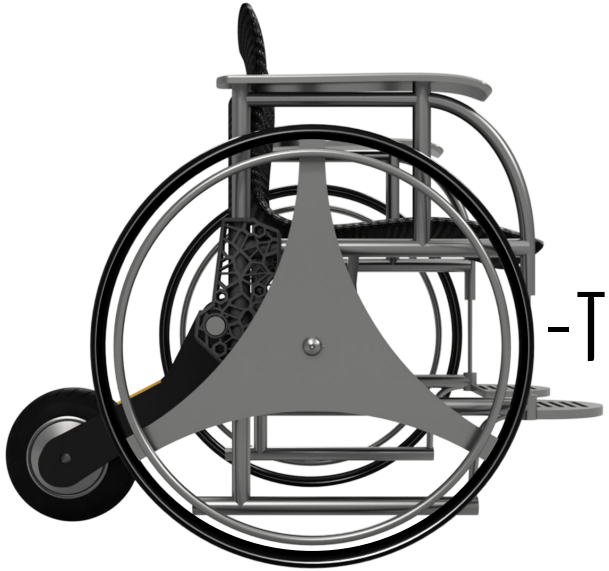


-Trotti

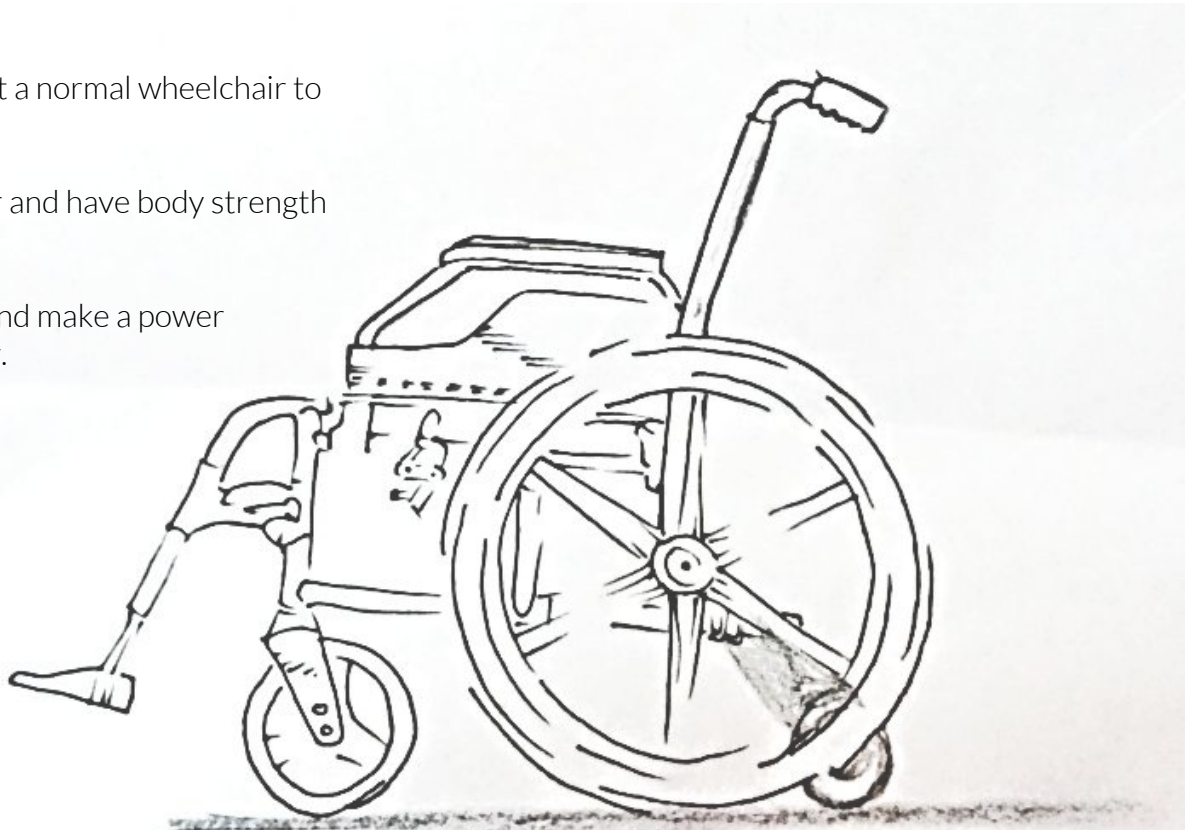
STEAM Fabrikanium,
Maker's Asylum
10- 14th February

