PORTFOLIO · SELECTED WORKS 2024–2026

# Nelly Bengtsson




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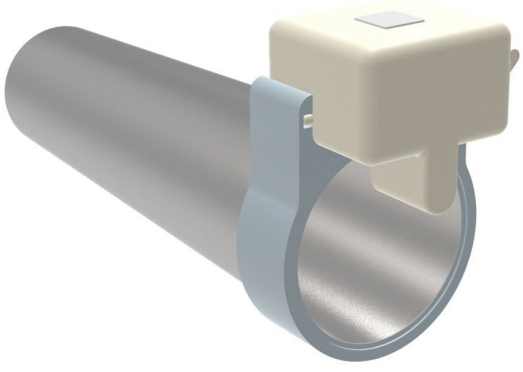





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# Reusable Amnioscope Light

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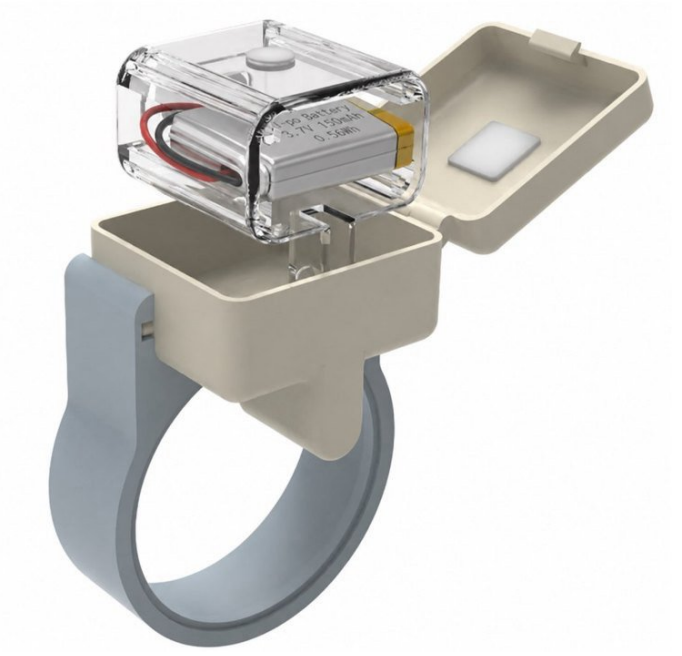
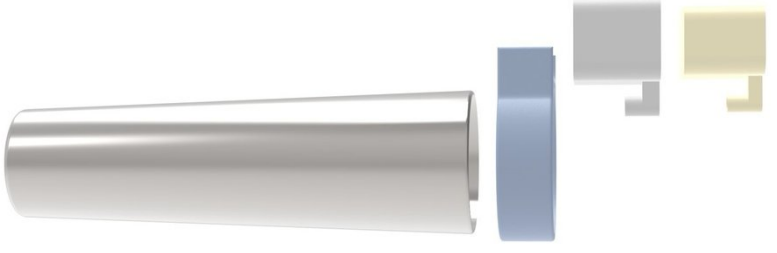
| Course | Design for Sustainability |
| Year | 2026 |

A reusable, rechargeable light for fetal blood sampling that replaces the disposable button-cell light in today's single-use kits.

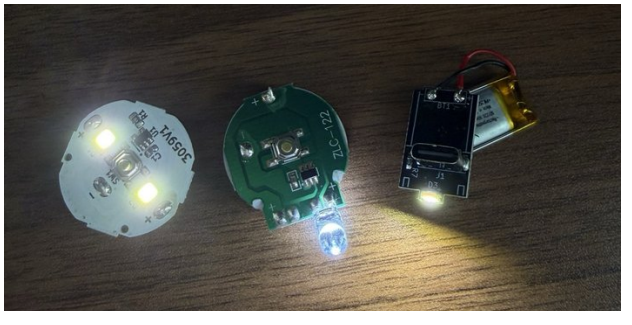
The project followed a Research through Design approach, where understanding was built through the design work itself. Interviews with clinicians mapped current practice and what a lighting device has to fit into. Tinkering and several rounds of 3D-printed early prototypes explored attachment mechanisms, component layouts and assembly solutions, and the concept was brought back to clinicians to test against usability, sterility requirements and workflow, and refined from what came back.

The final concept consists of three parts: a sterilisable adapter that attaches the light to a reusable amnioscope, a sterilisable housing that encapsulates and protects the electronics, and a removable electronic core holding the rechargeable Li-Po battery and a LED. After a procedure the device comes apart, so that the housing and adapter can be sterilised, while the core only needs cleaning and a place in the charging station.











# SSSBike

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| Course | Design for Sustainability |
| Year | 2025 |

About half of all employed residents could reach their workplace within thirty minutes by bicycle, yet only around ten percent of the trips are made by bike, and the Urban Mobility Strategy for 2050 wants that share to double.

Getting there is less about infrastructure than about everyday behaviour, and habits formed during the student years tend to stick. The concept therefore targets students and uses Design for Sustainable Behaviour and nudging to make cycling a rewarding choice.

