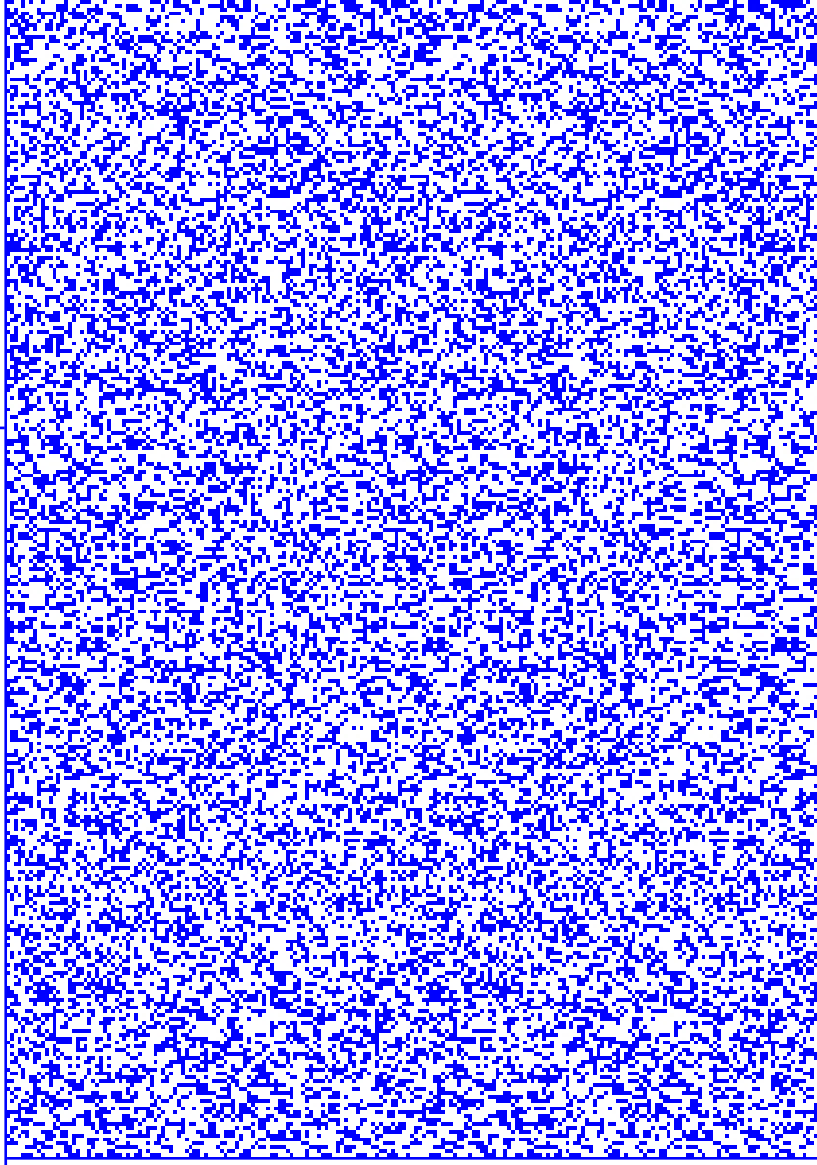
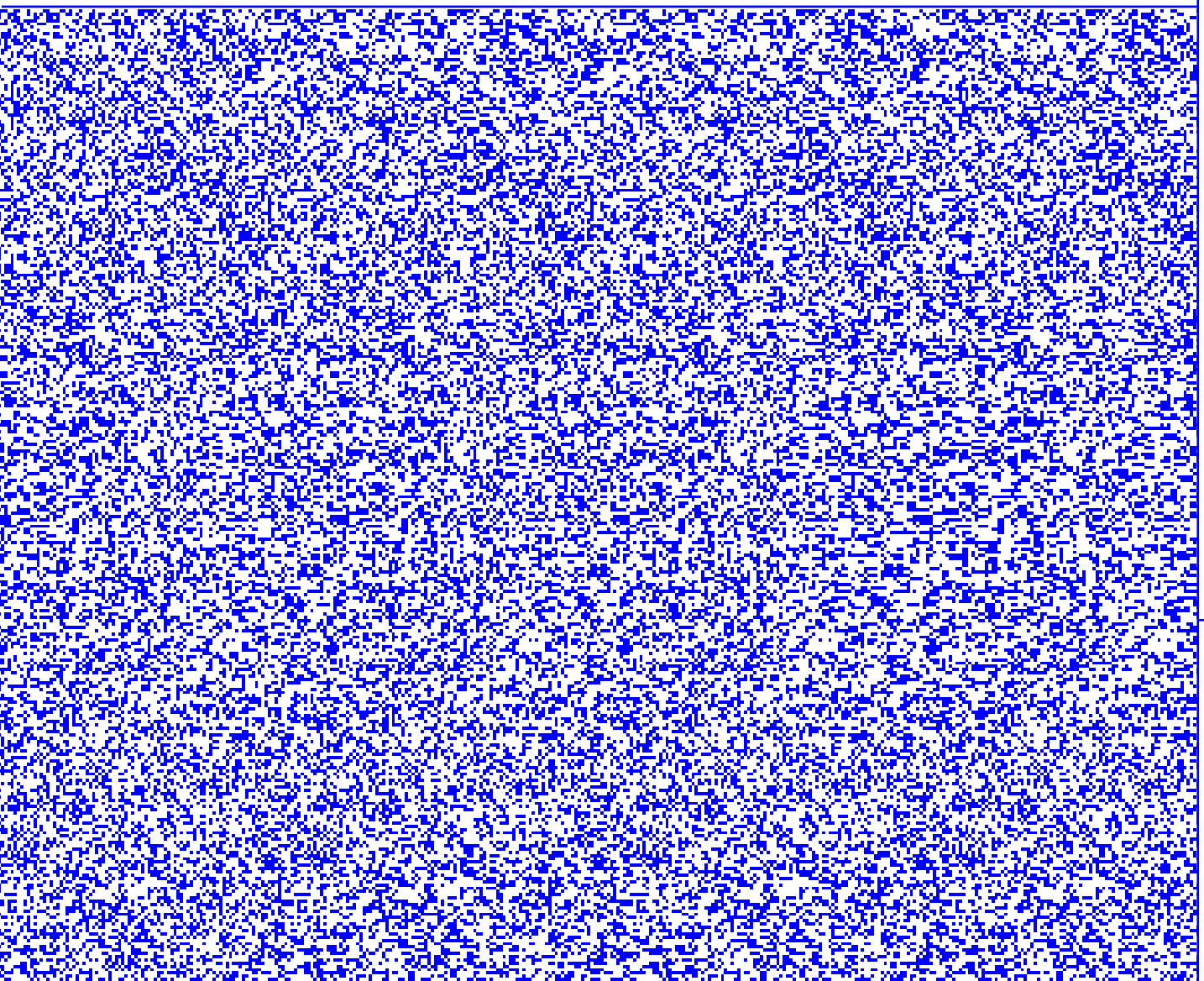
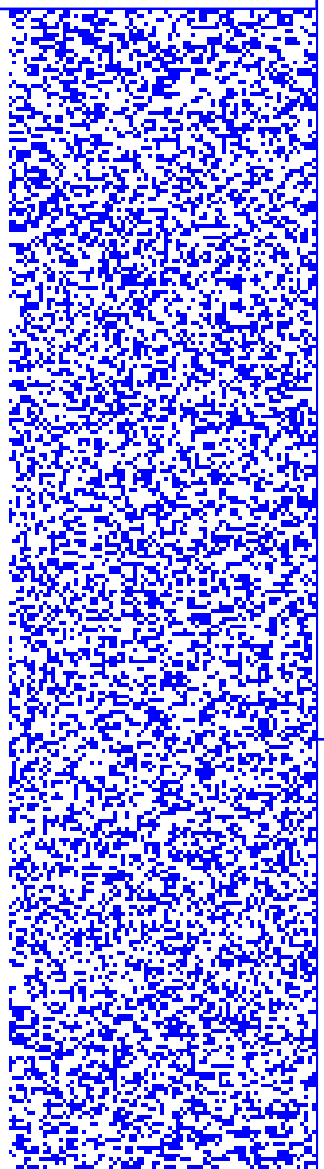


