

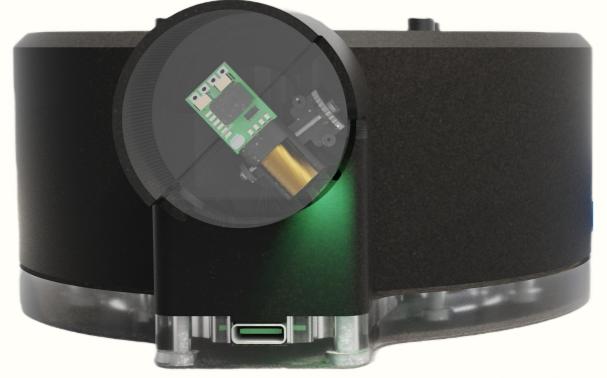


Krzysztof Wancerski

PORTFOLIO.

Master of Engineering
Imperial College London

IN THIS DOCUMENT



timeline
made with <3

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BIN BIOTIC

Page 6



TRUCK CFD

Page 8



BLACK JACK+

Page 9



www.wancerski.uk

ABOUT ME

Design Engineering student

Top 10% grade achiever

Experienced tutor and intern

Skilled in Python, C++, JS

Team-oriented problem solver

FEA and CAD expertise

Rapid prototyping experience

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► *Reimagining time as a linear progression*

[Click here to see
this product come
to life!](#)

► A timer designed to help you ~~be in the zone~~



get, stay, and leave the
zone as appropriate.



Know Productivity , Efficiency , Passion , Creativity with no limits. -



2 terms
Industrial Design Engineering
group project

Fusion 360
Overleaf (LaTeX), Figma
VS Code, Arduino IDE

THE BRIEF

Design and engineer a battery powered hand-operated device for home, garden or educational use that not only appeals to the mass market, but also meets the needs of a specific (underserved) user group.

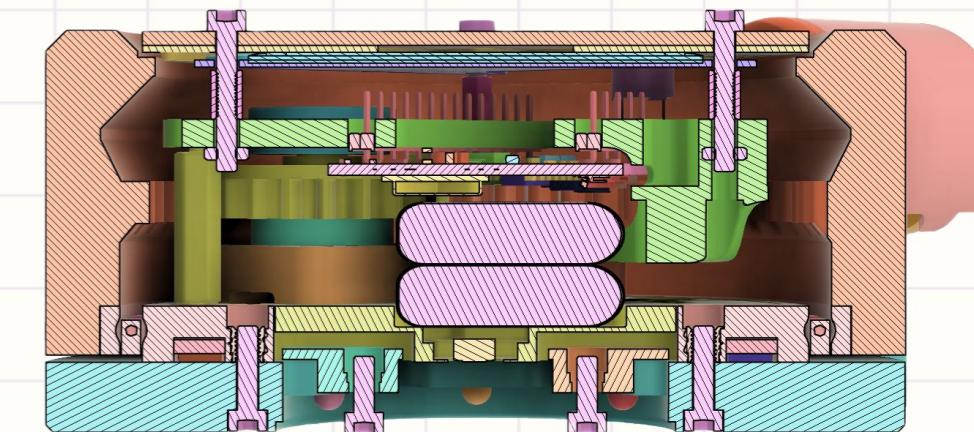
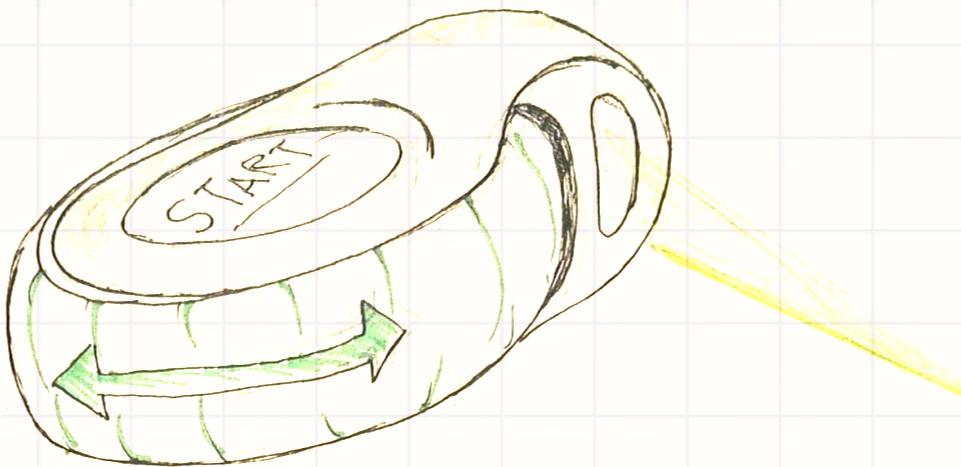
THE IDEA

Young adults commonly experience tendencies to hyperfocus intensely and experience time blindness, or become easily distracted - all of which leading to incomplete tasks.

