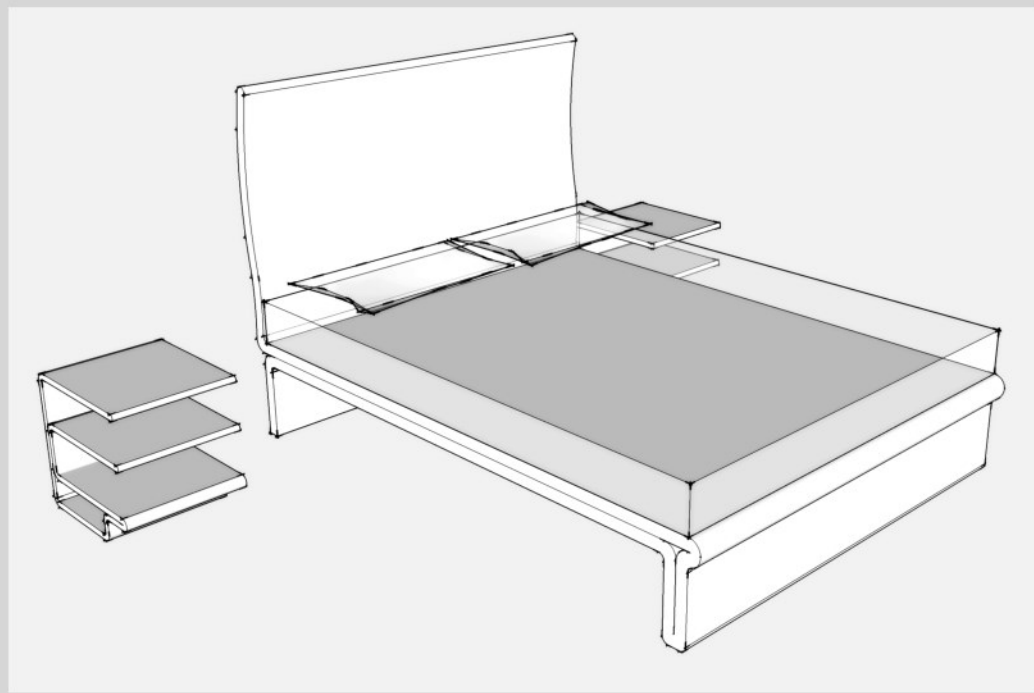
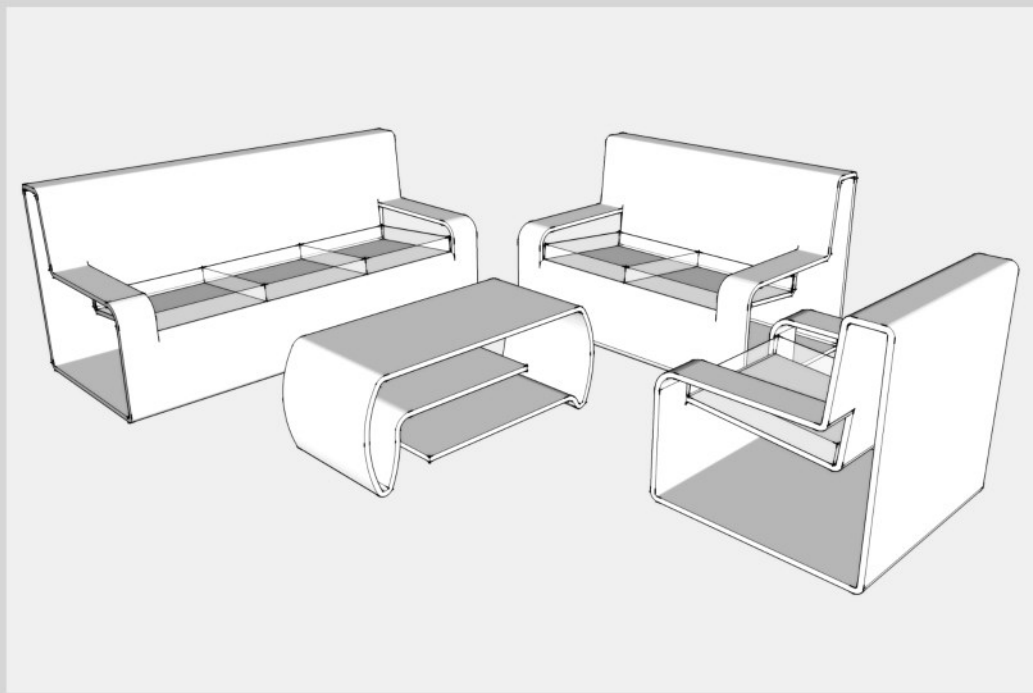