THE DUST BUSTER

THE DUST BUSTER



INTRODUCTION



Vacuum cleaners are products of the Industrial Revolution. They appeared as a solution to a problem that the revolution caused, but they could not be possible without it. The vacuum cleaner is an apparatus that creates a partial vacuum and is used to suck up dust and dirt. It uses an air pump to create a vacuum, and it is used to clean floors. What a vacuum cleaner sucks into itself is collected into a dustbag or a cyclone and later disposed of Today, there are many sizes and models of a vacuum cleaner, from hand-held variants that are powered by batteries to vacuum cleaners that are the size of a truck wich are used to clean large spills or to remove contaminated soil.

Good morning mr Dyson dc16 animal pro good to finally meet you.

Good morning and thank you for having me here.

Yesterday you were sold through EBAYKleinanzeigen by your previous owners! What happened? Why didn't they want you anymore?

Well what they said was: I wouldn't function properly. I'm too old and something is wrong with the battery. So they got rid of me.

How old are you if I may ask?

four and a half years.

Ok, but that's not too bad for a product

Yes I know, but I heard of vacuum cleaners that still be in use after 20 Years!

Wow that's very ambitious for a contemporary product. Why would you want that?

Well don't we all want eternal life? Maybe as a human you don't get that but as a product or object its the meaning of life. When you have a purpose. And you can help and support human kind. There are some examples also of some of my grand grand previous editions that were selected to stand in museums. These guys are Stars they'll live forever. Having that in mind, four and a half years issn exactly what I was aiming for!

Ok, yes I can respect that. But now that you are sold there lies a new road ahead of you. can you tell us a little bit of that?

yes of cause I mean that's why I was invited here right?
So I was sold I havent had a Idea what's coming next! Also my previous owners had no Idea. But the person that bought me. Had big plans for me. So the Idea was to use me in the name of science at a university workshop! They want to do several test with me. In the end they will disassemble me and take pictures of me and all my parts!

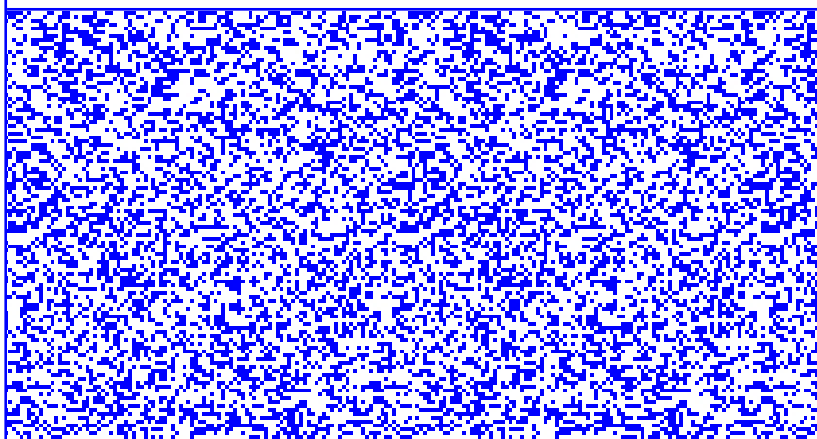
that's crazy, but you will probably die in the process!?

Yes probably, but I rather die with purpose than just be thrown away into the garbage! So in the end its not the big show like the museum objects have but still I will leave something in this world. And maybe who knows maybe some of these artist designers scientists learn something from me that will help them to create new Objects that can last forever.

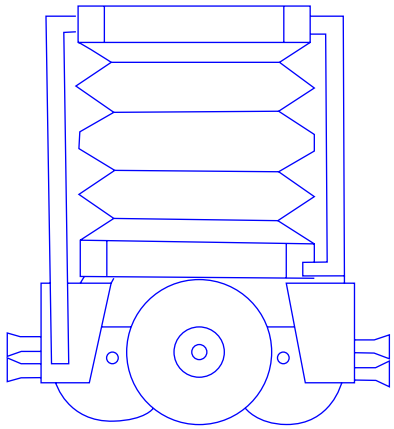
Wow that was Mr Dyson dc16 animal pro with his very inspiring Life story. Thank you very much for coming. And good luck with your new purpose.

Thank you good bye

FUNKTION

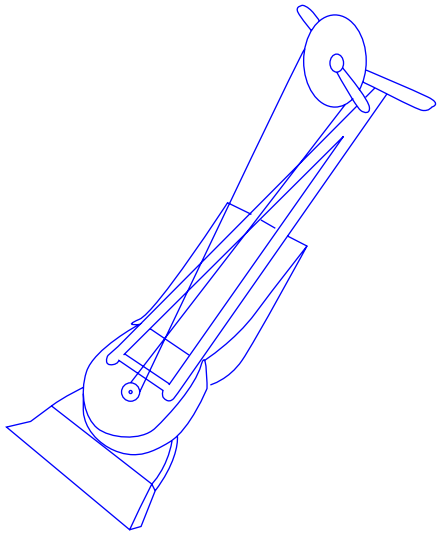


HISTORIE



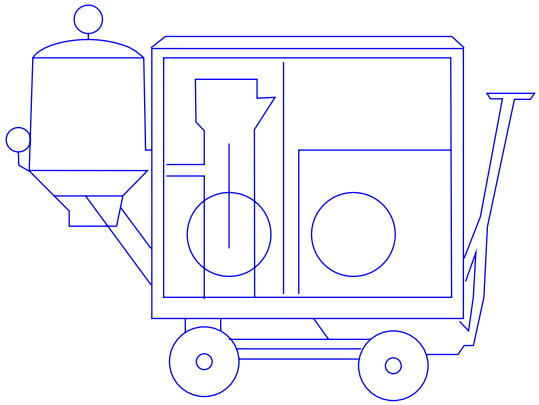
1860

Daniel Hess came from West Union in the state of Iowa. He is considered the actually Inventor of the vacuum cleaner. In 1860, he got the patent for a vacuum cleaner, which he called “carpet sweeper”.