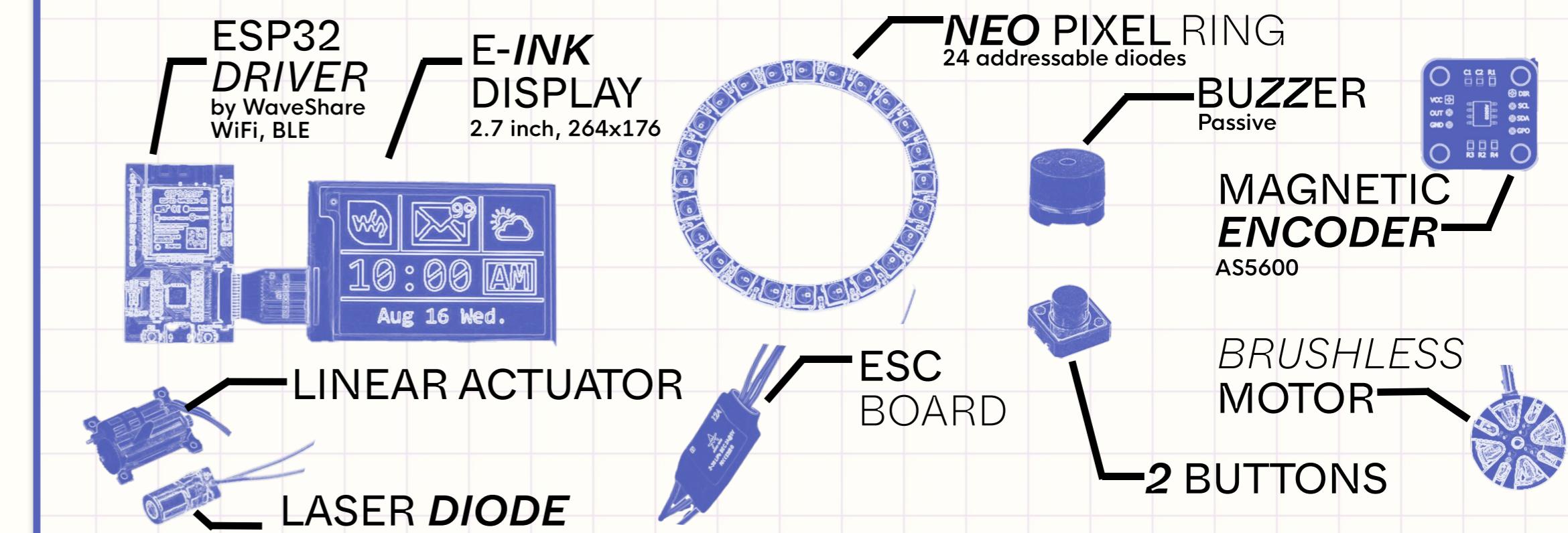
So, we know that time management is more nuanced than simply needing to focus. It's about balancing all your tasks and hobbies in a day without compromise. And that's why we made TimeLine - the 21st Century way to organise time.

Lo-Fi Prototyping Technical Drawing 3D Printing
Report Writing CNC Machining Design for Assembly
C++ Design for Manufacture Electronics selections
User Interviews Packaging Design CAD