flexii



## INTRODUCTION

Flexii started as an entry in an international innovation contest called 'Perstorp Innovation Challenge'. Submissions were shortlisted and brothers Kashyap and Chintan Gohel were selected as one of three finalist teams to pitch their ideas in Malmo, Sweden, in March 2016. After their presentations, they were awarded the winner position, earning prize money and a year-long mentorship from Perstorp AB Ltd.

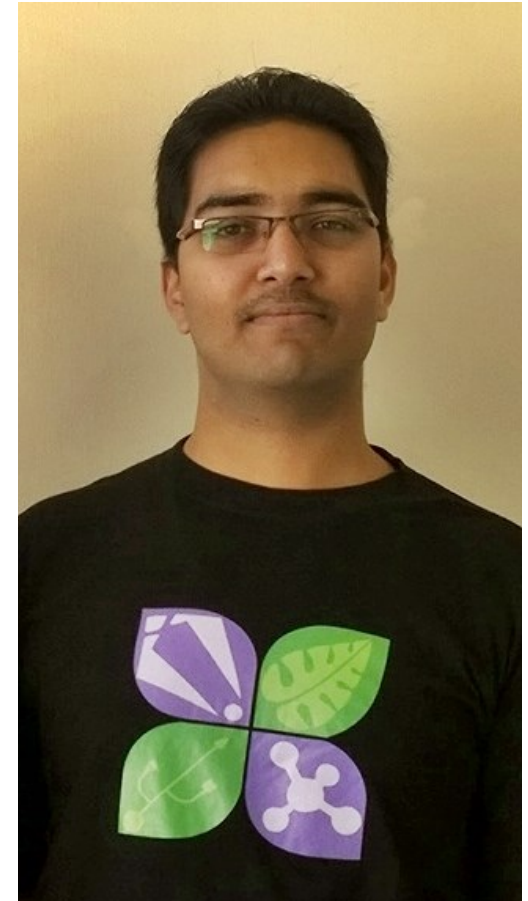


## BIOGRAPHY



Kashyap Gohel is a student at Jomo Kenyatta University (JKUAT), Nairobi, Kenya, pursuing a Bachelor's degree in Architecture, and has more than 5 years in practising freelance art (paintings, carvings and pencil portraits) and design. He enjoys

all forms of employing creativity such as interior, furniture, product, graphic and industrial design. He was also a One Young World Ambassador 2012-2013.



Chintan Gohel, also a student at JKUAT, is nearly complete with his Bachelor's degree in Electric and Electronic Engineering and is working at Kapa Oil Refineries Ltd, Nairobi. He enjoys inventing and providing technological solutions to

everyday problems, especially environmental issues such as Global warming. He is an avid photographer. He was also a Google Student Ambassador in 2013-2014.

## WHAT IS FLEXII?

Flexii is a concept of item production that involves complete recyclability of the material.

The main use for the plastic in this proposal is to make furniture. This furniture can be repaired easily and remoulded into new forms and designs by staff at nationwide remoulding centres (just like franchise businesses).

Flexii as the name suggests also allows incorporation of other materials into the furniture, such as wood, steel and other recyclable materials. These hybrid furniture creates opportunities for the properties of the Capa Thermoplastic to improve by adding those of the other materials

Overall the remouldability aspect of Flexii and Capa thermoplastic reduces the need for disposal of used and broken furniture in landfills. In cases where it is not profitable to remould the product, the Capa plastic can be buried since it is fully biodegradable.

The plastic is not limited to furniture but goes to product design, artwork and repair work.