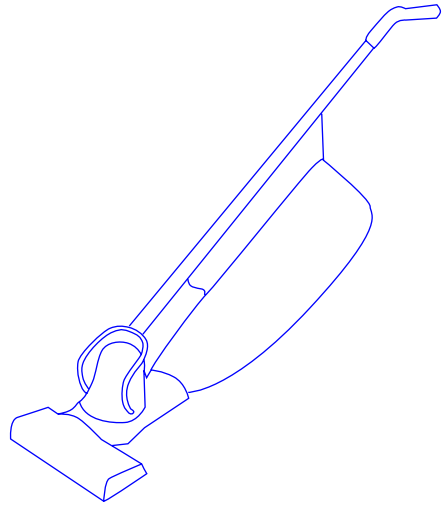
1869

The first hand-operated vacuum cleaner that worked on the vacuum principle. On June 8, 1869 he received the patent for his invention. The vacuum cleaner was quite light, but the big drawback was its operation. You had to turn both the hand crank and at the same time steer the device on the ground.



1899

John S. Thurman received the patent for a “pneumatic rug repairer”. The device was quite large and had to be transported on a horse cart. Then the vacuum cleaner hose was put into the house. Thurman’s technology is actually not a real vacuum cleaner, because it does not attract the dust by means of negative pressure, but with excess pressure blew the dust into a collecting container.

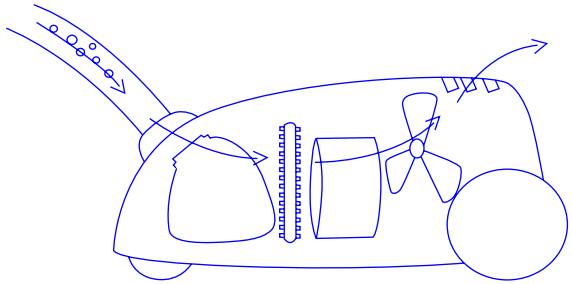


1907

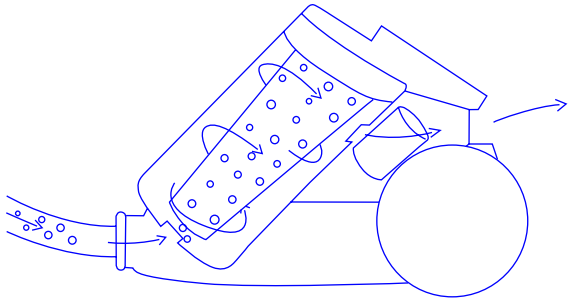
developed James Murray Spangler, the first truly practical and portable vacuum vacuum cleaner. In addition to an electric motor and a dust bag made from his wife’s pillowcase, his model also has a rotating brush to remove dirt and dust from the ground. And as you say, the rest is history.

PRESENT

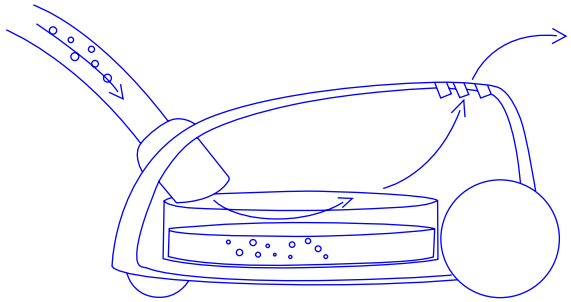
Bag vacuum cleaner - the most powerful
Pouch vacuum cleaners trap the absorbed dirt in an air-permeable container. With a market share of around 70 percent, they are still ahead of the bagless vacuum cleaners. In these models, a turbine sucks in the air. It flows through the suction nozzle, the suction tube and the flexible suction hose and enters the bag, which filters out and collects the dirt contained.