SKETCHING, CAD and FEA



ELECTRONICS SELECTION AND INTEGRATION



PROTOTYPING AND TESTING



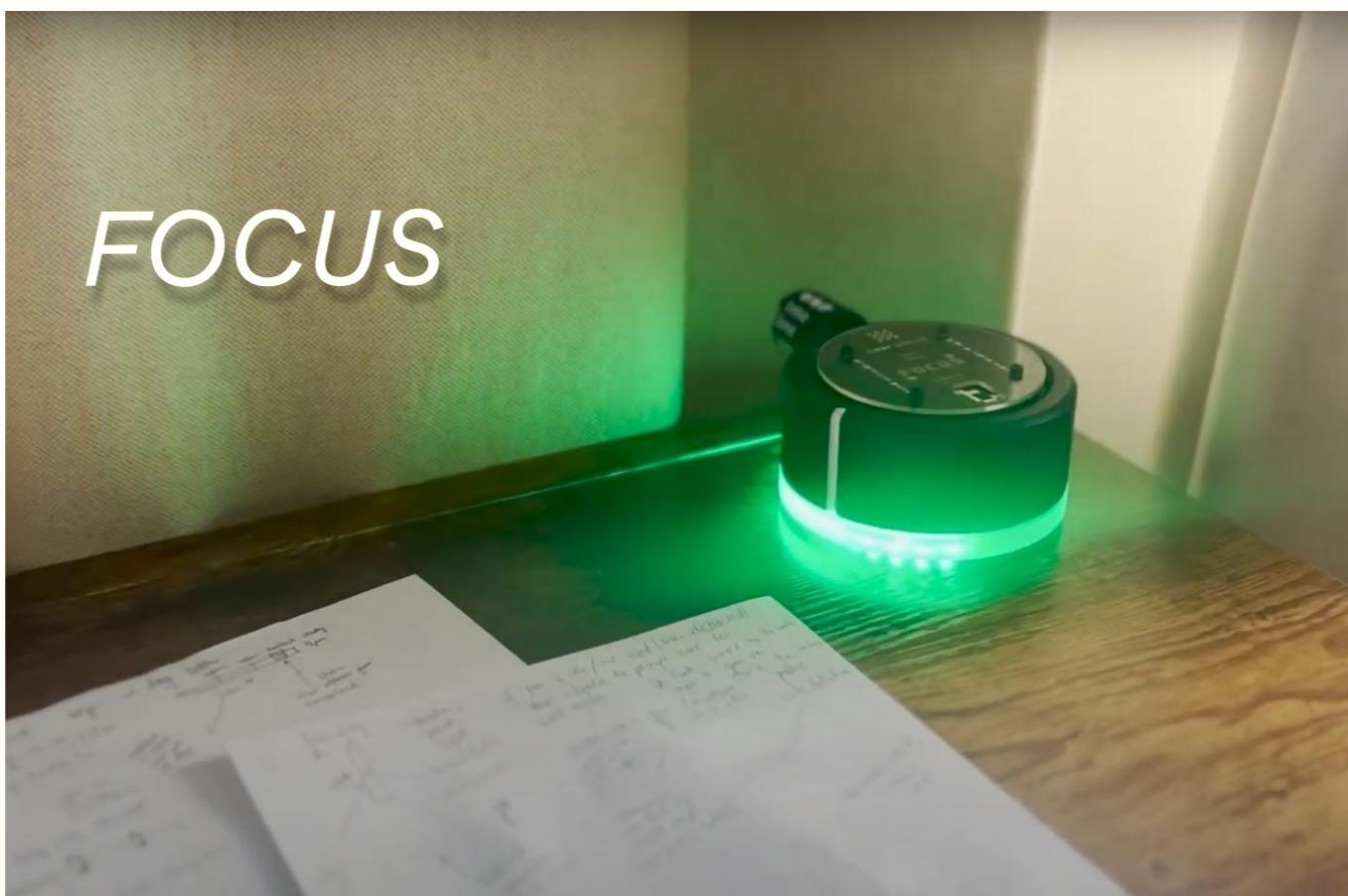
CNC ROUTER

VINYL CUTTER

3D PRINTER



FULLY FUNCTIONAL WORKS AND LOOKS LIKE PROTOTYPE



DESIGN FOR
ASSEMBLY



PACKAGING
DESIGN



"KEEPING YOUR WASTE IN THE RIGHT PLACE"



BinBiotic collects data about the state of a bin through a range of state-of-the-art sensors.



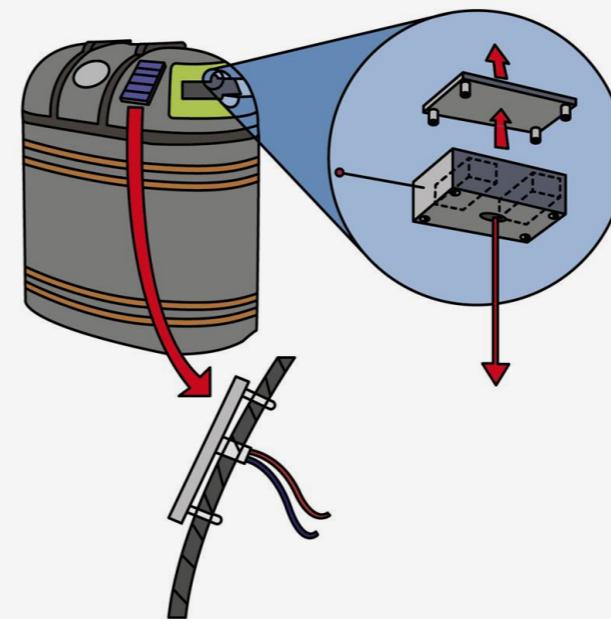
System-wide data processing creates live, most optimal collection routes.