INTRODUCTION

Starting off : A wheelchair attachment to convert a normal wheelchair to a power wheelchair.

Target segment : People who use the wheelchair and have body strength as well.

Limitations : To target a wide market segment and make a power wheelchair affordable to most sections of society.



DESIGN BRIEF

To design a universal, and cost-effective power attachment to convert a normal wheelchair to an automated power wheelchair.

It should be light, detachable, easy to use, durable and universal.

USER STUDY

4 wheelchair users. 4 interviews.

From the interviews we concluded that 3 out of 4 preferred to use manual direction. The 4th interview was a girl with muscular dystrophy and hence depended on a joystick.

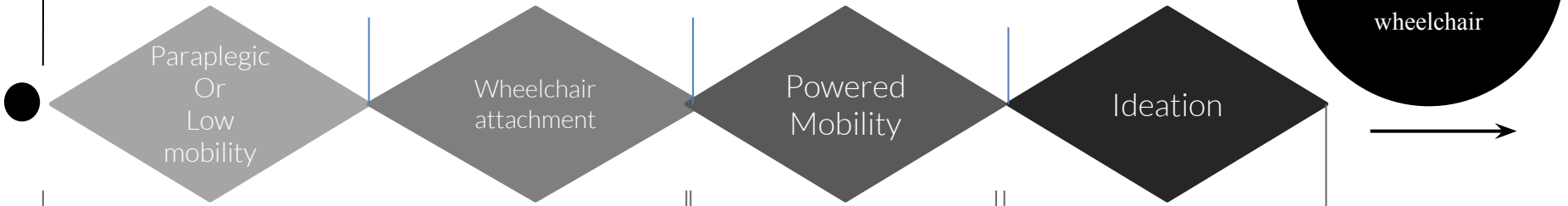
We were looking at two different categories of disability and had to narrow down to a more specific target segment.

Primary Research-
Interview

Types of wheelchairs
Cost range
Mechanics vs technology

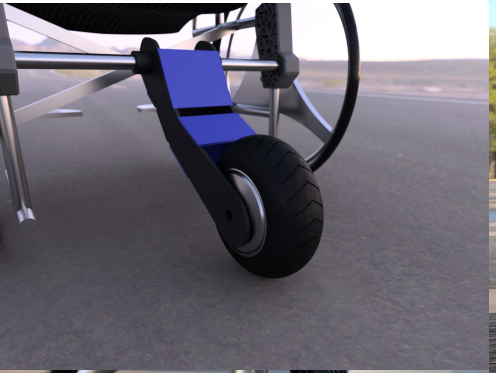
Accessories-
Stencil
Stylus
Slate
Octagon
Slate
Roller
Brailler
Thick Paper

