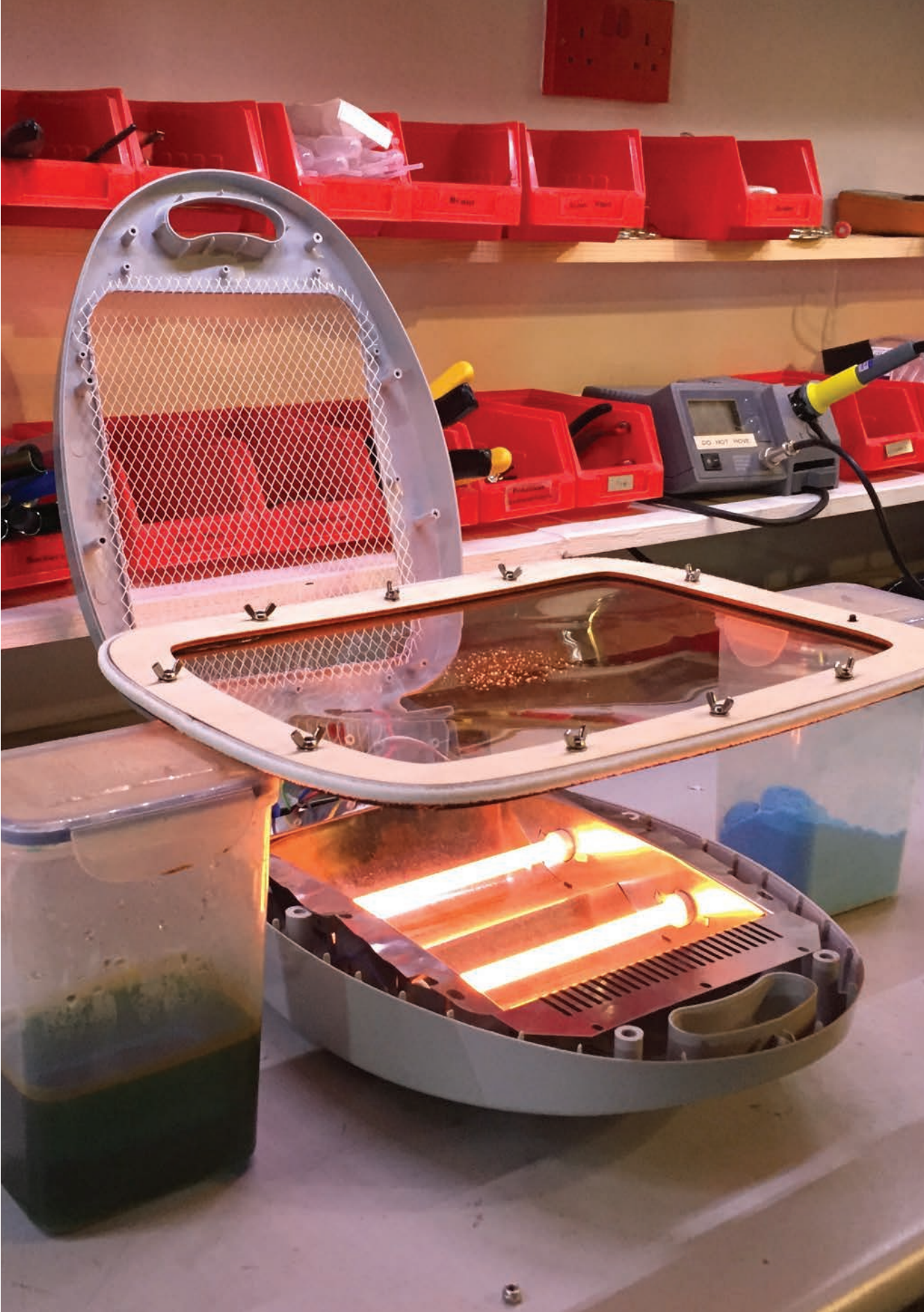
The product in its current version is distinctly separate from other versions which each were either too engineering minded or too design driven. The former as it stands if perhaps a fair balance.

# फ़ैक्टरी







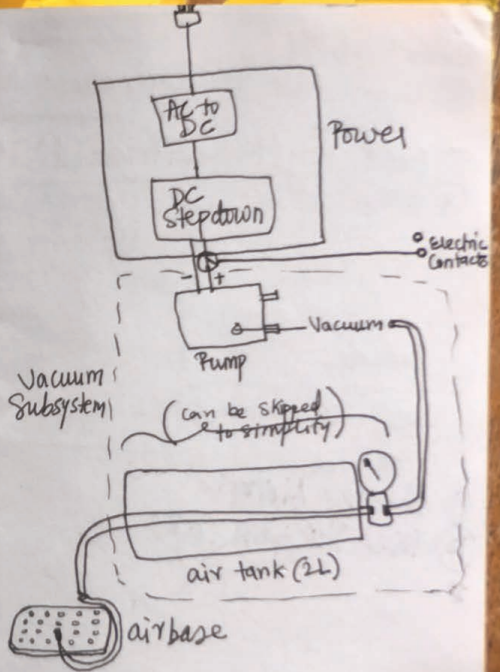




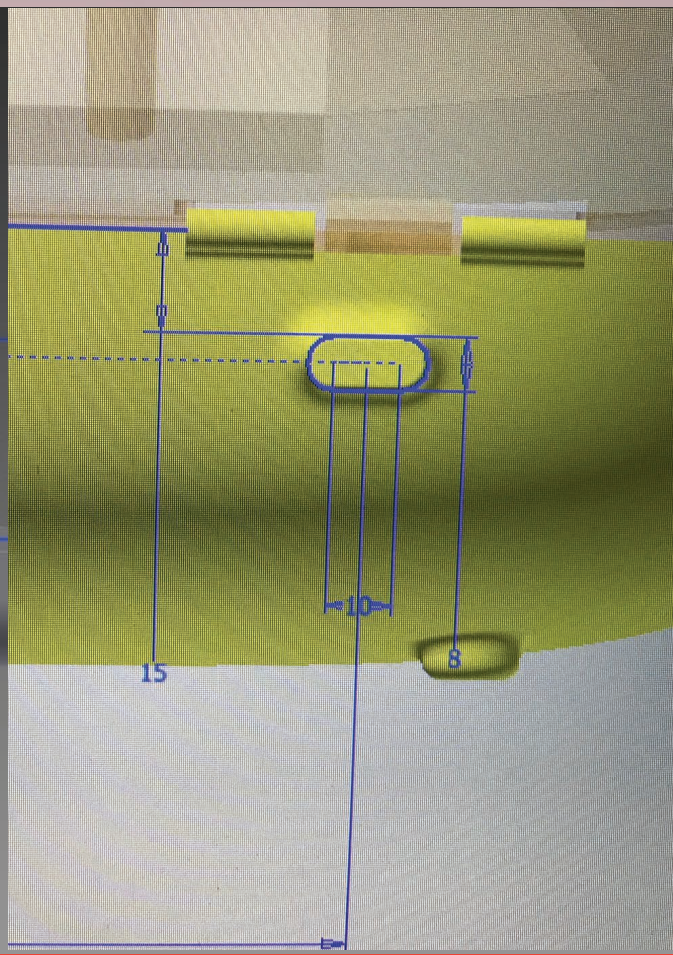
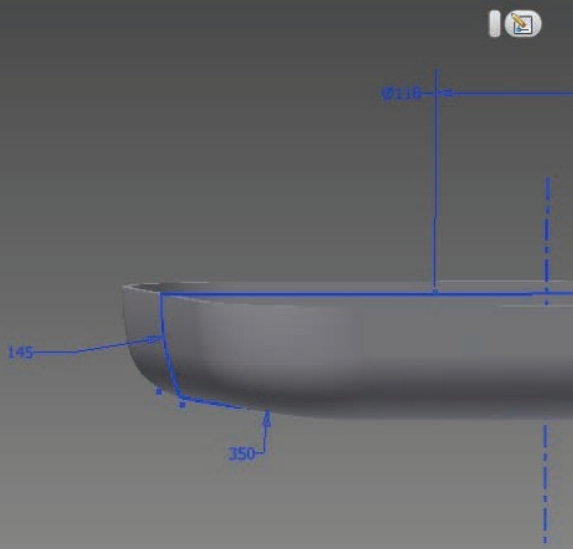
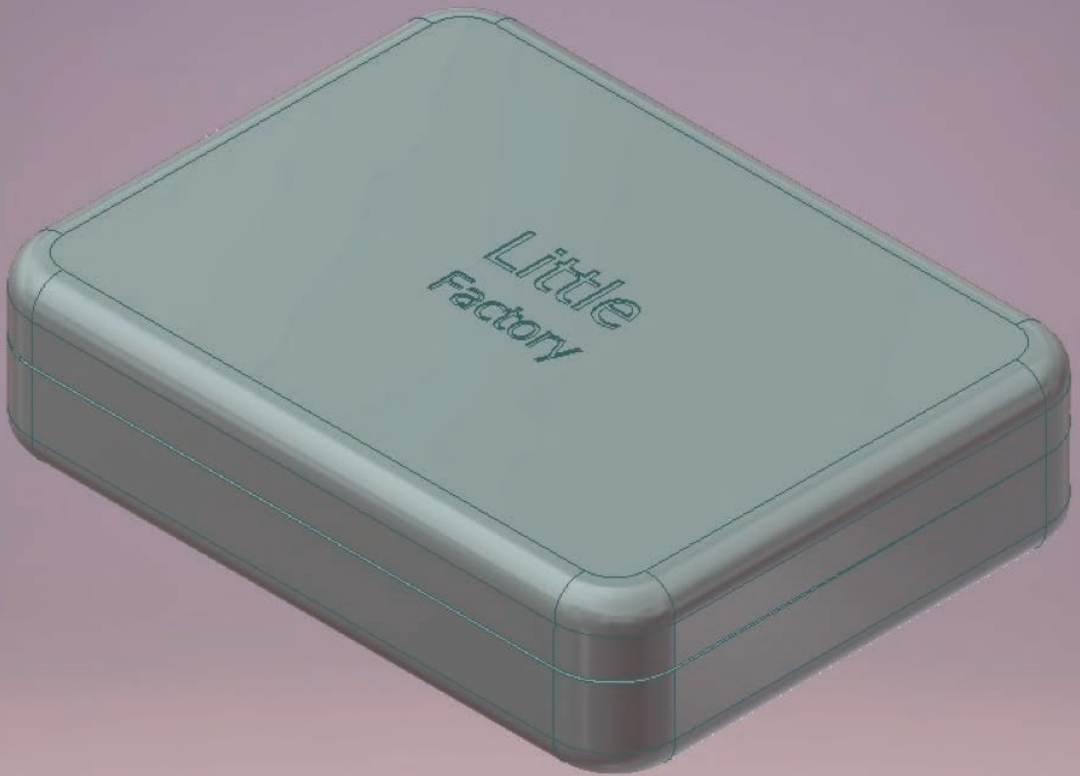
VACUUM FORMER

