Viewers asked me about a Lab tour and I decided, that I will do this when we reach 10’000 subscribers. And this happened now, with your help. I like, what we created over the last one and a half year: A small community of people who like to tinker with electronics. Thank you for all your support! I liked also the collaboration during the last week, where I got lots of support to build a real nice subscriber counter.

I also decided to change a few things now. The first is, that I will now start monetization on YouTube. This means, that you will have to watch some commercials and support the channel with that. I did some tests to find out, if it is worthwhile and decided, to go with it. Because to maintain such a channel is not only time consuming, it costs also quite a lot of money. I hope, you can accept this decision.

The next change is, that I got now offers for collaboration from various suppliers. For you, nothing will change. I still will not do any promotional videos, but, if I planned a video in the past, I had to order and pay for the goods myself. Now, I can order things and get them for free. This will reduce my costs considerably. But it is agreed, that I still keep my independent opinion. And I still decide about the topics I will cover. Some of the links I provide in the description, e.g. from Banggood, have a tag associated which will make sure, that I get a few cents from your purchases to support the channel. Your prices do not change and you are still free to buy the products elsewhere.

The last change is, that I created a Facebook page for the channel. You find the link together with the link to the existing twitter account in the description. This is for the people who want to connect closer. I still think, the comments directly below the videos are more valuable for all of us, but feel free to use these two new channels.

This means also, that I will not accept LinkedIn or Xing connections. These two platforms are reserved for my other live and also only for people I know personally. So, let’s start with a small historical review and the lab tour:

I started using YouTube as a viewer in the last decade and, with creators like Chris Jones, Julian Ilett, and Ben Heck, I used it more and more. Over time, it replaced TV nearly completely in my live.

Because I learned so much on YouTube, I decided last year to start my own channel, because a few years before, I discovered Arduino and Aliexpress, two game changers in my life.

When I was young, I had my electronics lab and was a Ham radio operator. Already in 1978 or 9, I imported this TRS-80 personal computer from the US, because it was way too expensive in Switzerland. And I produced my first product, a Morse Trainer, which was even used by the Swiss Military to train the young soldiers to listen to the enemy, then in the East. So you see, already then, I had fun with microcontrollers and with radio waves.

Then the family came and my lab ended in the waste basket.

As I said, things changed again when my children became independent. Then, I started purchasing little and bigger things from China to build again a lab. One of my first purchases was a CNC router. It is a good basic product, but I enhanced it with many “bells & whistles”. People who are interested in this topic can watch video #46. It is still used, mainly to produce prototype PCBs, but sometimes also for other things like in video #77.

The next bigger purchase was the 3d printer. It was the “star” of my first YouTube video way before I started my own channel. The reason for this video was simple: I had to carry a big risk when I pressed the “buy” button on Aliexpress, because the printer costed more than 1000$. An I would have wished to find a video about the printer on YouTube before my purchase. My video was even “stolen” by the US distributor of Wanhao, without any reference to the source.

This 3D printer is still heavily used, and it was a big competition for the CNC machine, because it is much easier for me to create things with the printer than with the mill.

During this time, my room was still more like an office with an additional lab. But then, it became slowly, but surely too crowded and something hat to be changed. This is, when I visited the local IKEA store to get my new bench. Actually, some of you might have discovered it already, in reality it is a kitchen used as a lab. However, some changes were necessary. The biggest one was, that kitchens are much higher than labs, because usually you work standing. I used a small trick: Because you can buy drawers in different heights, I chose to omit the top drawer of 10 cm and cut the sides of the stands down by the 10 cm. This led to an optimal table height of around 75 cm. The table top was cut to exactly the right size. Mostly, it is carried by the drawers, but I had to reinforce it with some carriers.

The quality of IKEA kitchens is very good, because you get 10 years or more warranty. So, I have now a lot of space on the bench and below the bench.

Let’s start on the bench. I use a homemade PC, which I upgrade from time to time with the needed parts like disks or display cards. For my creation work, I use 3 monitors, which is, quite often, not sufficient…

The next is the electronics station where I build and test the electronics stuff. Here, I have some equipment like soldering station, power supply, multi-meters, and an oscilloscope. The childhood dream definitively is my spectrum analyzer…

And frequent viewers know already the microscope from video #70.

I bought all my devices with the price/performance in mind. I want to have a decent quality, but cannot afford professional equipment. And so far, I am happy with what I have. The only “professional” brand is my Fluke multimeter. But also here, it is a version which is produced for the Chinese market and therefore was much cheaper than the devices for the western world.

Still a big part of my bench is occupied with my home made wind tunnel. I keep it there as a reminder, that I should continue once with my bicycle power meter.

Inside the drawers I use cutlery trays and boxes also from IKEA. They are made to fit the dimensions of the drawers and can be mixed. Cool.

The next is the storage area: Here, I store my projects and my components. These boxes in various sizes are ideal to keep the “topics” together. You might see here labels, which will be shown in future videos. If a project is finished, the box will be emptied and is again ready for the next project. Also here, IKEA is a good supplier. All labels are printed with my Brother labelling machine presented in my last video.

The next station is used for my CNC, but also for other purposes, because often, this is the only free space in the lab.

As said before, the CNC is from China, and you can watch video #46 about some enhancements I did. It is water cooled, can be operated by a game controller, and has some automations like the cooling water, which starts automatically, and the air and the spindle speed, which can be controlled by the software. To control the CNC, I still use Mach3 with a parallel port.

The machine stands on a homemade drawer where I store some of the bigger things.

These books are from my former live. These days, I do not buy many new ones, because of the internet. But I still like them, because they are part of my history.

Now we come to the 3D printer. It is a Wanhao Duplicator 3X with two nozzles. It is not connected to the PC; the files are transferred via Wi-Fi. If you are interested, there is a playlist with 3D printer tips.

On its left, there are more parts. Because it is easy to exchange the small drawers, I try to keep things together. For example, optical components, resistors, sensors, and so on. These small drawers are good for things which are not very small, or for very small parts, where I have many of them like headers or connectors.

Smaller parts are stored here in plastic boxes. You find many assortments here, but also many breakout boards and sensors. I anyway plan a video about that section of my lab, because I am a big fan of assortments. So, stay tuned.

Below I store bigger devices like power supplies, or Arduino shields. Here, you find also smaller measuring rigs for temperature etc.

The next area is the home of my cables. I milled a wooden holder and sticked it to my door. This is, where I store most of my cables. This space would otherwise be unused. You see, I have USB cables, measuring cables with banana plugs, and also many RF pigtails

The last part is the illumination. Video creation needs a lot of light. This is, why I mounted 3 100 watts and 2 50 watt LED lamps to the ceiling. They are switched automatically on and off if I enter or leave the room. Natural color LEDs are very expensive, so, again, I choose a compromise which provides decent color, but at an affordable price. These LEDs were not without problems as video #55 shows. But for now, they are ok for me.

BTW: To record sound, I use a Blue Yeti microphone, which is also provides a good price/performance.

I hope, this lab tour was useful or at least interesting for you. Bye.