

Easysort

Situation:

In 2024, Denmark has incinerated over 3 million tons of residual waste, resulting in 1.7 million tons of CO₂ emissions. This marks an 8% increase over the past five years and a 34% rise over the last fifteen years. These increases persist despite multiple European Union regulations and the Danish government's ambitions to reduce emissions. The Danish target is to decrease CO₂ emissions from 1.7 million tons to 0.5 million tons over the next ten years. As of right now, all Danish waste sorting is entirely up to the citizens.

Main Issues in the Sector:

- **Low Sorting Purity:** It is extremely challenging to ensure that everyone sorts their trash with the purity necessary for effective recycling. Much sorted waste is burned if purity is too low.
- **Unsorted Residual Waste:** Residual waste in Denmark, regardless of its source, is not sorted. When waste purity is insufficient or residual waste remains unsorted, it is burned, releasing CO₂.

Our vision:

We envision a new future with as little human waste sorting as possible. Sorting waste is not only frustrating, it's also expensive in time for citizens, in money for the municipalities and at time ineffective¹. We want robots to sort as much waste as possible saving money, time and waste from being burned.

Our solution:

We develop cheap, scalable solutions to existing sorting facilities. Many companies operate in the waste industry. Due to regulation and them wanting to keep a profit, you need to make products specific to their needs in order to make a difference. Our solutions are cheap and quick to install, while being modular allowing for complete robotic sorting further down the road if needed. We offer two products:

- **Easysort Eye:** A small, effective camera-box with on-device compute and data management. This can be installed over conveyor belts, piles of waste and sorting facilities to identify impurities.
- **Easysort System:** A full sorting system using Easysort Eye and a Delta Robot to pick out impurities. Both can fit within 3 meters of belt and be installed in 6 hours. Highly modular, meaning the customer can easily run with Easysort Eye for some time, then add one or more down the road when needed.

This way we help identify and sort out large amounts of recyclables thereby saving huge amounts of CO₂, while gathering data and knowledge to launch our own facilities in the future for sorting residual waste.

Value-proposition:

When talking to companies within the sorting industry, many want to take better care of their waste. The main issues for them are: Not spending a fortune, high risk around coming regulation and shutting down operations for days/weeks to install new systems. We aim to resolve all three. Our service is as easy to set up as can be. For Easysort Eye, we install within 2 weeks, and it takes less than 30 minutes. The Easysort System can be ready in 4-6 weeks, and takes about 6 hours to install and test. Compared to competitors that take ~1 year to produce and multiple weeks to install, this is a huge saving for customers. Our solution is modular and Easysort Eye fairly cheap, taking away much of the risk associated with robotic sorting for existing facilities. This is all they have to do. No team or specialized personnel is required.

¹ <https://dm.dk/akademikerbladet/magasinet/2023/dm-akademikerbladet-nr4-2023/burde-vi-affaldssortere-mindre-i-hjemmene/>

Through using our product, product lines and sorting facilities gain valuable insight into their current waste-stream, where to spend money to ensure less valuable materials being burned or improve the value of current waste streams. In many cases, no system are installed to monitor such streams, and at many facilities humans are still doing the sorting in a unhealthy environment. This gives us an extremely appealing and strong value proposition: **Save CO₂, enhance your waste-stream value all while minizing risk.**

Current status:

Through a targeted market research, we got in contact with 13 companies of which 7 showed interest. Of these 7 companies, 2 would want to run a pilot project within 6 months, while another 2 signed Letters of Intent showcasing their interest, the more significant one being DTU Campus Service.

We have developed a demo robot to demonstrate the feasibility of our solution. It is through this demo we got a Micro Grant of 50.000 DKK to develop our production testing robot. The first pilot project with DTU Campus Service was successfully run on 1st of April, where we showed the technology working. We have since gotten 150.000 DKK more in soft funding, and currently preparing for a pilot project 1st of August.

Market:

We tried contacting 13 companies with 6 returning our calls. Three of these 3 companies (23%) want to implement our solution within the next 6 months. We found 41 sorting facilities in the Greater Copenhagen area. These sorting facilities have many humans sorting impurities, thermal systems to quickly catch fires and administration trying to pass on fines to the right people. A conservative bet is that this costs each company 6.000.000 DKK / Year. Most of these issues are problems Easysort can fix. This would give us a initial market size of: $6.000.000 \times 41 \times 23\% = 56.580.000$ DKK / Year.

Competition:

In Norway and Netherlands large facilities sorting all kinds of waste exist. The issue is that traditional methods have a hard time keeping purity high. Most competitors are in two different groups:

1. Large-scale, automatic, highly expensive robotic sorting (Recycleye, ZenRobotics, WasteRobotics). Most sorting facilities are not willing to risk a 3 million DKK bet on robotic sorting with the current state in EU regulation. These systems are highly specific, take a long time to implement and sometimes multiple companies take care of different parts.
2. Small-scale, consumer-facing detection (Aris-robotics, LogiWaste). In these cases, the sorting system is placed at the source (meaning the citizens/humans, first level sorting). I believe this is the wrong approach. We do not want AI to help us sort better, we want intelligent system that do the sorting. This is by far the most energy, economic and CO₂ friendly approach.

Roadmap:

The next 6 months are all about preparing and successfully running our first real pilot project with a sorting facility. The plan is to start this 1st of August. We need to test our camera box, ensure it can run for many weeks at a time without issues and do proper evaluation of our AI systems. We are on the lookout for engineers to join this project, which would drastically accelerate our timeline. We are talking to customers to get a better understanding of their need, and hopefully set up 2 more pilot projects around September/October.

Contact:

If you have questions, contact me at: lucas@easysort.org