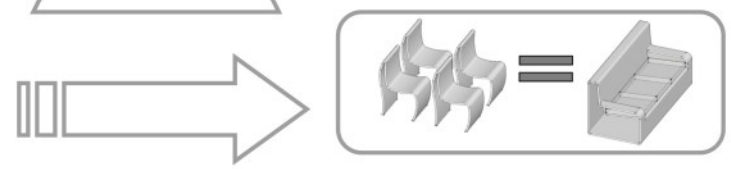
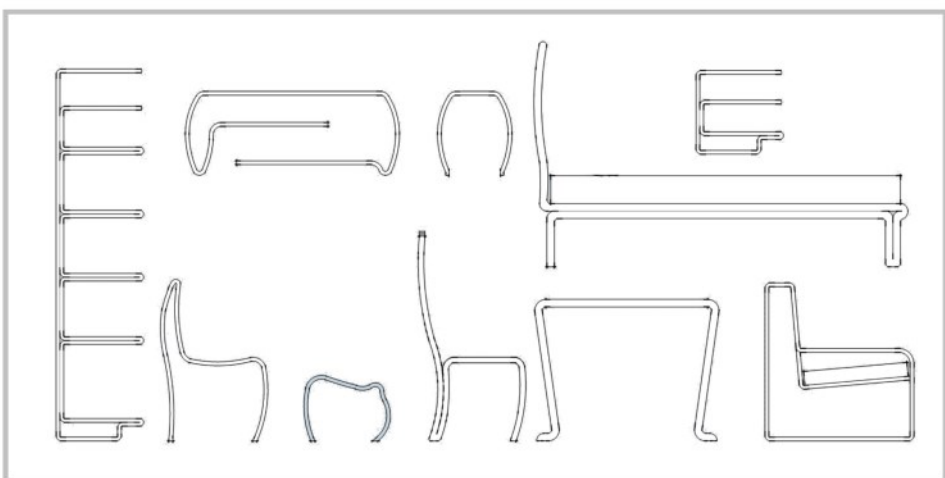
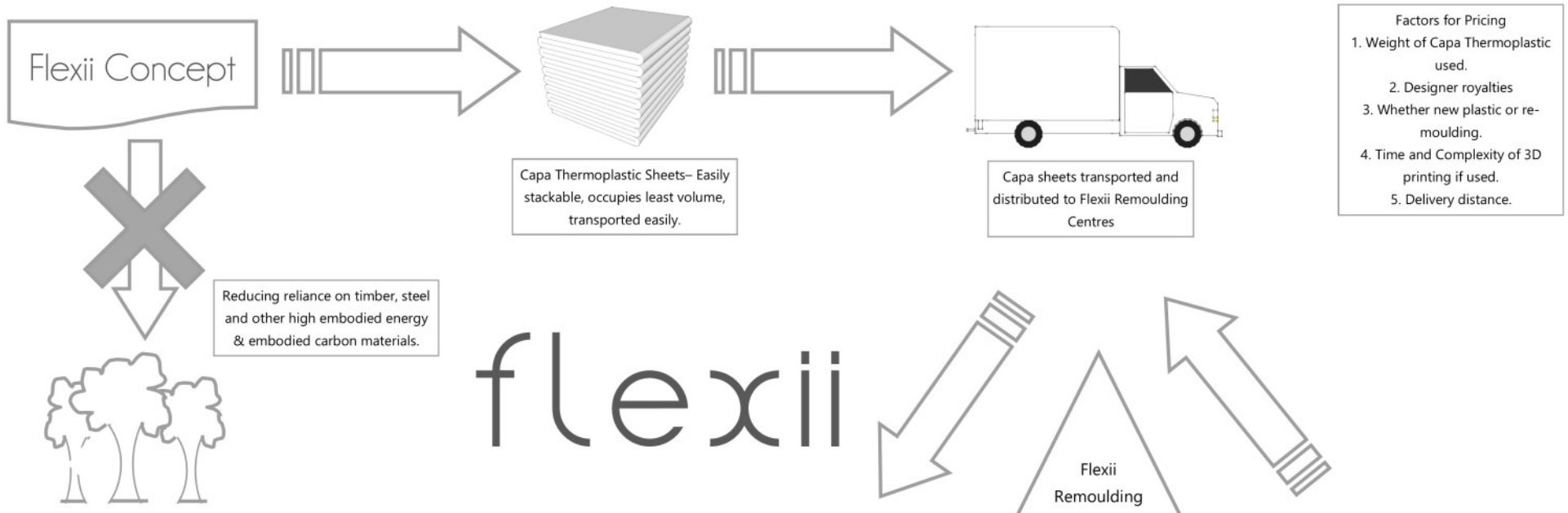
## TYPICAL LIFE CYCLE FOR FLEXII FURNITURE

A customer researches on the Flexii website and identifies the piece of furniture he/she wants, or visits a mall where the remoulding centre is located and picks a design to manufacture. He/She can even design their own furniture to be moulded for them.