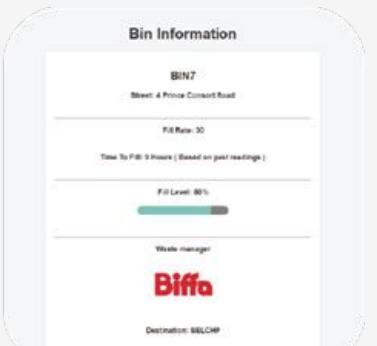
Full-bins are a thing of the past!



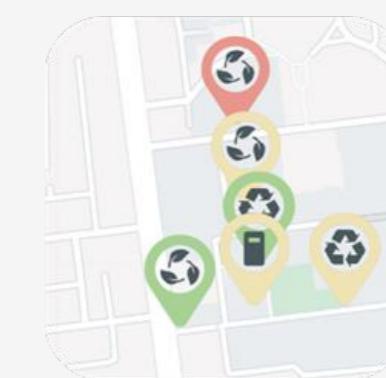
BinBiotic can be installed in any bin and work in any environment - campus, office and city-wide.



Heat Map



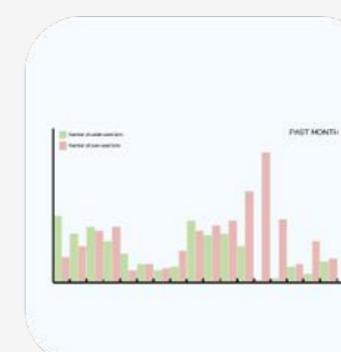
Bin State Information



Map



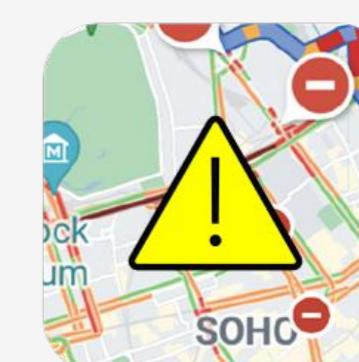
Registering a Bin



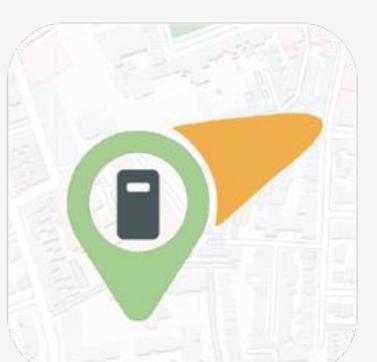
Usage Analytics

Bin	Street
1 ASD7H	55 Victoria Road, London, SE15 8WJ
2 F7BU	228 Stanley Road, London, SE15 8WJ
3 BUKC4	56 Grange Road, London, SE15 8OH
4 ASG7H	56 Victoria Road, London, SE15 8WJ
5 F7BU	229 Stanley Road, London, SE15 8AX
6 BUKC5	91 Grange Road, London, SW16 5OH
7 ASD7H	57 Victoria Road, London, SE15 8WJ
8 F7BU	230 Stanley Road, London, SE15 8AX
9 BUKC6	92 Grange Road, London, SW16 5OH
10 ASD7H	58 Victoria Road, London, SE15 8WJ
11 BUKC7	93 Grange Road, London, SW16 5PN
12 BUKC7	93 Grange Road, London, SW16 5OH
13 ASD7H	59 Victoria Road, London, SE15 8WJ
14 F7BU	232 Stanley Road, London, SE15 8AX
15 BUKC8	94 Grange Road, London, SW16 5OH
16 ASD7H	60 Victoria Road, London, SE15 8WJ
17 F7BU	233 Stanley Road, London, SE15 8AX
18 BUKC9	95 Grange Road, London, SW16 5OH

Operator Schedule Generator



Bin Issue Warning



Bin Placement Optimisation



2 terms
Human-Centered Design Engineering
group project
Fusion 360
Adobe InDesign, Illustrator
VS Code, Arduino IDE