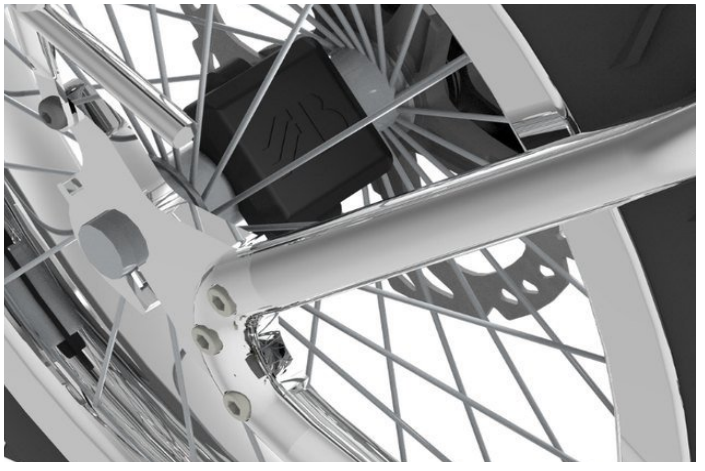
The result is a physical tracker that attaches to the bike wheel and counts every kilometer ridden, paired with an app that turns those kilometers into housing queue days.











# Ergonomic Box Lifter

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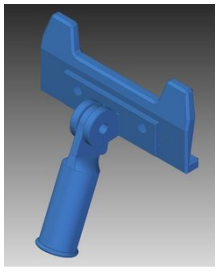
| Course | Ergonomics in Product Development |
| Year | 2024 |

As part of the course Ergonomics in Product Development, this prototype was developed for Kejll & Company to reduce the need for ladders and stools when handling boxes on high warehouse shelves. It improves ergonomics by lowering arm elevation, has an adjustable angle for a secure grip, and uses a lightweight telescopic handle for easy use.



**FOAM MODEL**

The head was first shaped in foam and taped to a wooden handle to try out proportions and grip.



**CAD**

The form was then refined in CAD, with a hinged joint for the adjustable angle



**PROTOTYPE**

The final head was 3D-printed and mounted on a telescopic aluminium pole





# The Ant

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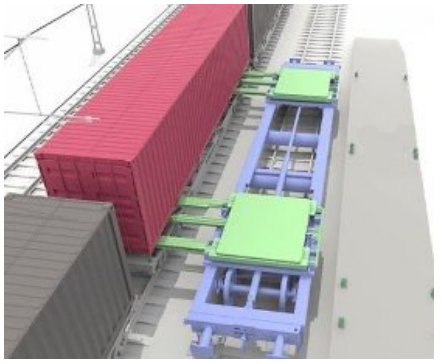
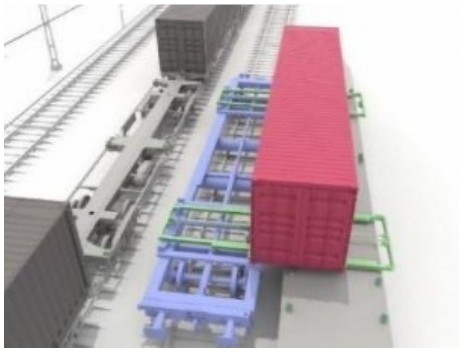
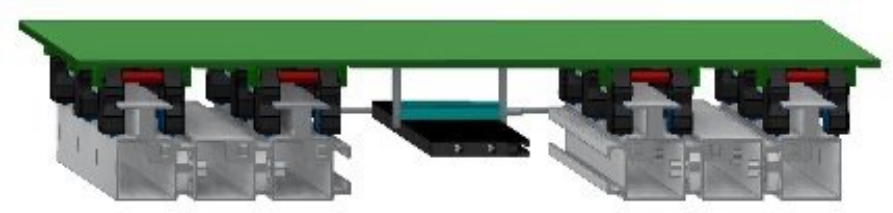
| Course | Machine Design |
| Year | 2025 |

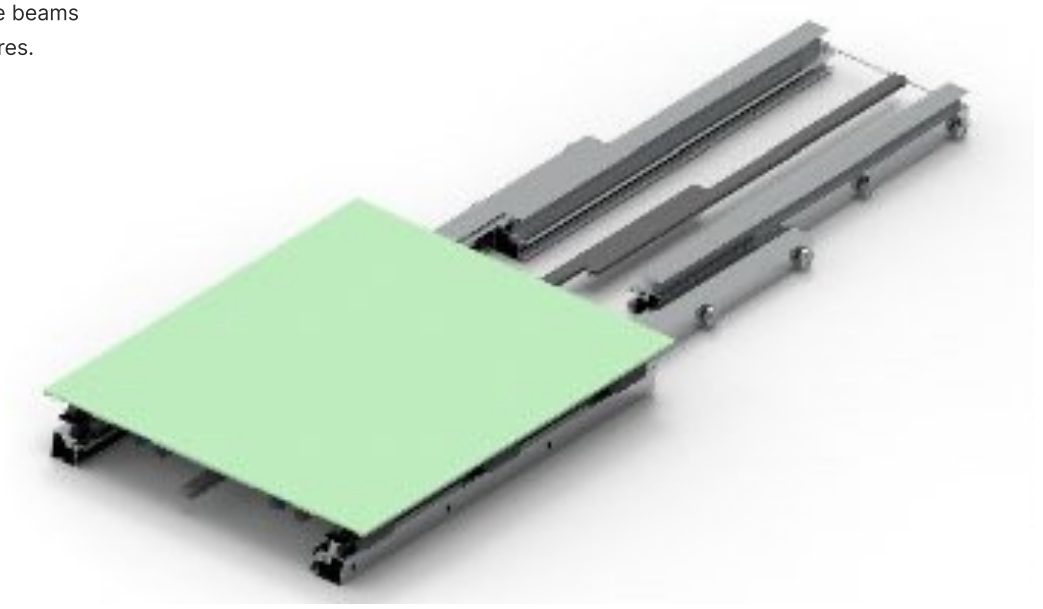
On electrified railways the overhead catenary cables above the tracks make it impossible to lift containers on and off trains with a crane, so the transfer has to be carried out from the wagon itself. In a five-person team we took the problem from concept selection to a complete CAD model in Solid Edge: a system that mounts on a rail wagon and moves a 30-ton container sideways onto a truck or platform, and back.