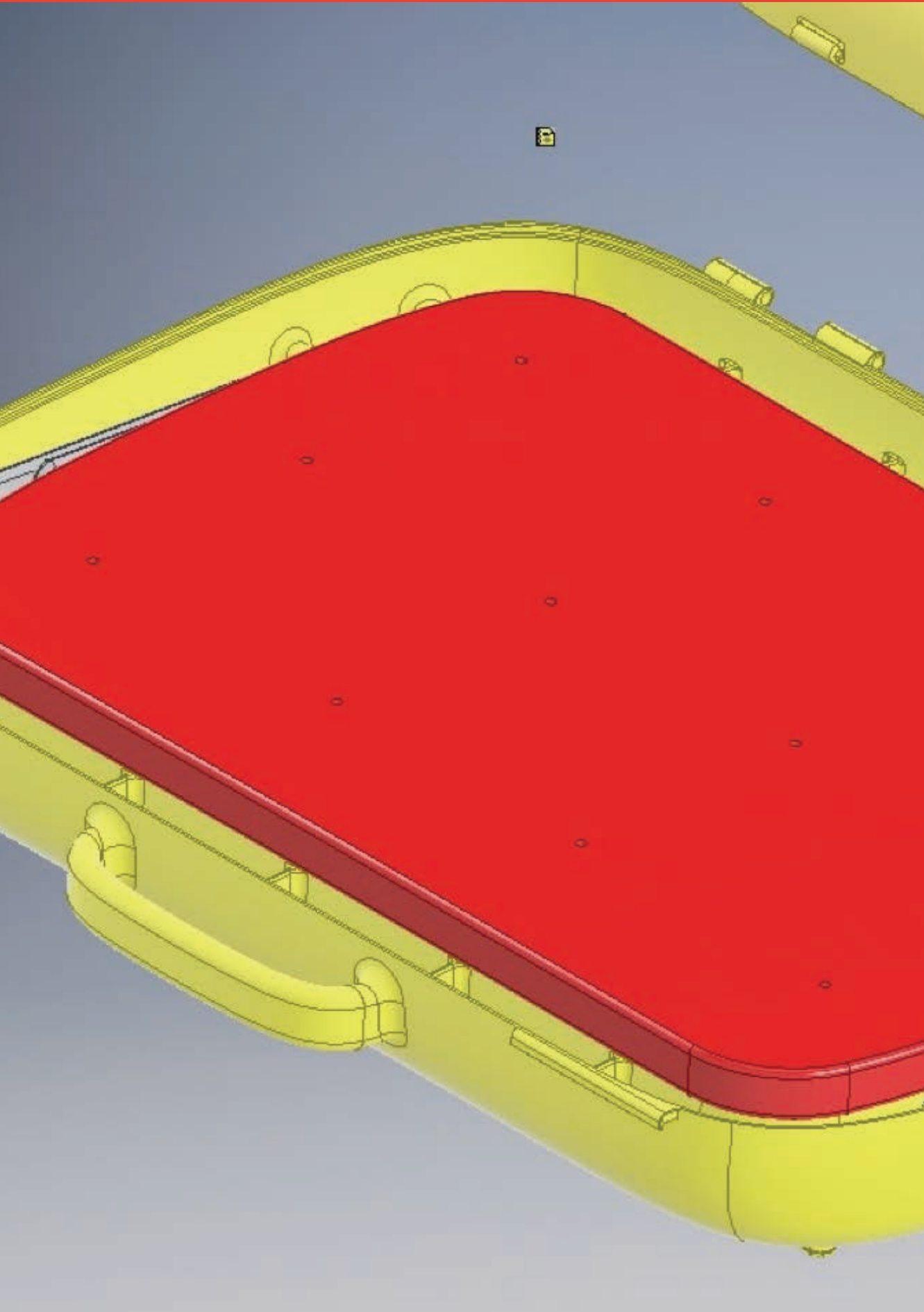
- ① SHOE (Raw, finished)  
*in progress!*
- ② Helmet (Raw, finished)  
*in progress!*
- ③ Chocolate  
*in progress, received*
- ④ light wall  
*to give out! in progress*
- ⑤ Pendant *MAKE*  
*just need to show a shape!*