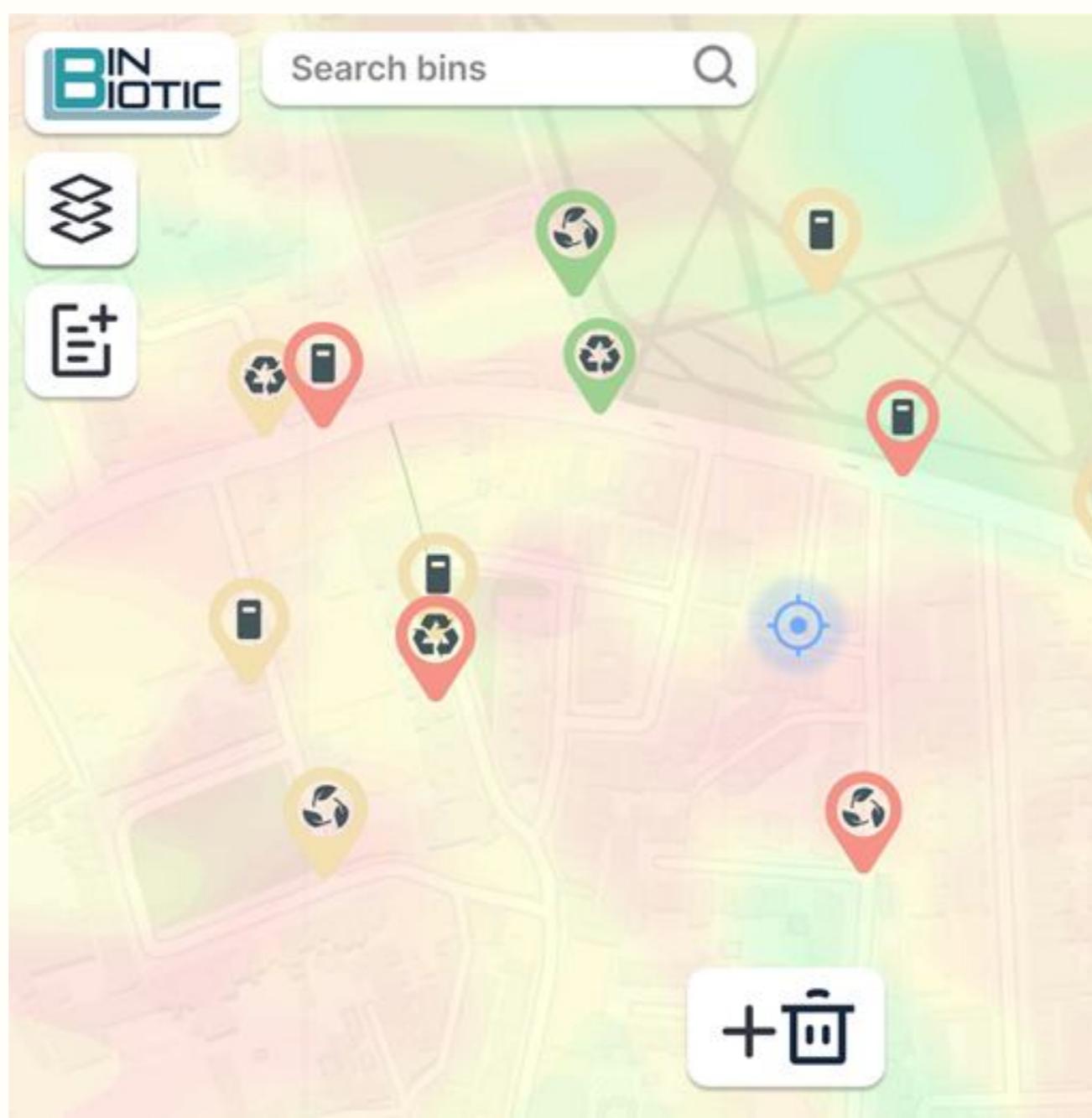
THE BRIEF

Reusing / Recycling / Repurposing

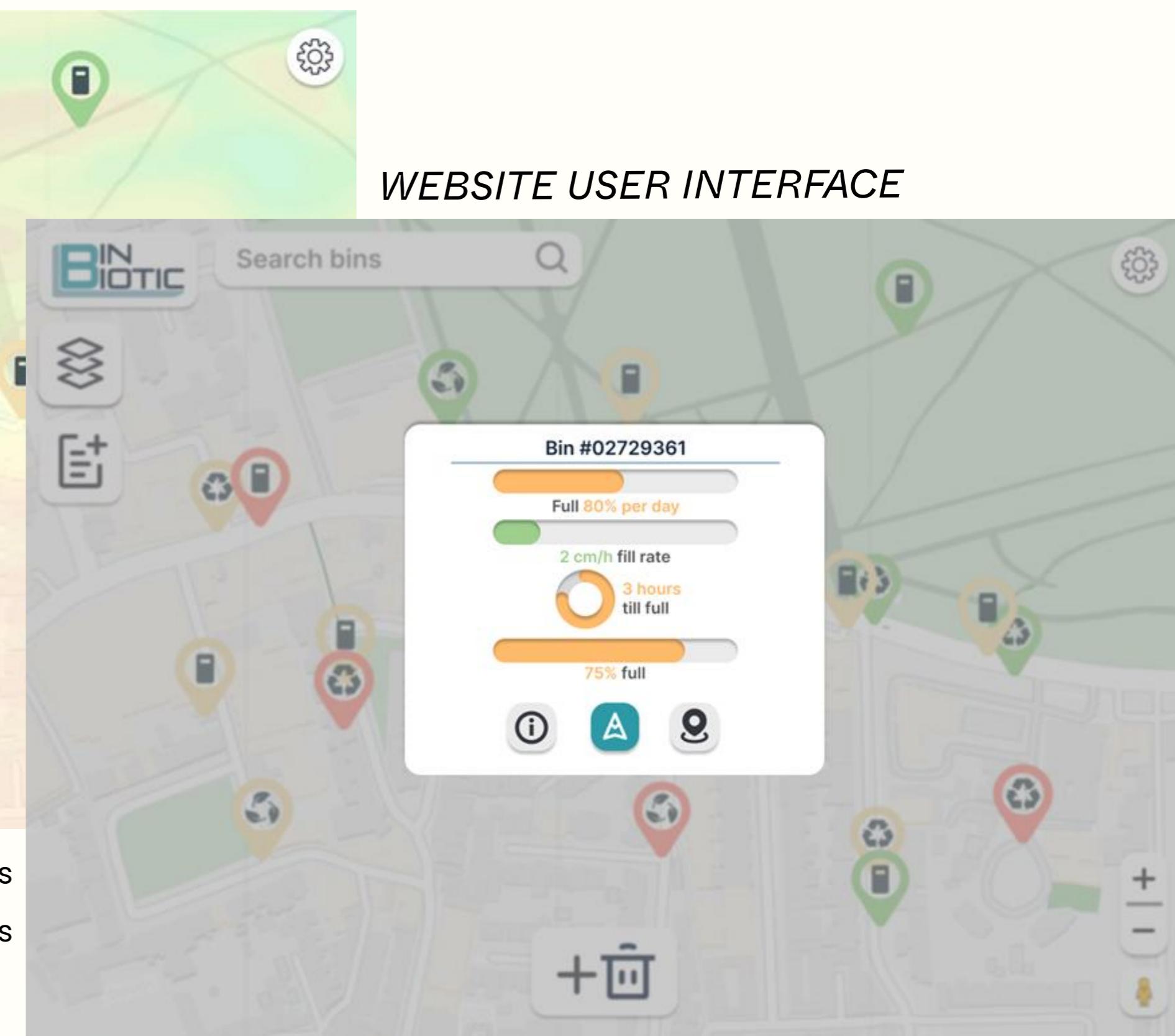
THE IDEA

Our data collecting device makes overflowing bins a thing of the past. The state-of-the-art sensors wirelessly deliver precise real-time measurements of how full a bin is to a central server. The live data is then coupled with past readings to predict, using Machine Learning, how long it will take for the bin to overflow and to give the collectors a clear goal of when to respond.