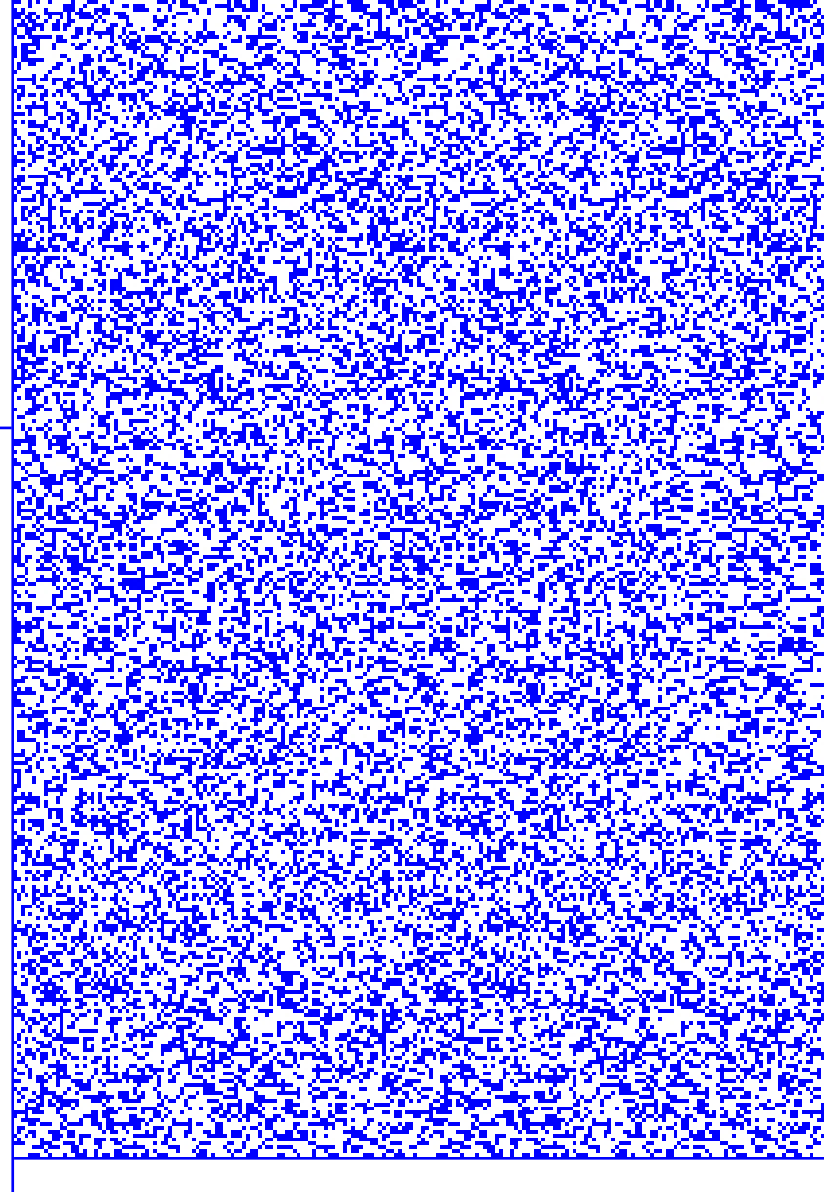
Simply cyclone vacuum cleaner
The cyclone principle is simple: air flows into a conical container. There, a cyclone is created, in which the heavier dust particles are pressed by the centrifugal forces to the edge and deposited in the collecting container. The clean air in the middle sucks the device upwards. As the air only passes through this one cone, finer particles of dirt are not completely removed. In addition, the exhaust air flows through a paper central filter, which the user must clean regularly, so that the device does not lose its suction power.



Vacuum cleaners - the Hygienic
Vacuum cleaners with water filters represent a special form of bagless vacuum cleaners and should not be confused with the wet vacuum cleaners that are used to absorb liquids. Instead of a dust bag, they have a water tank through which the dust-laden air is passed. Dust and dirt particles remain in the water, the purified air escapes through an additional filter; So the water takes over



DISASSEMBLE



SIEMENS VK 4000

From the appearance, it is very simple. It is mainly divided into two parts, one is the fuselage, the other is the charging base and same time the protective shell. Opening the body is a vacuum head, filter element, and battery body. The internal disassembly is also very simple, so it is not difficult to see that this product was designed shortly after the birth of the hand-held vacuum cleaner, because the internal mechanical parts are very simple without partition placed in the plastic body, without special battery protection box, it is obvious that thedesigner did not consider the waterproof function of the body.
The core engine is also relatively rough, and the problem of anti-falling is not considered.
But I noticed that there was a small indicator light on the fuselage, which could show the state of charging. But to be sure, although the vacuum cleaner has been a certain age, it can still work, and the efficiency is good.