A few months after acquiring the furniture, a the buyer may feel he/she will need a furniture piece for a guest. They can easily send back their two chairs and get a crib or sofa in exchange. Fashion change can also stimulate renewal of your furniture, which is simply melted and moulded into different forms.

Overall, the use of Capa thermoplastic for Flexii encourages recyclability, reduction of landfills, lower embodied energy in materials and employment from industries making and designing products.





Recycling Stage : REMOULDING.  
When can it occur?

1. Change of form– One may want to exchange four chairs and get a sofa instead. If sofa isn't tradeable economically, the chairs are remoulded into a sofa.
2. Recycling– All Capa plastics mistakenly thrown away are recovered by communities and sent for remoulding.
3. Irreparable damages– Furniture that might be broken beyond repair can be taken for remoulding.
4. Wear & tear - Furniture that has been used for many years may wear down and need refurbishing.
5. Change of style– Furniture may be updated to latest trends e.g. from Victorian era style to Minimalist style.

Capa thermoplastic sheets are:

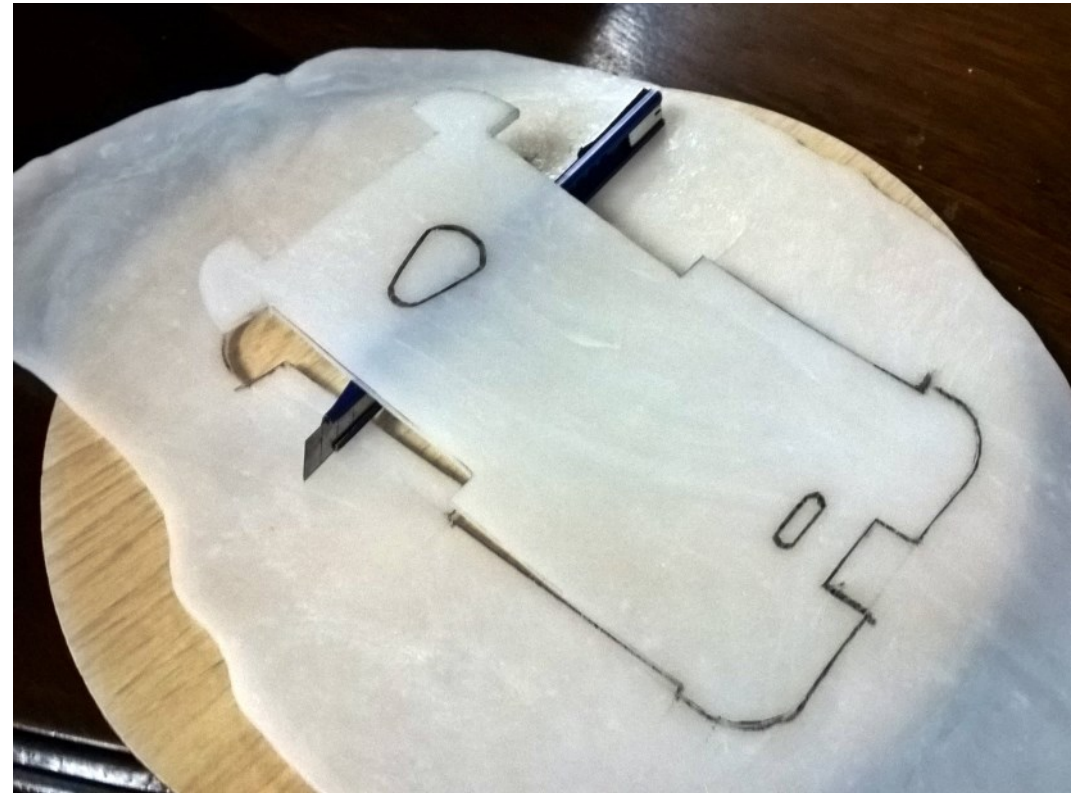
1. Bought by weight/size and moulded at home (like the folding art of origami) using a hair dryer on 'hot' setting. Folding is done along guide lines and adjusted easily to personal ergonomics e.g Person A might like a seat reclining more than Person B.
2. Custom Folded, Moulded, Remoulded OR 3D printed at the Flexii Remoulding centres as per customer requirements. Ordering can be done online (through smartphone apps) with delivery or by customers visiting the centre itself.
3. Folded, Moulded, Remoulded OR 3D printed at the Flexii Remoulding centres and distributed to furniture showrooms as ready-to-sell items.