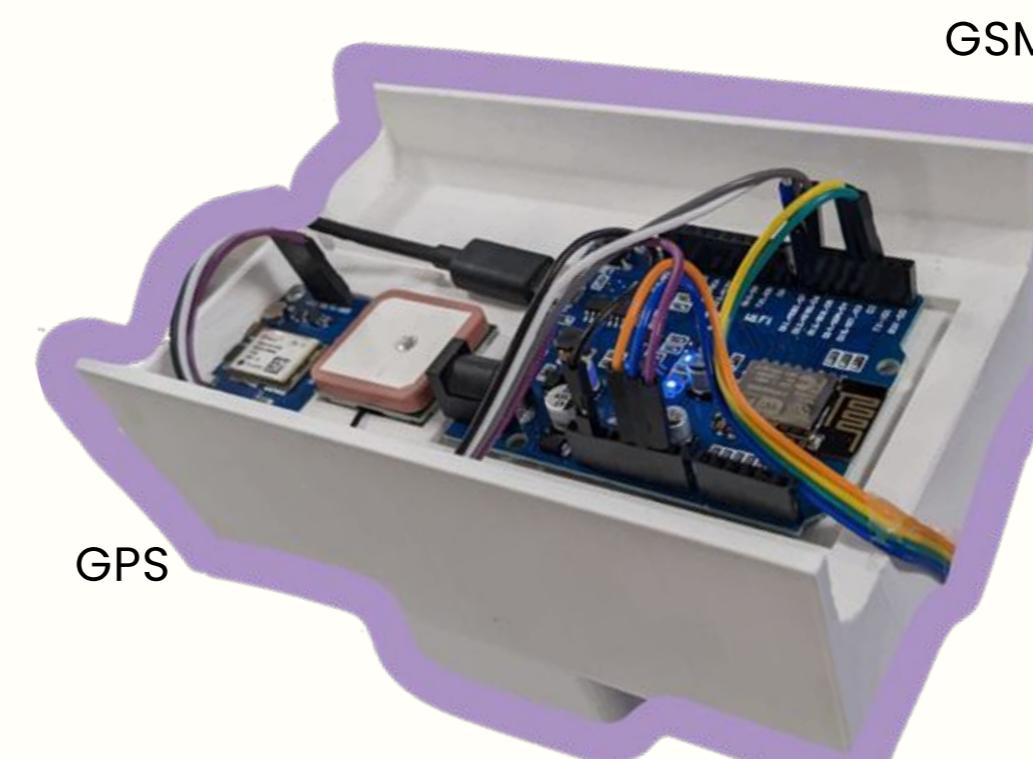
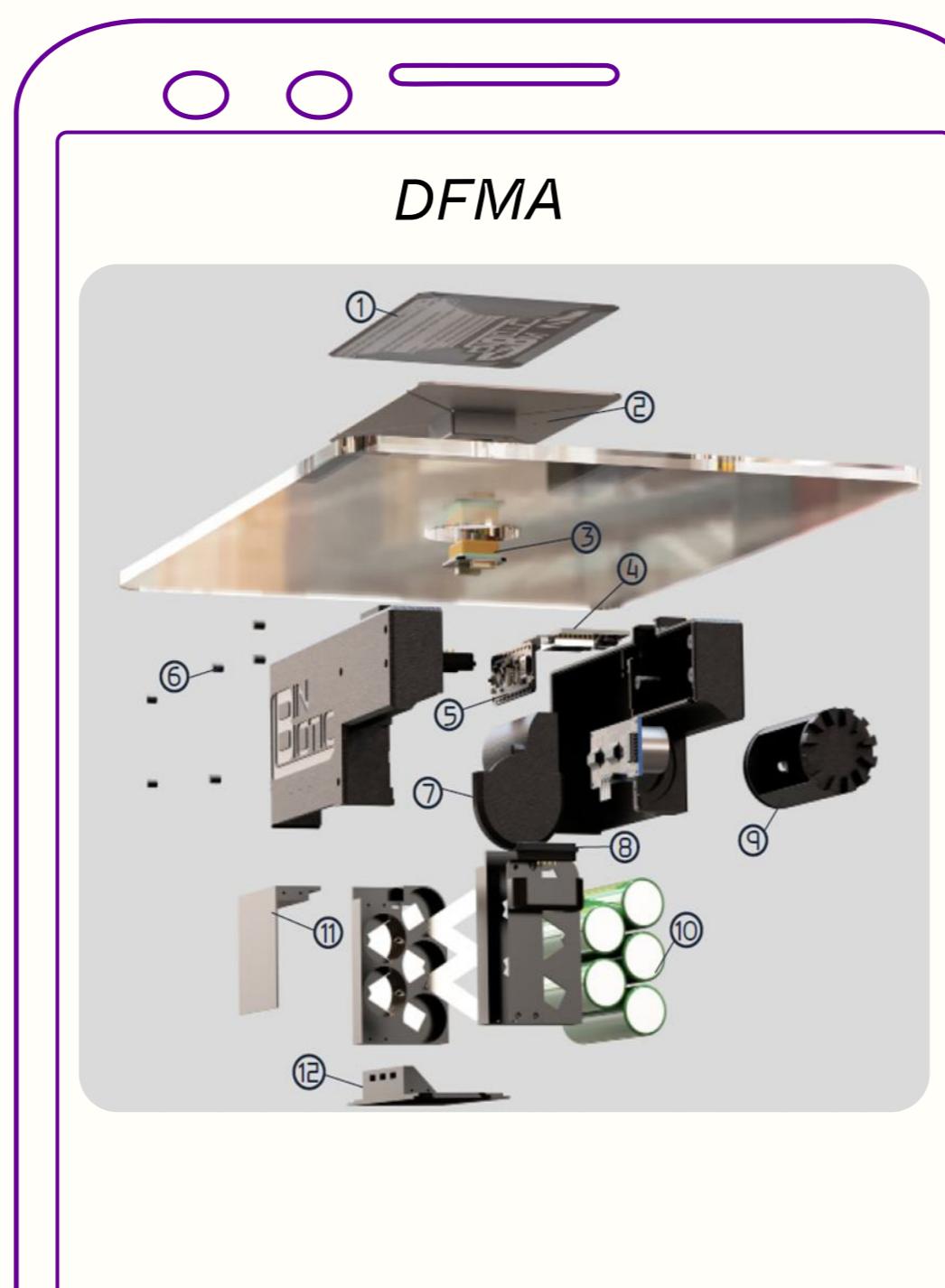
Lo-Fi Prototyping 3D Printing
Report Writing User Interviews
Co-Design CAD Sketching
Electronics selections C++