TOTE AND

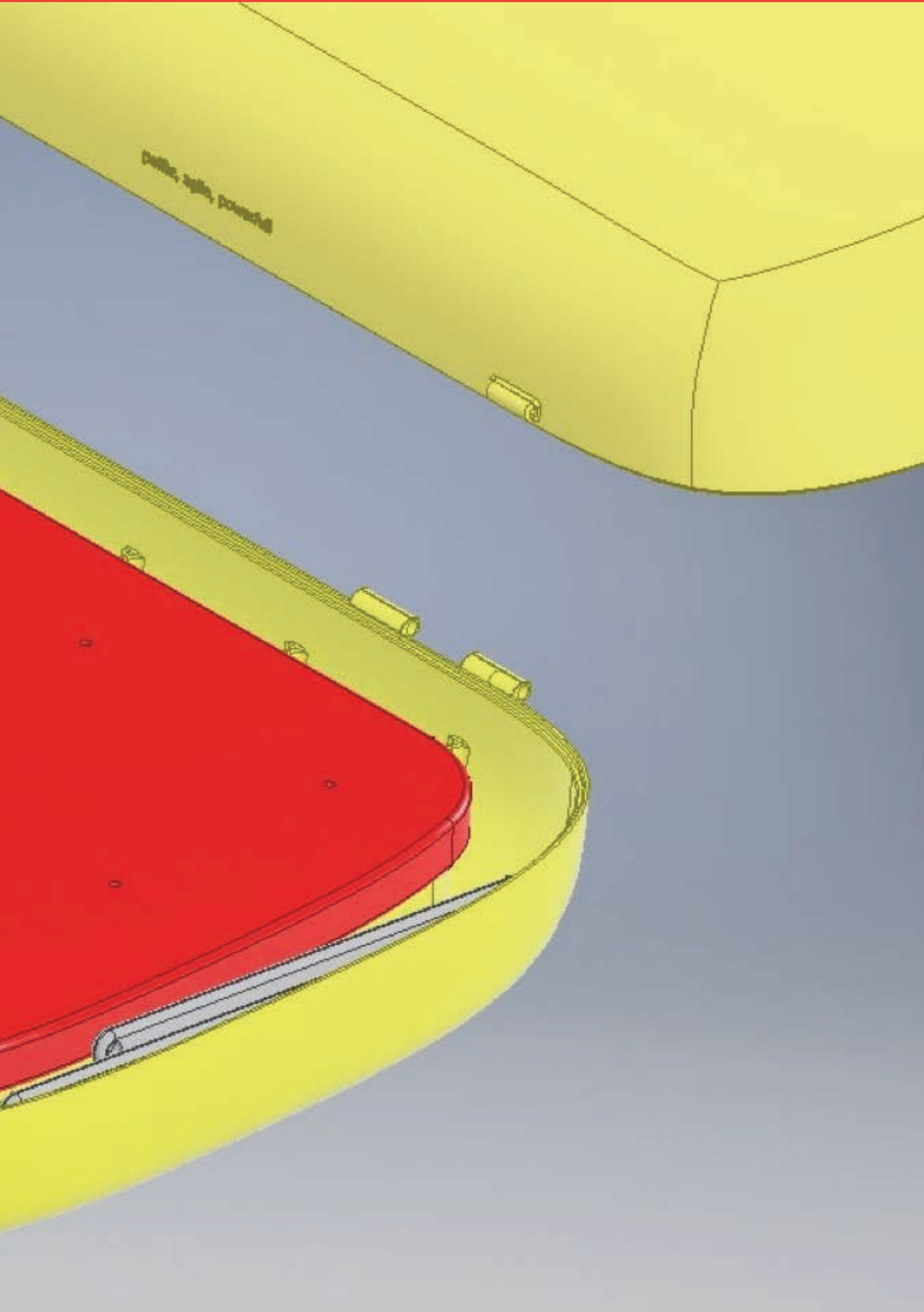






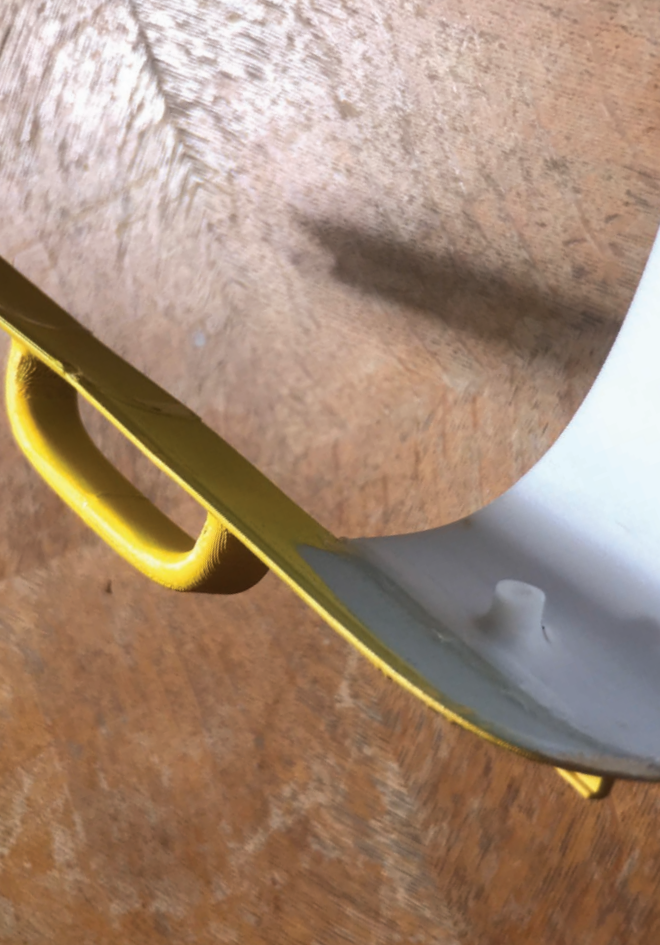
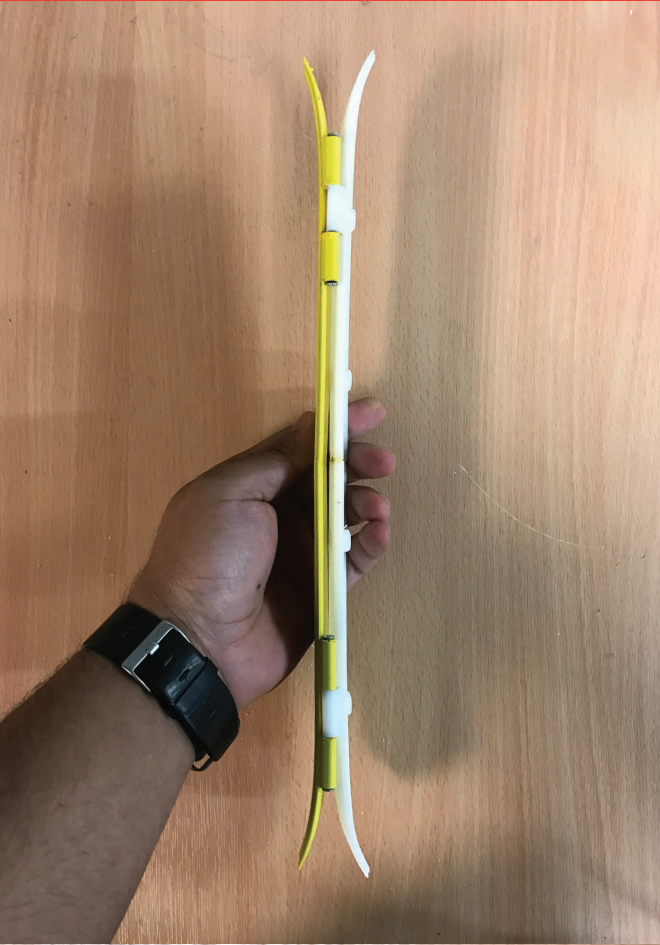