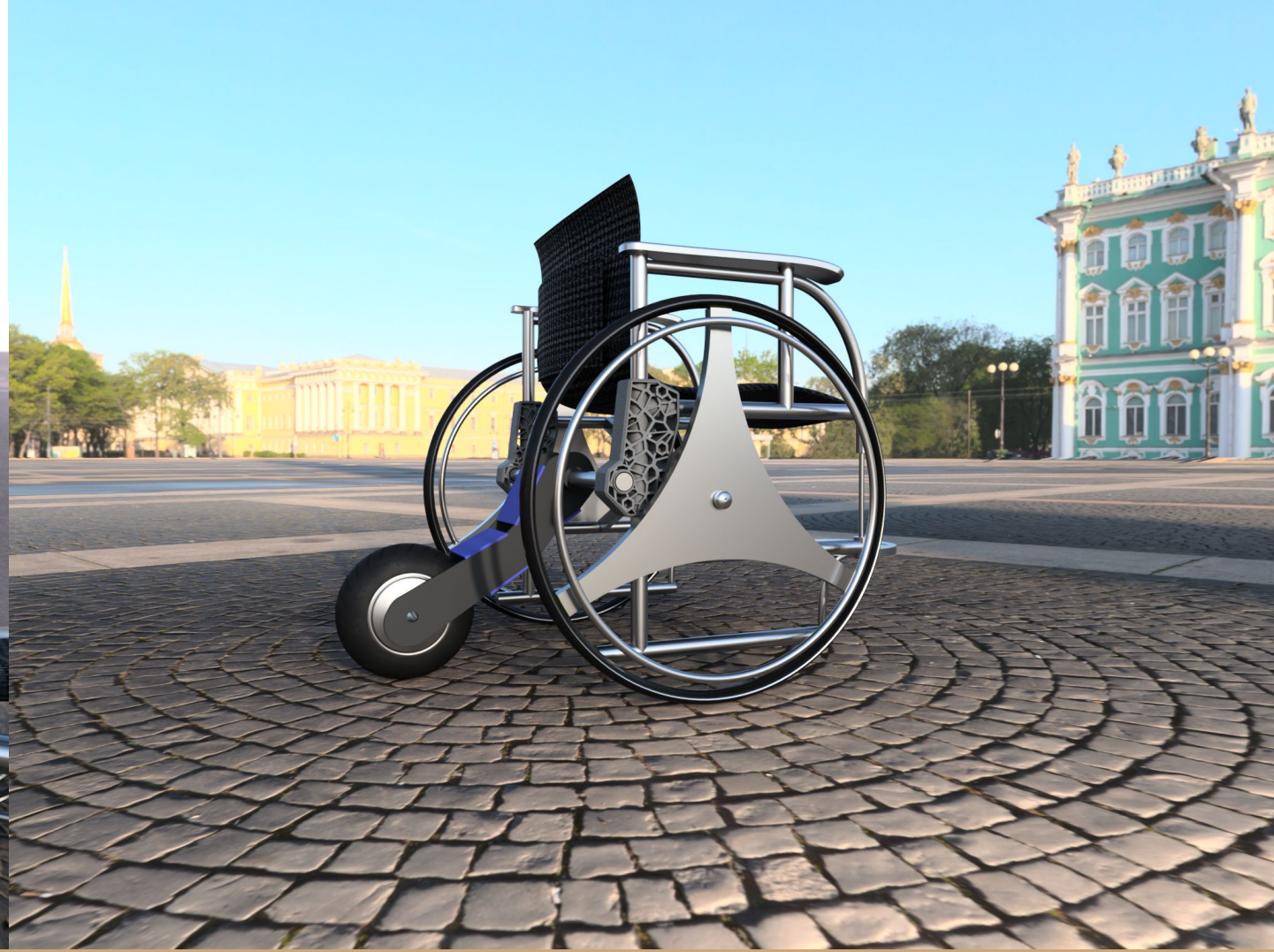
Market Research
+
Ideation-
Mech.-
Electric scooter parts
Specialised joineries
Tech.-
Arduino



RESEARCH TIMELINE

RENDERS





MISSION 1 - MECHANISM

Steps:

- Disassemble the scooter.
- Prepare metal rod harness on the wheelchair.
- Attach the scooter to the wheelchair.

Product specifications:

- 12 V 3550rpm Dc motor
- 12 V Dc battery-8 Ah
- Chain drive system
- Braking system
- Wheel


-Metal rod harness.-


-Brake system-


12V 3550rpm DC motor

Chain drive system


-Wheel-


12V DC battery 8 Ah

MISSION 2 - ELECTRONICS

Specifications-

- Arduino (for controlling speed of motor)
- Female to male wires
- L239n motor driver (for controlling motor current)
- Spdt switch (for motion control)
- Potentiometer(10k ohm)
- Battery (24v,9AH)