Materials	Shell: plastic Filter element: plastic, non-woven gauze Mechanical parts: plastic, iron
Joints	External: the head and the body of the vacuum cleaner can be separated, and the filter element is placed in the head Internal: the plastic shell of the fuselage is fixed by screws, and the mechanical parts areplaced in the internal dividing groove.
Funktion	The function of absorbing lighter dust is still worthy of affirmation. Even compared with today`s new vacuum cleaners, its vacuum ability is very good. But when it comes to heavierand larger objects, such as small stones, the dust absorption ability is not very good. But as a hand-held vacuum cleaner, his performance has been in line with its small body.

Electricity	Even though it has been many years now, its power is still very long-lasting. Of course, there are some reasons why the original owner is very well protected. So in general, the endurance and stability of many new electronic products are better than that of many new ones. I have to say that the quality of many old electronic products is very trustworthy.
Quality	The quality of this vacuum cleaner is positive. As the oldest of the three, it can still be used well, and the vacuum capacity is still satisfactory. The only problem is that for the simple internal mechanical structure, the vacuum cleaner will be damaged sooner or later due to water or moisture. If full score is 10, I will give it 8.
Design language	Siemens vk4000 vacuum cleaner is simple and compact in appearance. Although it is portable, its filter bag capacity is small. And this type of vacuum cleaner can't filter the dust.The dust still exits with the air. So actually it can be defined as a dirty concentrator.


Unitec

02 UNITEC

This example of a hand vacuum cleaner we found on a very cheap flee market in BerlinNeukölln. We bought it for 4€ after bargaining down from 5€. The vendor said it is working very good and in mint condition. There is a simple switch in front of the handle to use with your thumb. A bit further to the front there is a Button to open the container. You can instantly understand all functions and how to operate. Opening the container first you see a filter. After pulling out that filter it is possible to throw out dirt. The filter washable by hand. And all the parts seam surprisingly solid for such a low price. The united was quite powerful and strong enough to suck up everything we fed it but it was also very loud.

Materials	The materials used are manly plastic. Only some electronic parts for example the electric cord and the engine were made with metal parts. The filter is made out of a black fabric glued to a plastic connector wall.
Joints	The unitec hand vacuum consists of three main parts: container filter and back-engine. The filter is just stuck to the front container without any mechanism. it is just a good fit. The front container is connected to the back-engine with two connector hooks and lugs. It is closing through a click-mechanism at the top. which can be opened again by pushing the Button.
Funktion	In terms of function the unitec is very low-tec. It is only usable in cars or the area around cars. there is only one swith to turn the vacuum either on or off. You can open the vacuum to empty dirt and clean the interior. which makes it easy to use. The unitec comes with a crevice and a rotating brush. The brush is to be used on car seats and the crevice for the small gaps inbetween the seats.

Electricity	as you can see at the disassembled parts the electrical parts are very basic. it consist of a long cable cord, the motor, a switch and a plug. an electronic device couldn't consist of less parts.	
Quality	the quality is surprisingly good for a price that low. but in general it is rather a mid -quality object. The parts are plastic	
Design language	In comparison to the other two candidates it is very lightweight, the reason for that is that there is no battery. Instead it has a power plug to use in the car. It is very stylish in a glossy black with golden letters (UNITEC) in the top front.The Design of shapes reminds one of 80s car-design. The air-slots on the sides support the impression of a sportscar.	

03 DYSON

This Dyson vacuum has been previously used by the owner for four years and sold online for a cheaper price. There is a circuit malfunction inside the vacuum, resulting the vacuum to only turnon for three second and shut down automatically immediately after pressing the button. Despite the inconvenience and old age of use, the Dyson performed better compared to the other two vacuums when tested all three. Equipped with cyclonic separation technology and a powerful motor, the Dyson is able to capture finer dust in the air. A filter bag is not needed and all the dirt is sent straight to the container, which could automatically open without the need of touching it. A large battery capacity is also installed with up to 30 minutes of long lasting performance.