## METHOD OF MANUFACTURE

Capa thermoplastic melts at an incredibly low temperature of 60 degrees Celsius. This allows for energy savings in melting, as well as encouraging a higher DIY approach to furniture and product design.

The standard and simple method of making furniture and other items is by casting the plastic in moulds. The preferred method is injection moulds but for complex forms even 3D printing can be used easily and extensively to create beautiful items.

The third option is to mould out sheets of plastic of varying thicknesses and cutting them out to form the shapes required with CNC cutting machines (with knives, not spinning bits)





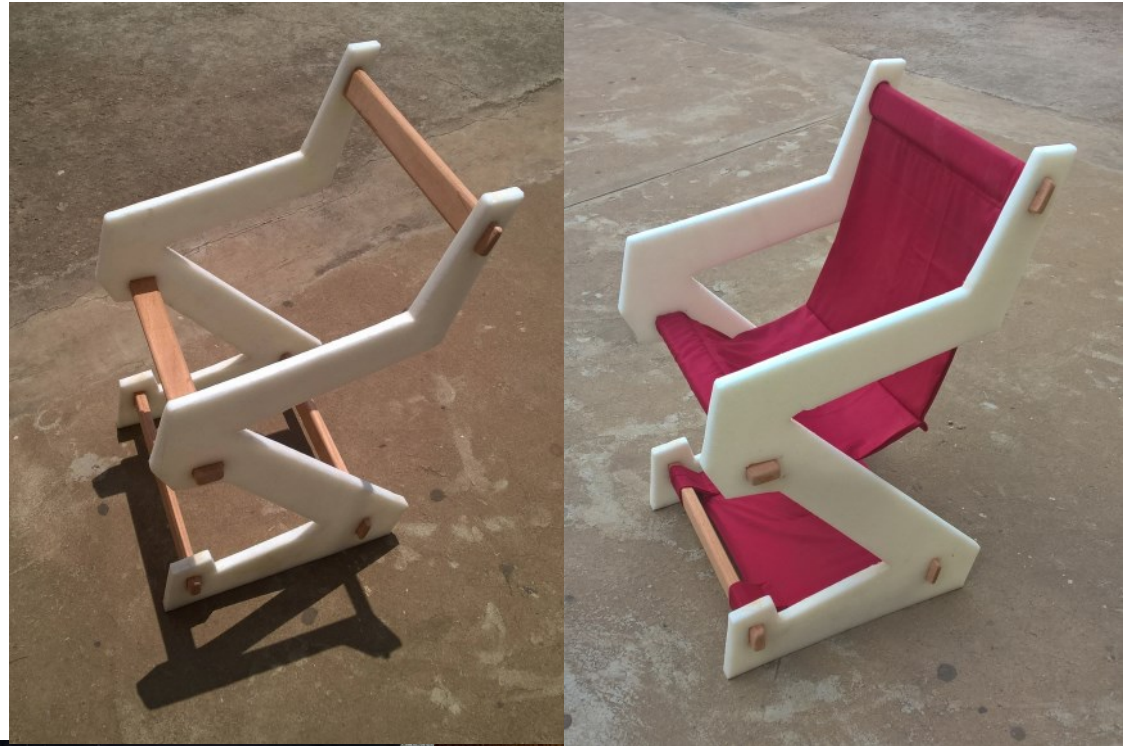
# PROTOTYPES: HYBRID WOOD AND CAPA THERMOPLASTIC

## DOUBLE CANTILEVER CHAIR

A knock-down design (no nails), this chair is composed of two monolithic sections of Capa thermoplastic with a textile seat and timber supports

*Assembling timber battens and placing cloth seat >>>>*

*(Left to right) 1- Making of mould, 2- Injecting plastic, 3- Releasing from mould.*



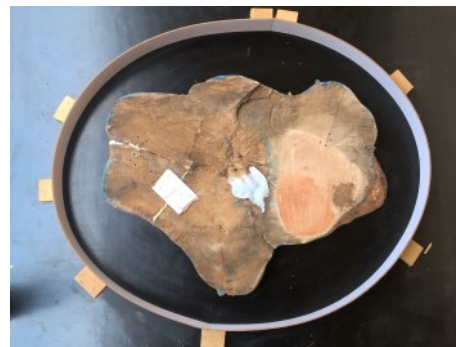


# PROTOTYPES: HYBRID WOOD AND CAPA THERMOPLASTIC

## ISLAND COFFEE TABLE

This island coffee table made from a slice of Jacaranda tree trunk seamlessly combined with Capa thermoplastic slab, forming a table top and central leg.