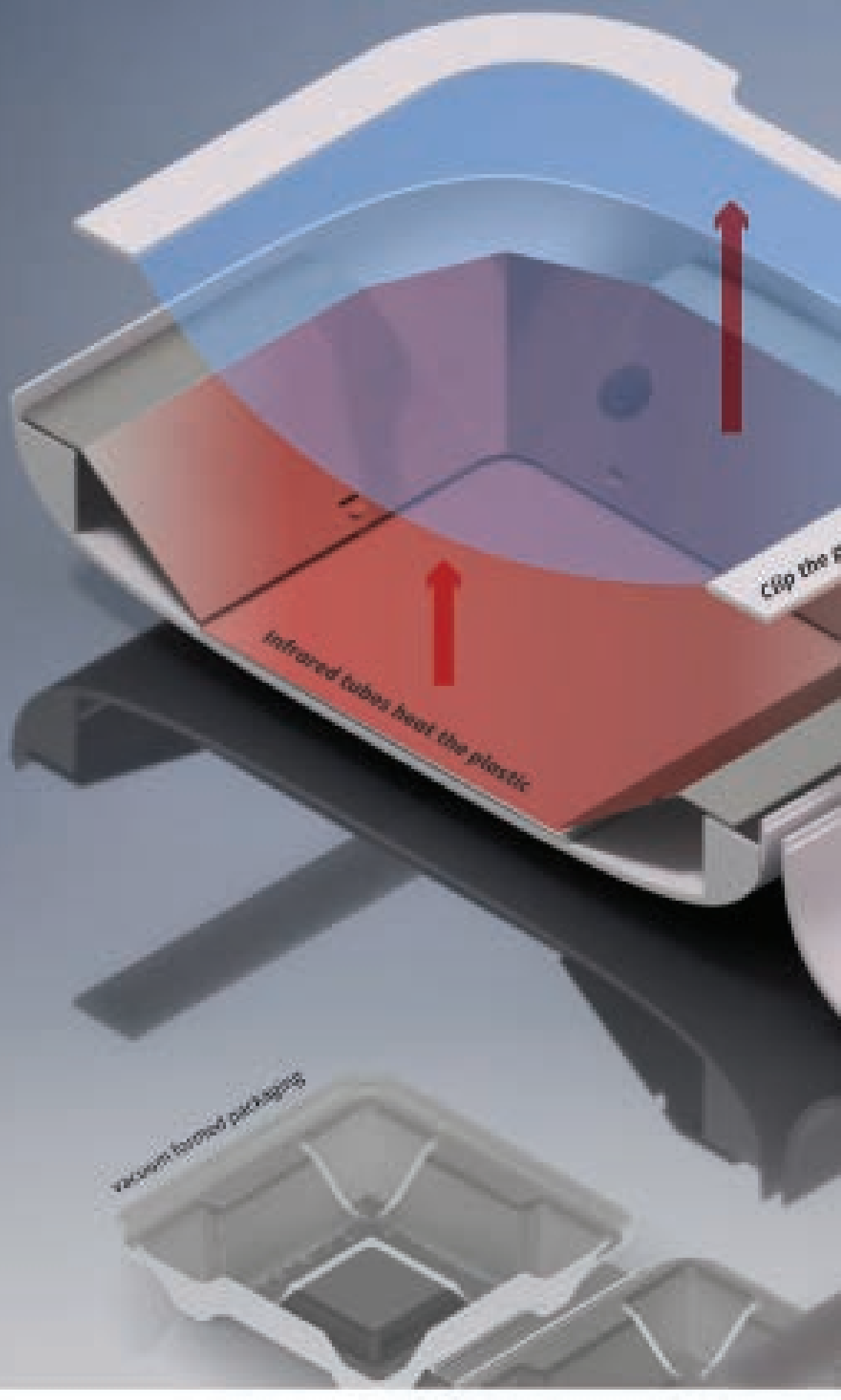
puller, split, powered

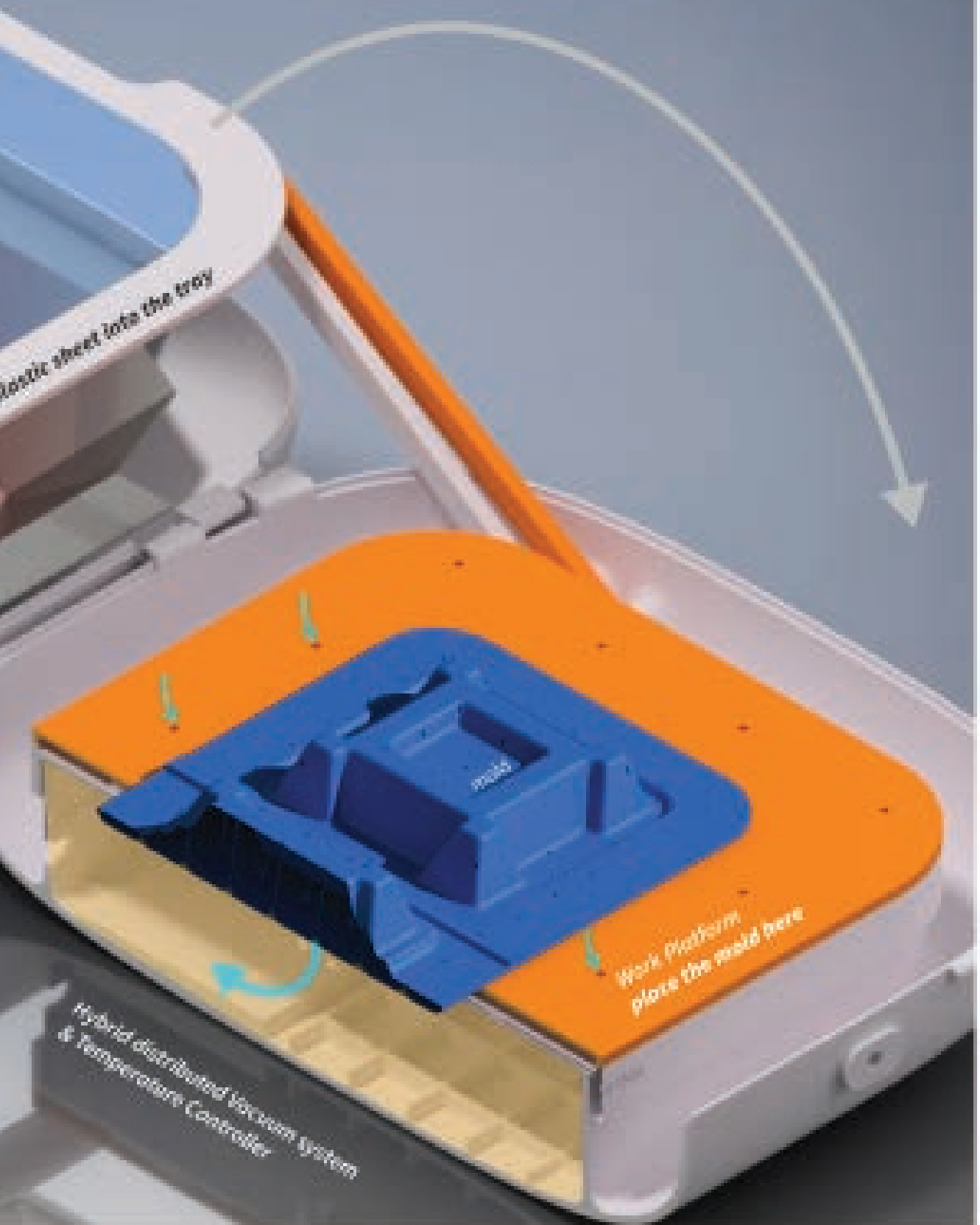












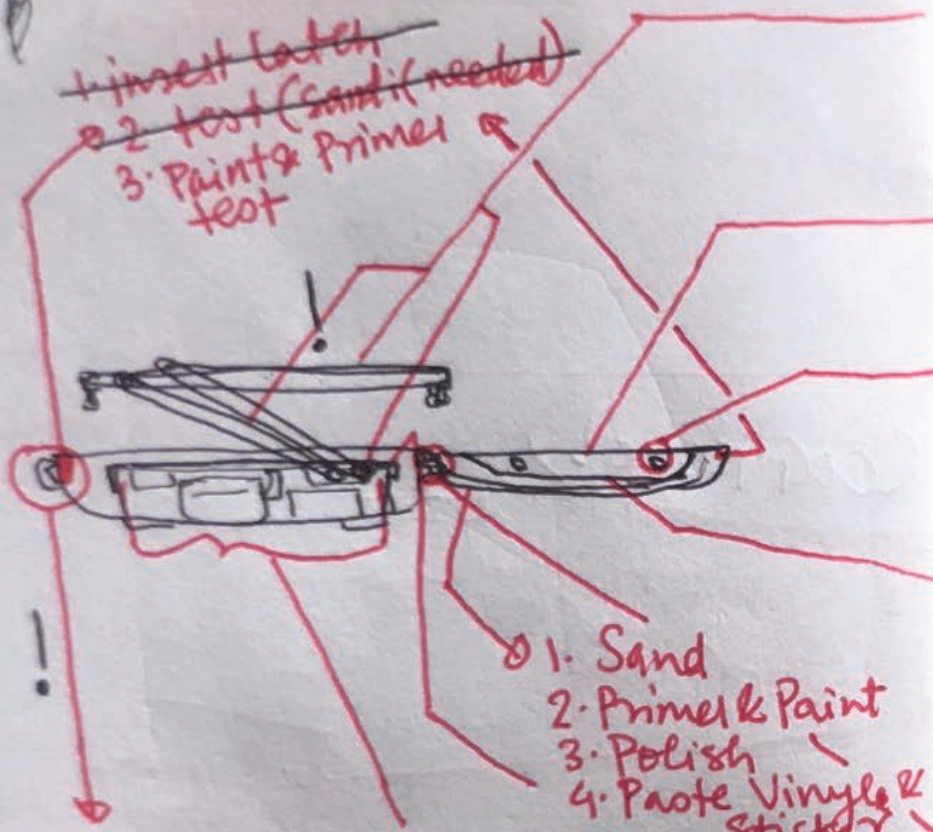
Elastic sheet into the tray

Work Platform  
place the mold here

Hybrid distributed vacuum system  
& Temperature Controller

B

- 1. insert latch
- 2. test (sand if needed)
- 3. Paint & Primer test



- 1. Sand
- 2. Primer & Paint
- 3. Polish
- 4. Paste Vinyl & sticker

- 1. design handle screw points
- 2. 3d print & test
- 3. handle silicone molding
- 4. Primer & Paint

- 1. threaded inserts
- 2. insert padded Vacuum Pump
- 3. glue & wire temp. seg.

1. Print & glue on hing points
2. Laser cut hinge bars (or make)
3. ~~Insert threaded inserts by hand~~

1. Clean it using double sided tape
2. Polish

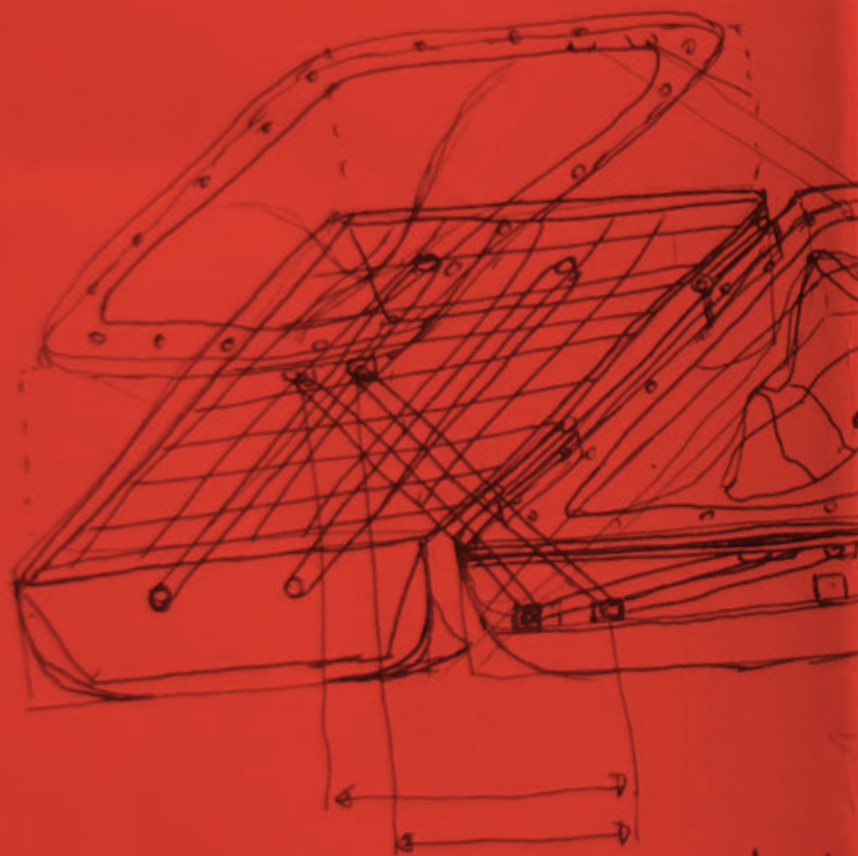
1. <sup>file</sup> drill apt. hole
2. find a reflective way of sealing gap

1. bend the bottom tabs
2. slot into the tab holes & have it fixed in place

1. ~~dowel hinge~~
2. glue little tabs on both sides to put it in place

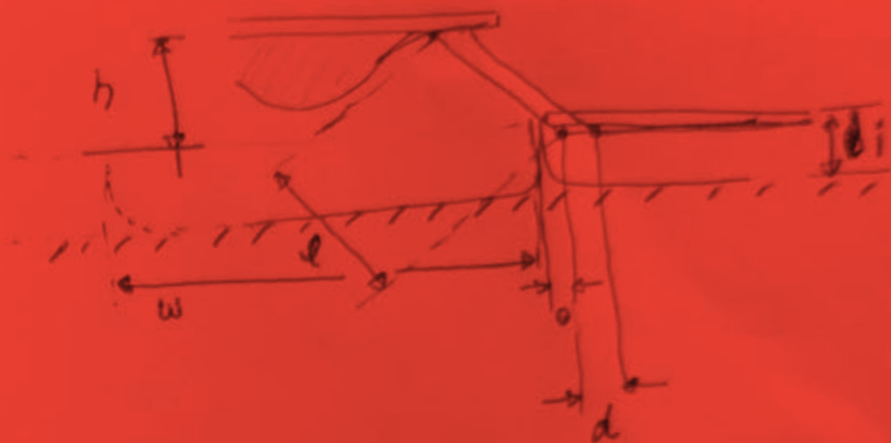
1. Sand A-surface
2. Primer, Paint (& Polish) if needed

4. epoxy fans in place (carefully)

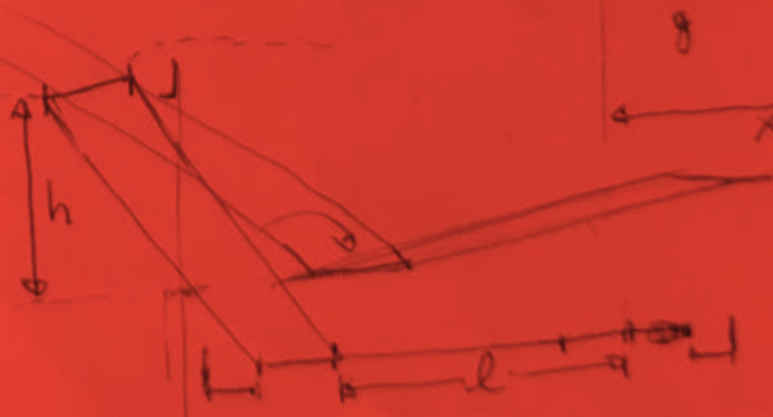
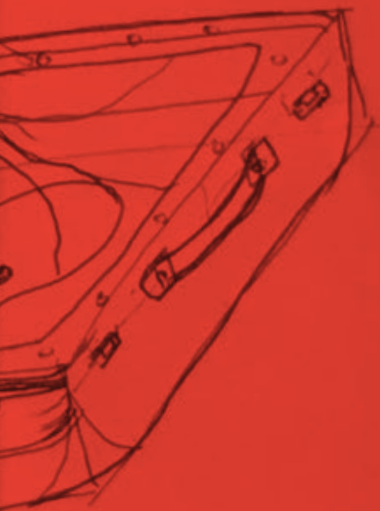


