

All You Need to Know About

HARDWARE OPS

7-DAY STARTUP BOOT CAMP IN SHENZHEN



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Why joining Hardware Ops?

- Get real insight into the development of a new product and manufacturing it in China
- Get workshops and trainings that you need, no matter where you base your product operations
- It's more than just beneficial, it's a life changing experience! It will inspire you and speeds up your entrepreneurial life

NOA Labs is a company founded by a German serial entrepreneur and mechatronics engineer, Alexander Lech Murawski. He has been a co-founder in several startups, but also worked for big companies such as BMW, Airbus and TUV, before deciding to build a company that will bring any product **from idea to market**. That is the spirit and purpose of NOA Labs in the era of IoT.

In the past 5 years, we've experienced a variety of situations related to hardware startups and SMEs, too. From product development and marketing, to manufacturing. These experiences combined with the passion to bring new ideas to life led us to help others and share our knowledge with them.

Why Shenzhen?

- At least 70% of the world's consumer electronics are made in/around Shenzhen
- Shenzhen is one of the most affordable locations in the world to manufacture electronics. Especially for small runs.
- Execution is 2-5 times faster than anywhere else
- All the world's big scale products/companies are connected to Shenzhen
- Companies who don't manufacture in Shenzhen increase chances to get outcompeted by price

What do others say about Shenzhen?

theguardian

“It is a technological nirvana”

WIRED

“The Silicon Valley of Hardware”

City
WEEKEND

“Fastest growing city in human history”

TC TechCrunch

“The land of OEM manufacturers”

techradar.

“The global gadget capital”

The Program Overview

This is a quick top level overview of the Hardware Ops 7-day startup boot camp.

Day 1 Sunday	Day 2 Monday	Day 3 Tuesday	Day 4 Wednesday	Day 5 Thursday	Day 6 Friday	Day 7 Saturday
Soft Landing Day	Big Picture Day	Sourcing Day	Electronics Factory Day	Mechanics Factory Day	Business Development Day	Crowdfunding and Consultation
City tour, dinner and talks about culture and business in China	Training on product lifecycle and all the stages you need to go through. Innovation Tour.	Training on sourcing in China. Sourcing workshop at Huaqiang Bei – the world’s largest electronics market	Understand electronics – from prototyping and development to mass production and quality control. Visiting a final assembly line in a factory.	Understand mechanics – from prototyping and development to mass production and quality control. Overviewing various production techniques.	Training on building a strong business case and skills. Total project costs from idea to delivery. Meeting large companies such as Huawei, DJI...	Crowdfunding workshop and optional time for consultation or something else.

Detailed Agenda

This program runs from weekend to weekend. No matter where are you from, you can attend the program and catch flights within only one working week. The fee includes the program, accommodation, public and private transportation and most of the meals you will have in Shenzhen.

However, if you want to stay longer in Shenzhen, visit other cities in China, or to travel a bit in Asia, we are glad to give you recommendations and share our experiences.

Note: The cheapest and fastest way to get to Shenzhen is through Hong Kong.



Day 1 (Sunday) – Soft Landing Day

4:00–4:20 PM	Meet at the accommodation
4:20–5:10 PM	Head to Baishizhou – an urban village of Shenzhen
5:10–6:00 PM	A walking tour through the village and Window of the World
6:00–7:30 PM	Dinner at a restaurant in the village – Northern Chinese food (included)
7:30–9:00 PM	Drinks at a bar in the village (included the first round)
9:00–9:40 PM	Head back to the accommodation



Day 2 (Monday) – Big Picture Day

8:00–8:50 AM	Breakfast time We'll fill up your fridge so you can have a nice breakfast in the morning.
8:50–9:20 AM	Meeting at the accommodation. Going to NOA Labs office.
9:30–10:30 AM	Presentation: From Village to Megacity This is the story of Shenzhen, why everybody is here. Hear from Alex who has been living in Shenzhen since 2012, why he decided to drop amazing career opportunities at companies such as Airbus and BMW and move here
10:30–11:40 AM	Training: Product Life Cycle Detailed insights into the big picture of hardware development. What does it take to go from an idea to market? What are the biggest challenges and how to tackle them?
11:40–12:00 PM	Office Tour Meet the team who is making ideas reality. Learn how the departments are organized, what's been done up until now.
12:00–1:30 PM	Lunchtime – Delicious Chinese food (included)
1:30–6:00 PM	Innovation Tour – by private car (included) We will visit up to 4 innovation spaces – including an accelerator, a makerspace and a co-working space. The exact schedule depends on traffic conditions. Learn how to leverage always available resources and reduce costs of product development. Learn who you are competing with, as Shenzhen's hardware ecosystem is probably the best in the world for startups. You need to know what they are capable of as you can easily get outcompeted!

Day 3 (Tuesday) – Sourcing Day

8:45 AM	Meet at the accommodation. Go to Huaqiang Bei.
9:30–11:00 AM	Training: Sourcing Secrets – (venue provided) Learn how to source and identify good suppliers, especially hard in China due to an endless number of them. Finally, since communication with suppliers in China is the biggest issue, we'll show you how to approach this problem.
11:00–11:30 AM	Workshop: Huaqiang Bei Sourcing Practices – (venue provided) Huaqiang Bei is a very special marketplace. Learn how to utilize the marketplace to get what you need.
11:30–12:00 PM	Workshop: Intro to assignments Huaqiang Bei is a huge market, so we'll give you a quick tour, tell you where things are and prepare the scene for after-lunch assignments.
12:00–1:30 PM	Lunchtime (included) Eat at a restaurant in Huaqiang Bei marketplace.
1:30–6:00 PM	Workshops: Cracking Huaqiang Bei There is no a better mentor than experience. Accomplish given assignments with little or no help from our side. Then, get even more details on how the market works. This is going to be a life-changing experience. You'll understand why the city is called "the land of OEM manufacturers".