The trunk was levelled, turned upside down and its surroundings filled with Capa Thermoplastic.





# PROTOTYPES: HYBRID WOOD AND CAPA THERMOPLASTIC

## LIMEGROVE SERIES

Inspired by the Lamu Architecture (mixture of African and Arab at the Kenyan Coast), this stool and coffee table was a combination of Capa Thermoplastic and Cypress timber.

The interplay of pure white plastic and bold reddish-brown stripes resembles the mangrove and limestone ceilings in Lamu architecture, as seen below.



# PROTOTYPES: HYBRID WOOD AND CAPA THERMOPLASTIC

## OLD WOOD

Using discarded or newly-cut trees meant for firewood, a simple slab of Capa thermoplastic transforms the tree trunk into a coffee table.



## ARTWORK

Using moulds or simply carving with a heat-gun and knives, there is an unlimited variety of durable artwork that can be created.





## PROTOTYPES: PURE CAPA THERMOPLASTIC

An example of ordinary tailor's thread reinforced plastic furniture



## ORGANIC GLASS TOPPED SIDE TABLE



## MUSHROOM STOOL



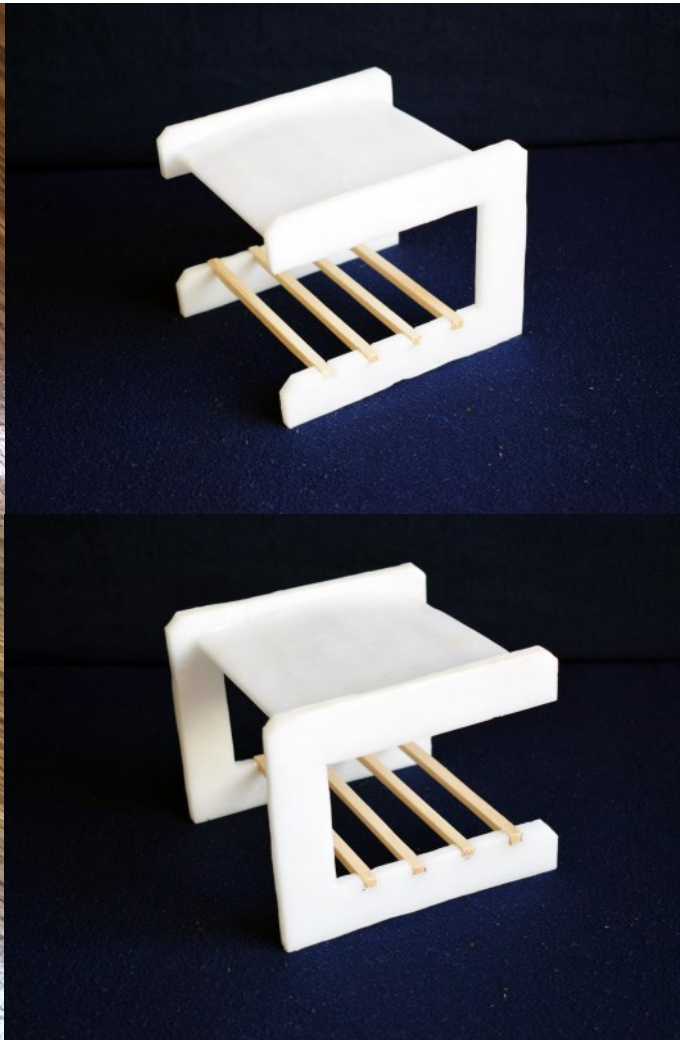


# MISCELLANEOUS PROTOTYPES

CUSTOM COVER  
FOR LUMIA 540



BACKLESS CHAIR  
WITH SHELF



PHONE AMPLIFIER  
FOR LUMIA 640



MISCELLANEOUS PROTOTYPES  
MINIMALIST CURVE PICTURE FRAME/STAND



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