$$l^2 - x^2 = h^2$$



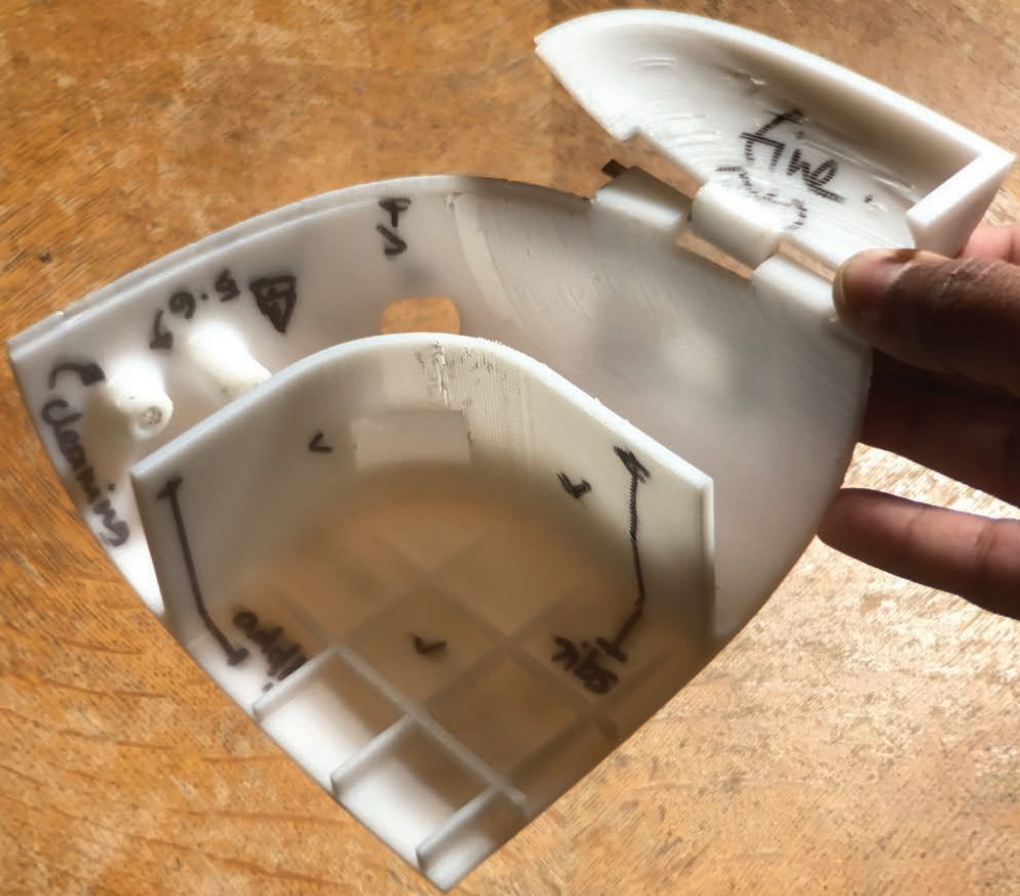


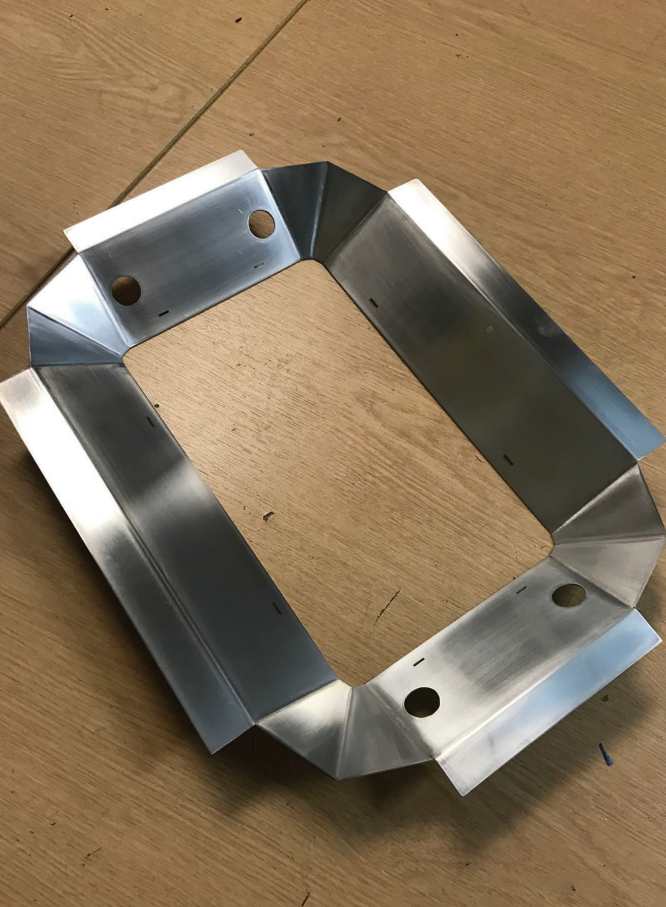
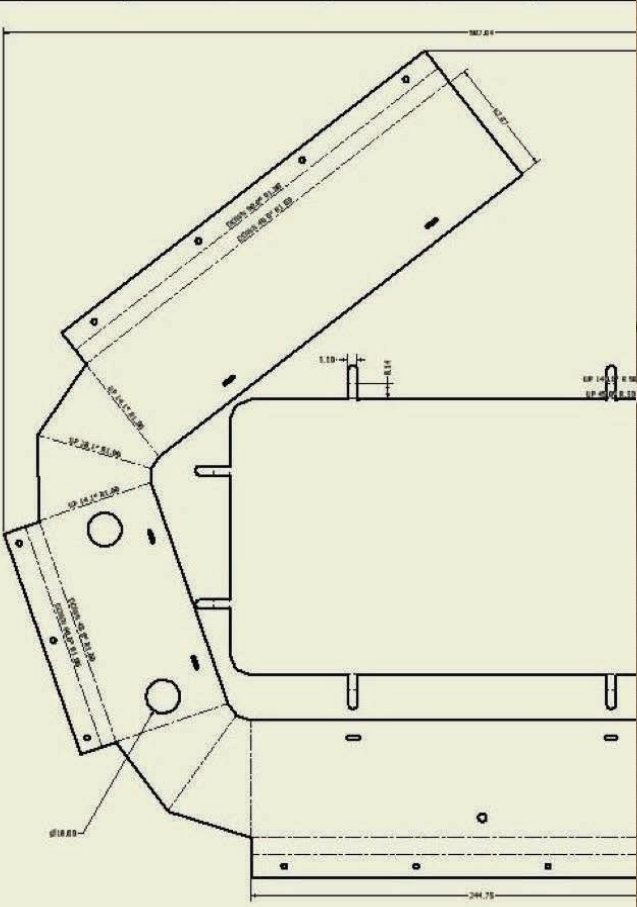
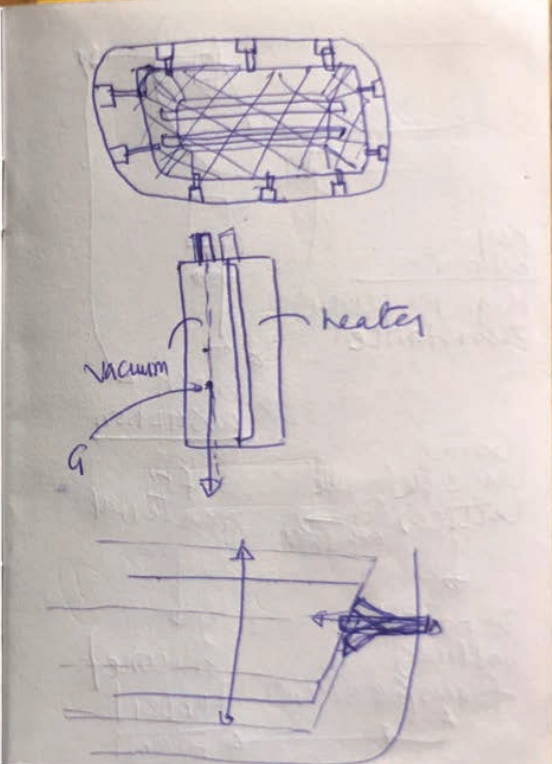
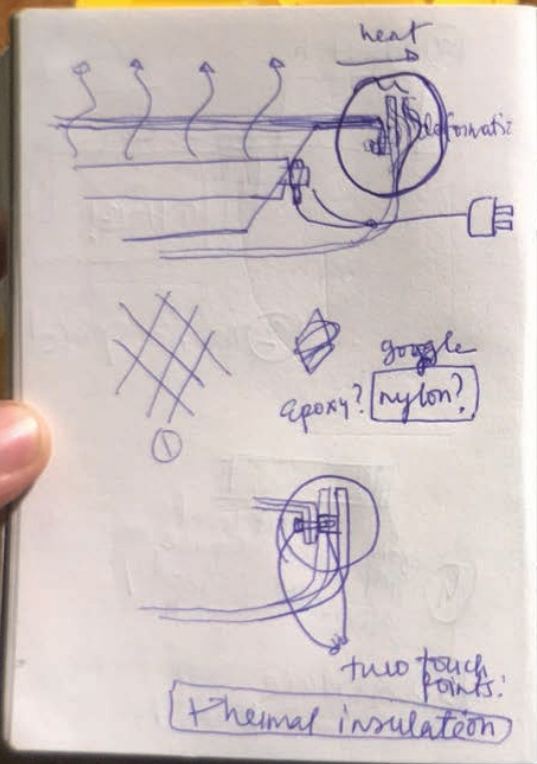
$$l > h$$