developed through co-design sessions
with potential users



WORKS LIKE PROTOYPE



Ultra-sonic
distance sensor



TRUCK CFD

1/2 term
Computational Fluid Dynamics
solo project

Solidworks
Overleaf (LaTeX)
Vizcom

Report Writing
CAD CFD

THE BRIEF

Select a vehicle archetype to explore, research and undertake outline modelling in order to assess the aerodynamic performance of a new product for launch in the market and present your arising concept.

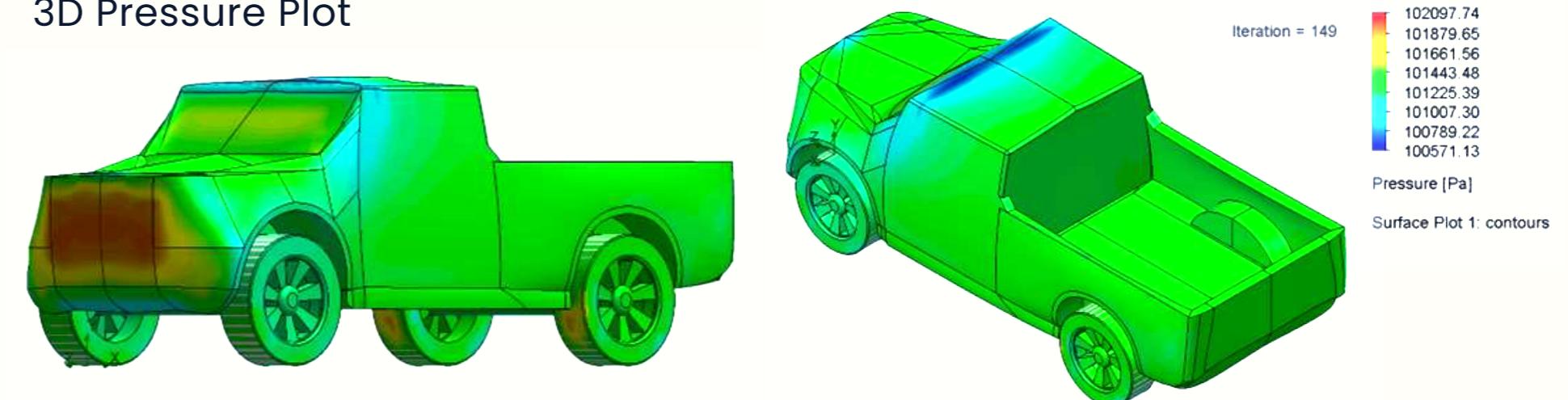


CFD ANALYSIS

3D Flow Trajectories



3D Pressure Plot



Overall, the analysis showed that my design for the pick-up was comparable to the Ford F150 in terms of aerodynamics.

THE PICK-UP



Visualisation of the pick-up truck design using Vizcom AI.