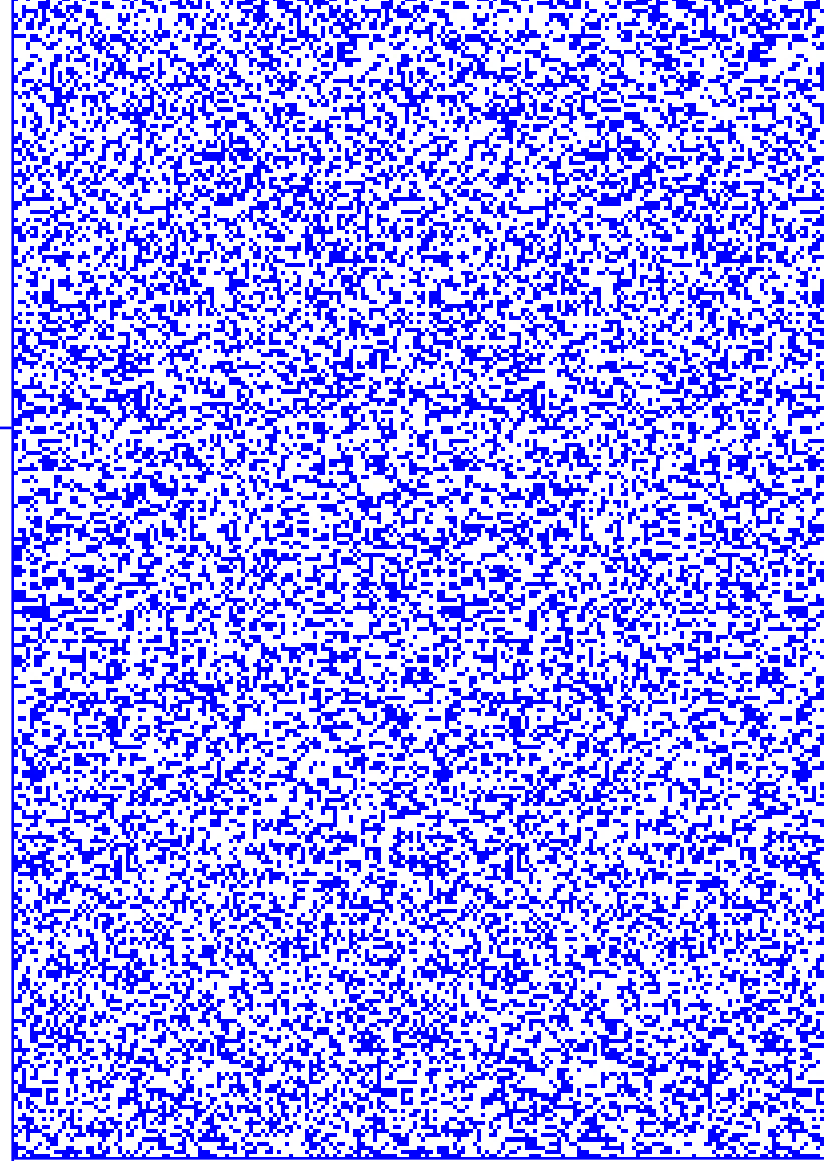
Materials	The grey and gold-coloured parts are made of plastic. When the cyclone head was heated in an oven with the nose for the crevice tool attached, the cyclone started to deform while the nose did not change in the heat. Several screws are made from plastic. The microchips and the some parts for the vacuum is mostly made of steel. The clear container is made from polycarbonate. The filtration is made of sponge.
Joints	The inner parts such as the microchips and the vacuum itself were screwed tightly inside. The filter was simply placed inside with no bonding. The outer parts such that are made of plastic bonded to each other with glue, especially the cyclone head in particular which held on together very strong. The clear container is not permanently fixed to the main body of the vacuum.
Funktion	Holding the button on the handle enables a strong sucking power. A long and slim tool is available to suck out dirt in crevices. The cap on the bottom of the clear container used for storing the dirt could open automatically with a press of a button.