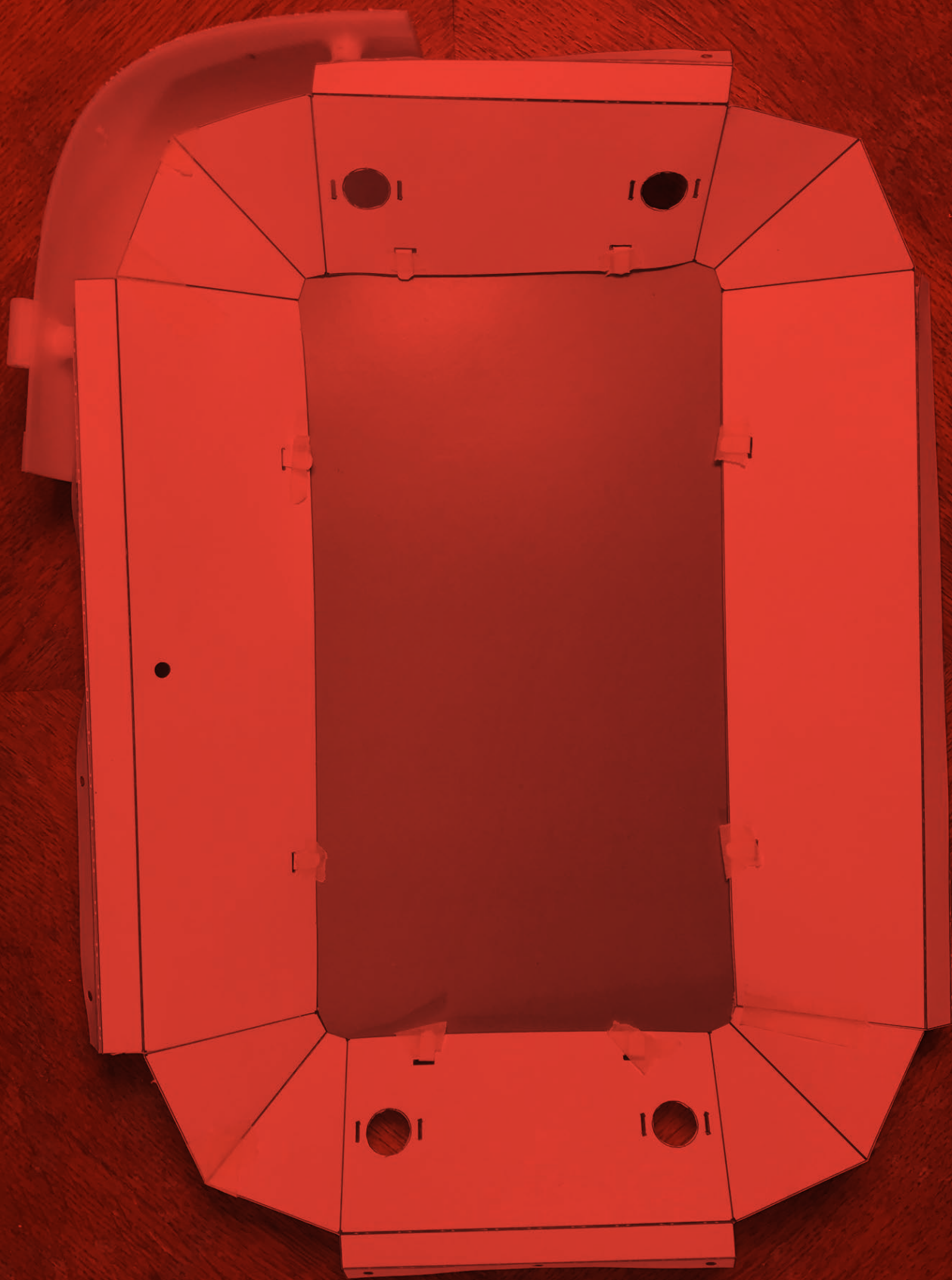














Vacuum Box

# Color Strategy



Given the formal neutrality of the former's external surface, the choice of color become a crucial space for generation of both distinction and visual perception.

The criteria for making the choice of color schemes has been to informed by the desire to balance between the signification of Sophistication and Friendliness.

These two parameters are somewhat conflicting. The criteria of sophistication led to dark serious colors or light grays. Dark colors were problematic given they would absorb heat and become hotboxes in tropical India.

Light grays would be difficult to maintain and get dirty in dusty Indian environments.

The use of a gray with a hue of red is coated with hydrophobic coating to allow for a rich distinction in the marketplace.

Color is used as a space for exciting choice making, affirming individuality, projection of self, affects of ownership.

Hence, a small variation of color schemes has been developed. These schemes remain to be fine tuned.



# RENT TO RUN

*Economic Strategy*





# £100

**Buying**  
as a means of participation



# £1

**'Rent it for a day'**  
as a means of participation

Rickshaws cost between £70 (used) to £150 (new). However, It is rare for a rickshaw puller to purchase one.

Rickshaw pullers would instead rent it out on a daily basis at an average cost of £0.50 per day. This way the enterprising rickshaw puller can remain attentive to various other opportunities in the urban environment.

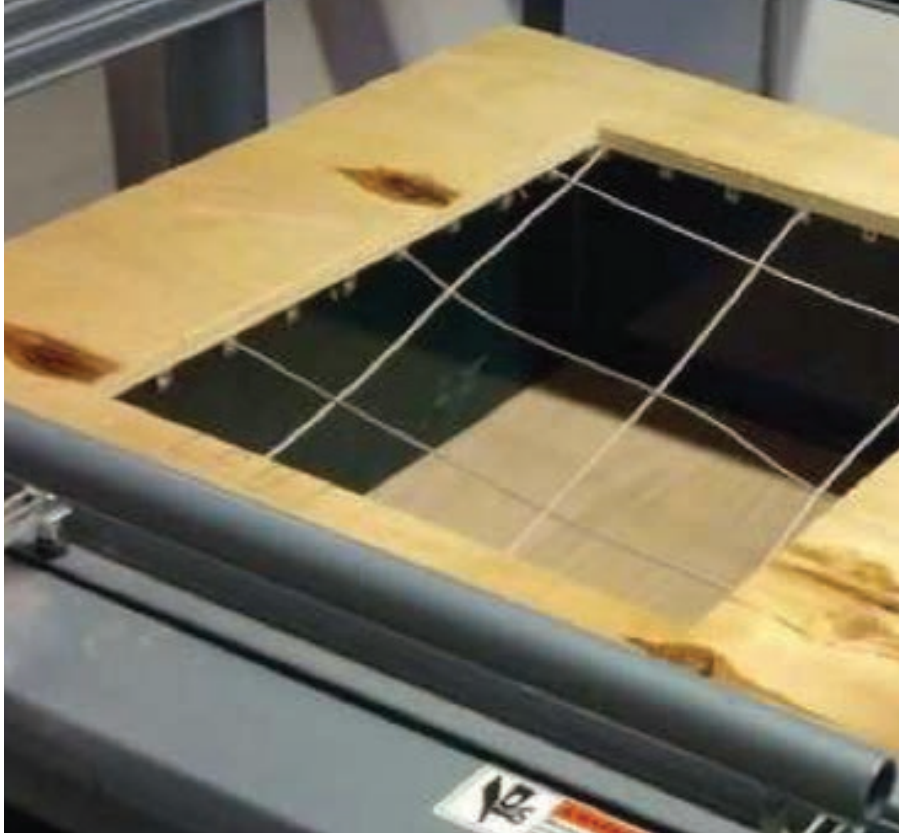
Tomorrow, he could move into a masonry job or head to his village as a farmer. There is a dramatically reduced cost to entrance (£0.50 for a day) and a even reduced cost to exit (given there was no purchase of permanent capital).

This fluidity whereby the cost to try a new means of income is minimized; allows for one to experiment and speculate in light hearted manner with alien tools of production.

Arguably, only through such a renting based economic logic can such innovation (of the type explored in my work) be allowed to proliferate.

By constructing an object-economics which **dramatically lowers the risk** for self-speculative experimentation; one can **go beyond the risk averse characterization of the productive poor.**

Vacuum Forming and complexity through analog variability



# Poverty & Complexity; Handmade & Manufacture

The achievement here, is the atonement of complexity and the capacity to manufacture for the productive poor.

There are no new skills that the machines demand, instead they are designed with sensitivity to existing skills of the makers in India. These are machines that are not replacements of skillful labor but rather act prior and post their actions.

For instance, the former still demands very well made molds, emphasizing the craftsmanship rather than taking from it. Similarly the plotter acts a priori to skillful production by tracing complex patterns on sheets of material, which would still require the same levels of skills and labor for the production to take place.

These tools enrich the rewards that the skills bring to the makers.