The concept was chosen through a morphological matrix that mapped the possible ways to actuate, transmit and support the transfer. The solution that came out of it splits into two subsystems. A pair of hydraulic cylinders lifts the container clear of the wagon and holds it there, with non-return valves keeping the pressure in case of a hose failure. Four telescopic support beams then reach out over the truck, and a platform running on those beams carries the container the last few metres.









# Light up Huddinge

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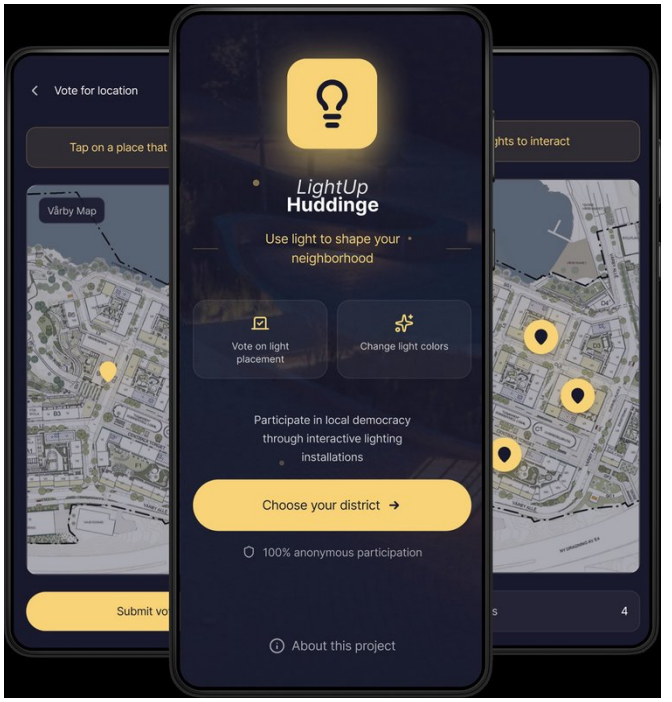
| Course | Service Design |
| Year | 2025 |

Voter turnout varies by up to 65% between neighborhoods in Huddinge, and our research showed that residents felt overlooked, had few non-commercial meeting places and felt unsafe after dark.

Light up Huddinge turns participation into something visible. Residents vote online, using the website, on which places to light up, and each vote sends a pulse from a Light Hub on the main square. The winning sites become Light Points, art installations built together with local associations such as the boxing club and the church. By letting residents see their votes change their own neighborhood, and by creating new places to meet, the concept builds trust that engagement makes a difference.




**1. Light Hub**



LIGHT HUB

A central installation on the main square that pulses with every vote.

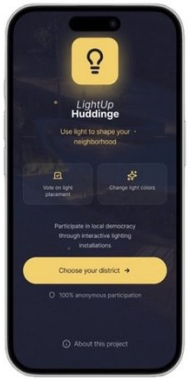
**2. Light Points**



LIGHT POINTS

Art installations at the winning sites, built with local organisations.

**3. Website**




WEBSITE

Where residents vote and follow how their neighbourhood changes.

# Bakfiets Short

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| Course | Product Design |
| Year | 2024 |

Bakfiets Short was developed for Cykelfabriken. Their existing cargo bike was the starting point, and the task was to make it shorter: 2 × 0.8 m that is easier to park, store and ride in the city, without losing what the bike is actually for, getting two children around.

The concept that came out keeps a low, short cargo box with room for two children and a rain cover. The final concept was visualised in the renderings shown here.













# From Caddy Maxi to Mini Camper

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| Type | Personal project |
| Year | 2024 |

I converted my Volkswagen Caddy Maxi into a compact camper van with an extendable bed, storage and a small kitchen with running water.

The build went from a stripped cargo area to a finished interior: sound deadening, cutting the roof for a skylight, felt lining and insulation, a plywood floor and finally a cabinet and counter above the wheel arch. It gave me a lot of hands-on woodworking.