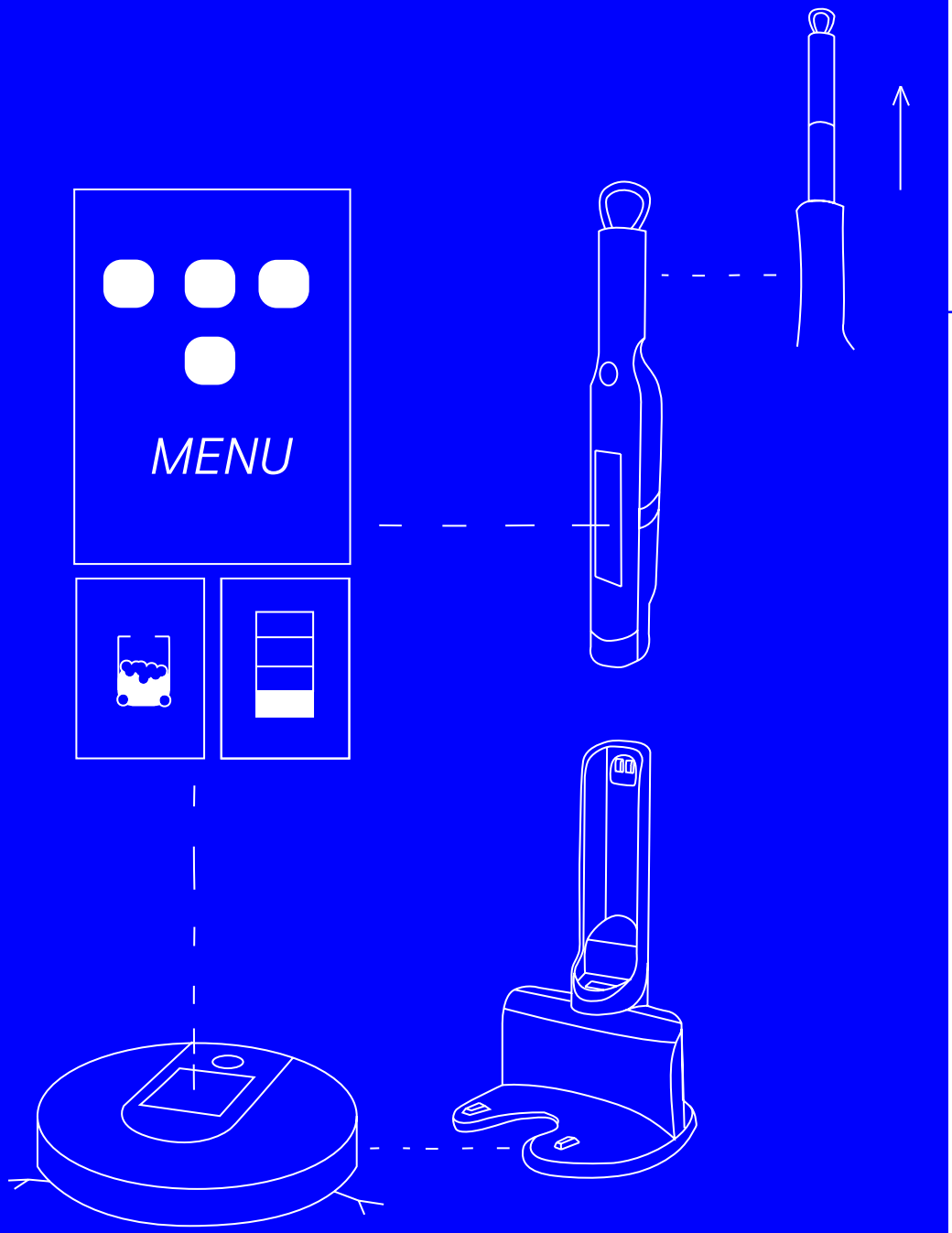
Electricity	A large battery pack in installed on the bottom of the vacuum, and a normal charger is included with the hand vacuum to charge the batteries. Because of the strong sucking power a large amount of electricity is probably needed to charge. Quality
Quality	The Dyson hand vacuum was able to suck dirt with strong power. It managed to suck in from fine dust to even small rocks and not let any of it out when shaken. Due to the shape of the crevice tool only a small area is able to be cleaned, but multiple tools are available to be attached to the vacuum for different situations. The container lets you throw out the stored dirt without touching it. Thus keeping dirt away from your hands.
Design language	The Dyson vacuum has a bulky exterior, giving an impression as a heavy-duty tool. Unlike the past hand vacuums which had a more clean and linear design, the Dyson has many mismatched shapes according to the size of each main parts.

ANALYSE

After testing and disassembling the three Hand-vacuum cleaners we know, that there are huge differences in the quality of these devices. Also the price difference is immense. It varies from under 20€ up to 200€. They were all working. But the quality of cleaning wasn't ideal with any of them. To come to a final conclusion we think Dyson is going In the right direction with their design of a hand vacuum cleaner. They are trying to combine the canister vacuum with the hand vacuum to design a powerful lightweight device that can be a good addition to robotic vacuums which are already very common. Their focus nowadays is also to make vacuum cleaning more hygienic. To actually get rid of micro dust particles and allergens.

FUTURE





Critiria for Future vacuum cleaning

Hygienic / Allergens
- seal
- emptying container
- total hygiene of the device

Battery-power/ Size
- power of battery
- weight and size of battery

Lightweight
- the general weight of the device

Longlife
- lifetime of vacuum cleaner

Looking in the future of vacuum cleaning the most urgent topics are the before mentioned. Considering these we can imagine a scenario where in a normal Households a combination of a regularly cleaning vacuum robot and a Hand vacuum for special cases would come in use. This combination would provide a constantly clean floor without having to do it yourself. Still there would be a device to clear spilled, dropped or simply dirty corners. For this case we thought of a station for both of them. This vacuum station could be used for recharging battery and dispose