**10**

# **PARTIALLY DEVELOPED IDEAS**

27  
now)

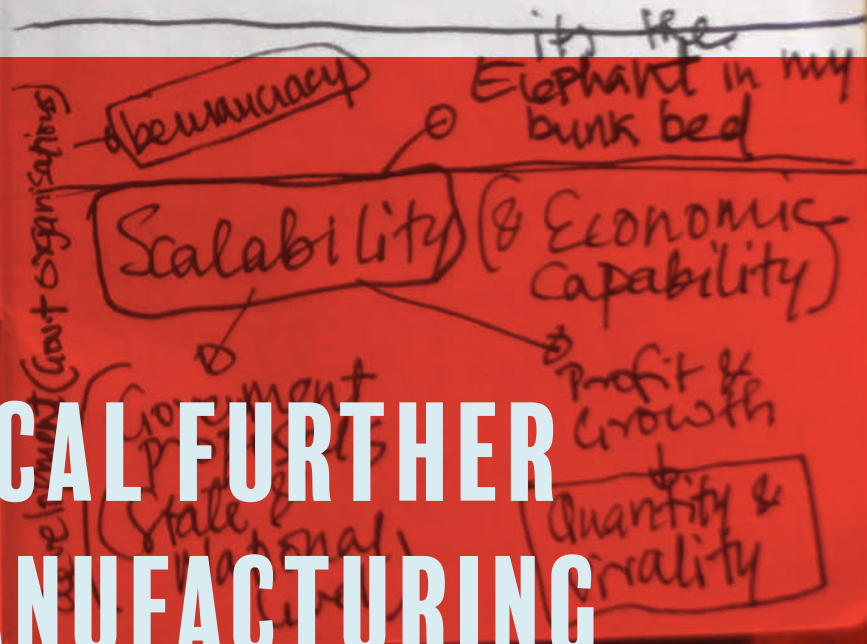
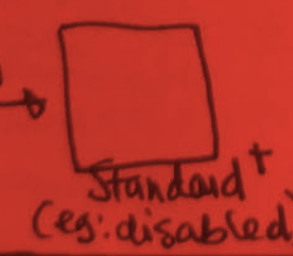
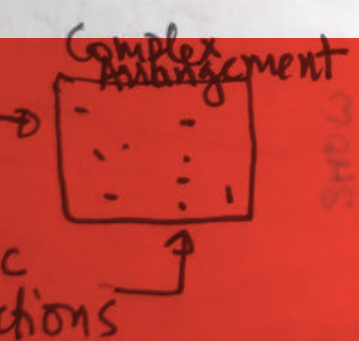
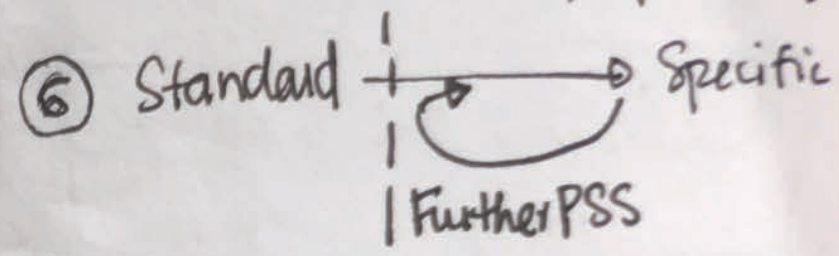
Standard



Personalized

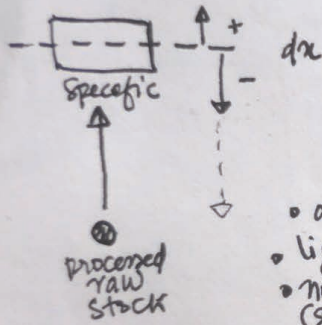
④ Repairs / Upcycle

⑤ Standard ——— Specific  
(taste, dynamic trends, Preferences)



# LOCAL FURTHER MANUFACTURING

Klaus Dauven  
 Dam (Hydrophobic flowers)



- aggregation → an aesthetic of material collage
- light - dx
- noise (specific homogeneous)
- form reduced → precise sectional cut, sandblasted, coated (Transglan) RCA
- a pleasant (intelligent/ironical) aesthetic of re-purposing
- new as credibility for old; modernist re-purpose

specific aggregation  
 Jae-Hyo Lee, Wood, 2009

"Business in a box"  
 - Frozen Belongings  
 2010  
 Michael Johansson

[Michael Marriott]  
 chest of drawers  
 1997

Retail;  
 must be rethought through the ideas of manipulation onto the standard; the POS as the generator of the specific from the homogeneous surplus of standard goods.



anatomy:  
 "things organized neatly"  
 20% profit

operational costs tedious & difficult intensely folded along with personal expenditures & aspirations

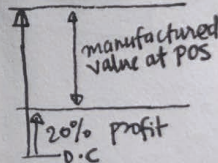
the salesman

the man who sits in the spot

poor selling to the fellow poor

homogeneous (items & pricing)

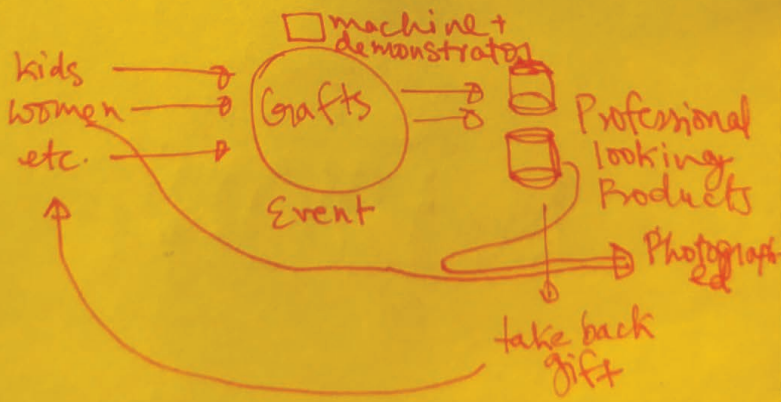
size → novel availability



tattoos for gene (Lewis)  
 genes

CIANTER & DEAN

"anybody can manufacture"



{ 300 + 1000 }	{ 2000 }	{ 1000 }
Printing Economy	Stock Economy	Filling & application Economy
- Capital (Initial)	- Capital (Initial)	- Machine time
- Operational Cost (Ink Re-fill, Paper, Roll, etc.)	- Operational Cost (Stock maintainance)	- Human Costs
- Changeover Cost	- Niche Selection Cost	- Changeover Cost
		- Capital (Initial)

logistics  
gates  
arbiters

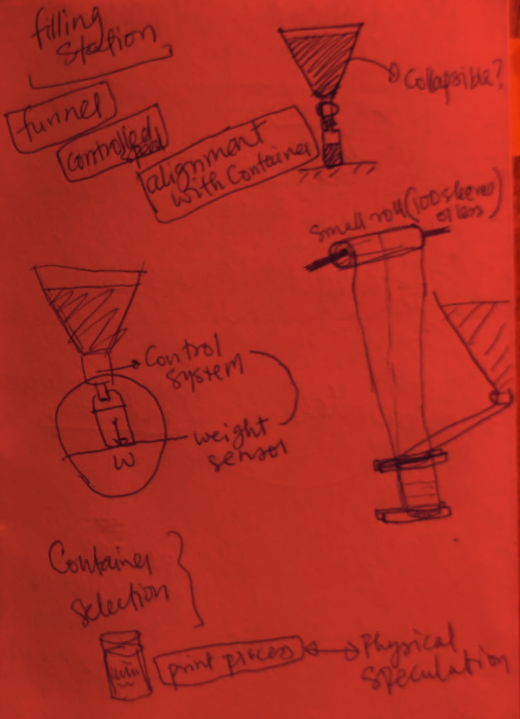
Branding Archetypes

- Name
- offers
- dimensions
- Price, Barcode
- Instructions
- Origins
- Regulatory Information
- Ethical stances
- Standardised symbols

- Colours
- Fonts
- Patterns
- Images
- Logo
- Symbols (Abstract)
- Licensed allusions

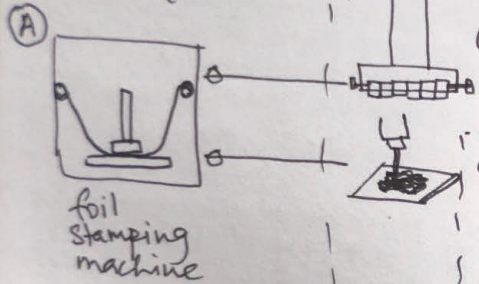
Visual Style

Brand Ambassadors, Licensed celebrities





available answers  
(assembly)

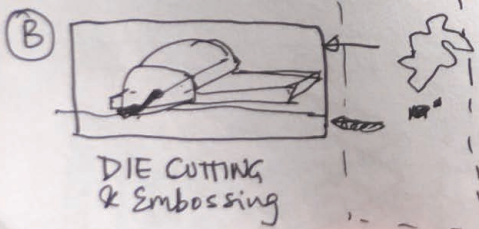


foil stamping machine

nice!  
flexible letterpress Mold

intricate CNC dies

issue  
engaging  
Caliberated encounters



DIE CUTTING & Embossing

DIE:  
Handmade (high skill?)  
OR  
CNC  
OR  
3D Print (possibly)

② Capital Cost  
 min: \$300 (FILM) + \$200 (DIE)  
 = \$500 (MIN.)

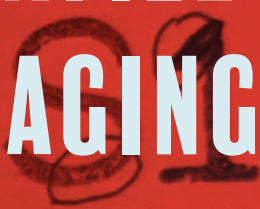
③ \$\$\$  
 Molds  
 inflexible

Problem

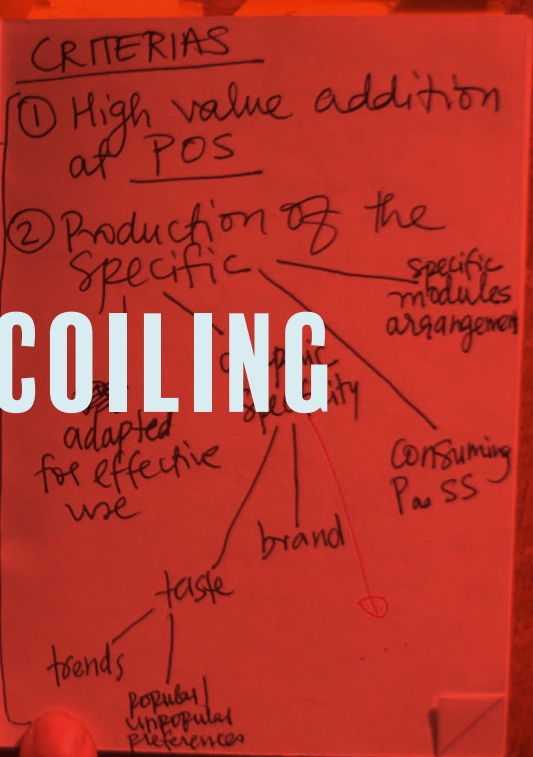
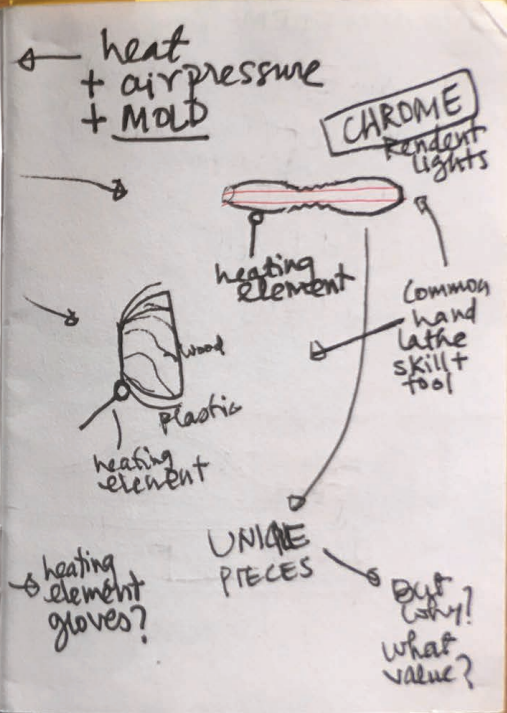
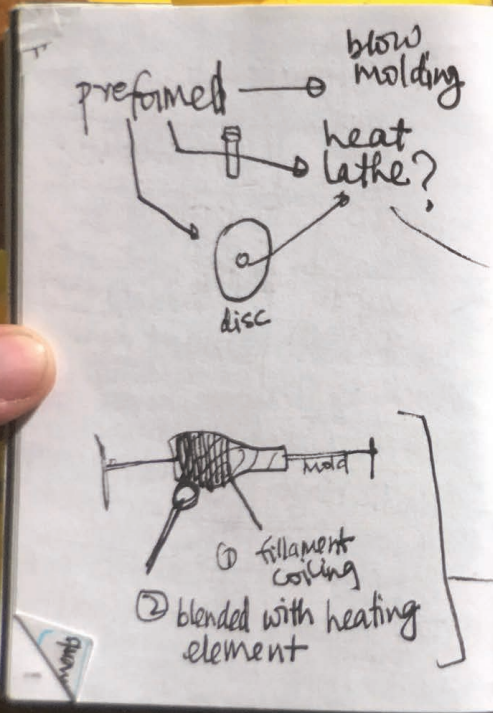
high cost to failure.

# VERSATILE PACKAGING SYSTEM

high pressure  
lean stamp



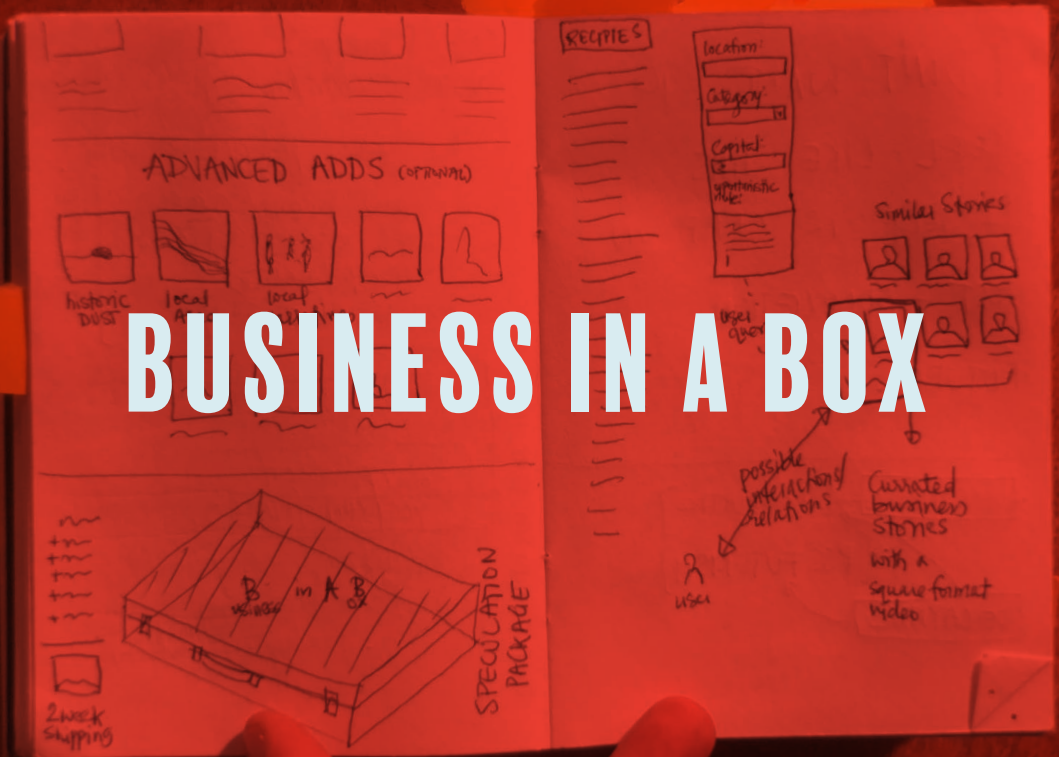
broken stamp  
moderate pressure



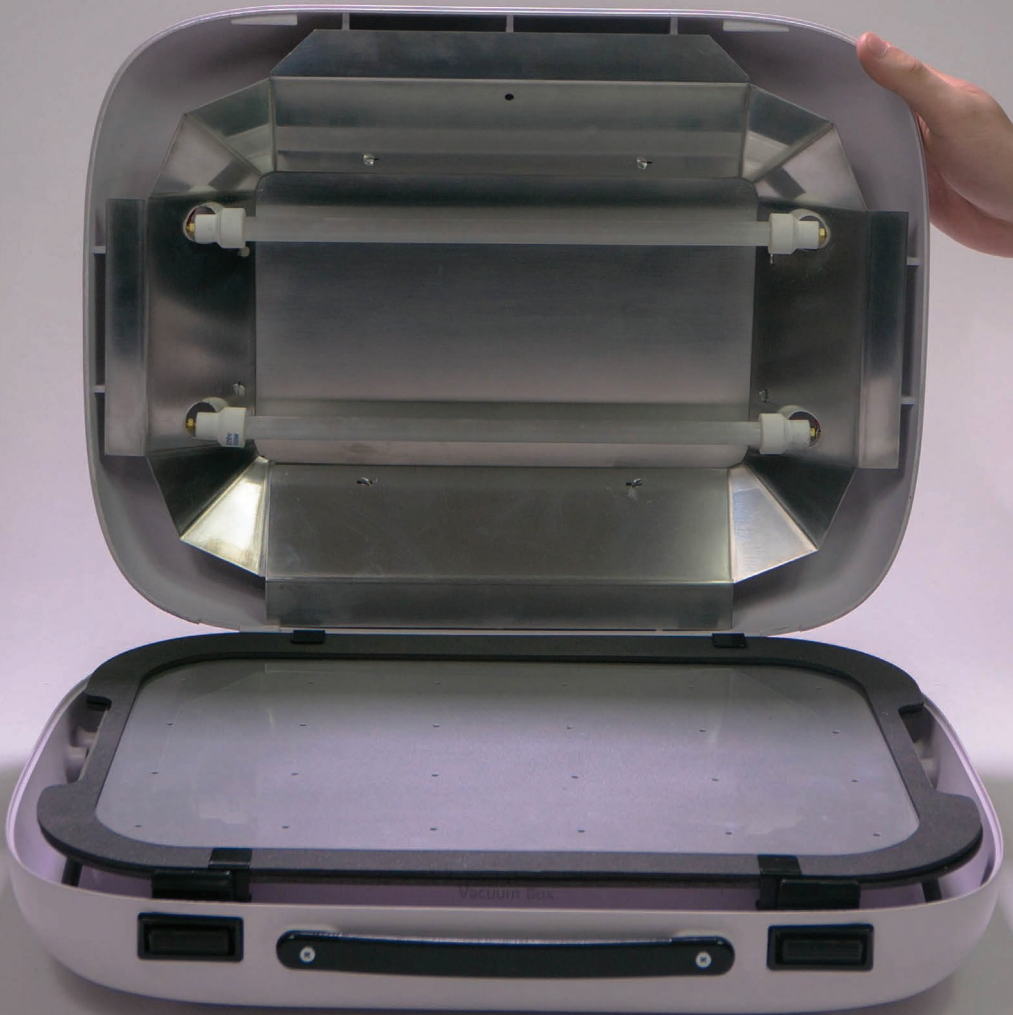
# PLASTIC COILING



People doing/following a blueprint mapped onto world map with their "stories"



# BUSINESS IN A BOX



## The Intervention of Drawings:

### **Bring complexity to traditional skills**

- <https://www.behance.net/gallery/13121535/Chair-Model>
- <http://architectura.me/post/50364324667>
- <http://inhabitat.com/meshwave-visualizes-music-with-digitally-fabricated-waffle-sculpture/>

### **Complex Moldings through Fabric Templates**

- <http://lancelotcoar.com/concept-for-fabric-reinforced-concrete/>
- <https://uk.pinterest.com/pin/503136589602228987/>
- <https://uk.pinterest.com/pin/503136589602229081/>

### **DIY Machines for drawing templates**

- [https://marginallyclever.glopal.com/en-GB/p-5655/makelangelo-3-2.html?utm\\_campaign=en\\_CA&utm\\_medium=pr&utm\\_source=www.marginallyclever.com](https://marginallyclever.glopal.com/en-GB/p-5655/makelangelo-3-2.html?utm_campaign=en_CA&utm_medium=pr&utm_source=www.marginallyclever.com)
- <https://3dprint.com/82674/automata-eva-robotic-arm/>
- <http://www.piccolo.cc>

### **Drawing as a Service**

- <http://makezine.com/2016/12/05/evil-mad-scientist-labs-release-axidraw-a-writing-and-drawing-machine/>

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### **Rent to run**

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