Day 4 (Wednesday) – Electronics Factory Day

8:55 AM	Meet at NOA Labs Office
9:00–10:00 AM	Training: How does the development of electronics work? Understand the development of electronics and what the outcome is. Do not underestimate any work that someone needs to perform for you. And do not allow someone to take advantage of the fact that you don't know how the process works.
10:00–11:00 AM	Training: PCBA Process Understand the mass production process of electronics, its testing and quality control (QC). Cheap electronics that suddenly stop working? Don't let your product be like that.
11:00–12:30 PM	Lunchtime (included) Note: due to possible traffic jams and as a more effective use of time, we will have an early lunch.
12:30 PM	Transportation by a private car (included)
12:30 PM	PCBA - Factory Tour – Private car (included) Check how it's all working in reality. How do factories perform quality control (QC)? Learn where there could be bottle necks in production of your electronics. At the end, you need to give one or two-year warranty.
3.30 PM	Final Assembly Tour – Private car (included) Learn how this final manufacturing action can significantly raise costs. Importance of good DFM (design for manufacturing), or at least have in mind this process during the development stage. We regularly see prototypes that simply cannot scale due to long assembly time (like 15 minutes per prototype)!
6:30 PM	Back to the city

Day 5 (Thursday) – Mechanics Factory Day

8:55 AM	Meet at NOA Labs Office
9:00–10:00 AM	Training: Common Prototyping and Mass Production Processes Get an overview of different production and prototyping processes and find out which is ideal for certain products, quantities and occasions.
9:00–10:00 AM	Training: Costs, Materials, Common Risks, and Challenges Find out typical bottlenecks in the mechanics of a product and learn to make right decisions before problems occur.
11:00–2:30 PM	Lunchtime (included) Note: due to possible traffic jams and as a more effective use of time, we will have an early lunch.
12:30 PM	Transportation by a private car (included)
2:00 PM	Prototyping in China - Factory Tour Put theory into practice and learn even more about prototyping in China.
3:30 PM	Injection Moulding – Factory Tour All you need to know about mass production.
6:30 PM	Back to the city

Day 6 (Friday) – Business Development Day

8:55 AM	Meet at NOA Labs Office
9:00–10:00 AM	<p>Training: Business Plan & How to Kick Off Your Business</p> <p>Learn to make your business plan rock solid, then to dive into execution.</p>
10:00–11:00 AM	<p>Training: Remote Project Management</p> <p>Learn to manage multiple events that are essential to your success and to do it remotely.</p>
11:00–11:55 AM	<p>Training: Total Project Costs</p> <p>How much money do you really need to bring a product from idea to market? A breakdown of the whole process, task by task, cost per each phase until you deliver your product to customers.</p>
12:00–1:30 PM	<p>Lunchtime (included)</p> <p>Traditional Hong Kong Food</p>
1:30–6:30 PM	<p>Those Who Made It Tour</p> <p>DJI – The company built from scratch, one of the best examples how Shenzhen’s ecosystem defined the world’s leader in the consumer drone industry.</p> <p>Makeblock – Another representative of Shenzhen’s ecosystem that started as a startup in Hax accelerator. Coincidentally, CEO of NOA Labs, Alex Murawski, was in the founding team. After the experience with Makeblock, he decided to build NOA Labs.</p> <p>Huawei – One of the most powerful hardware companies in China. Huawei was specialized in network equipment, but now in 2017 they are world’s 3rd biggest smartphone maker with 10% of the global market share. Their time is coming.</p>
7:00 PM	<p>Special Surprise Dinner (included)</p> <p>A special dinner to announce the end of the program and to have some Friday fun!</p>

Day 7 (Saturday) – Master Crowdfunding and IP Protection Day

10:25 AM	Meet at NOA Labs Office
10:30–12:00 AM	Training: Master Crowdfunding Leverage the power of crowdfunding. Learn how to get enough preorders to successfully validate your product idea.
12:00–1:30PM	Lunchtime (Included) Chinese Traditional Food. Receive a Hardware Ops Medal of Honor ;)
1:30 -	Optional (free) time that will be defined during the week. Either more shopping at Huaqiangbei or dedicated consultation sessions.



Program Fee and What is included?

Pricing

The Hardware Ops Program fee is USD 1999 per person. It covers almost all the costs, except flight tickets and visa fee. It is designed for small groups, so the number of participants per batch is 4-10.

Accommodation

Accommodation is included in the price. We will provide you one of the following options:

- A private room in a nice apartment with other participants (Airbnb)
- Share a twin room in a 3-4-star hotel, with one of the other participants

Food

The program includes lunch every day and a few dinners, most of the time in medium-priced restaurants. We will also try to provide you breakfast. You will be asked about food allergies or preferences in [the application form](#).

Transportation

Shenzhen has a new, spacious and very efficient subway system. And for most of the day it's not crowded. You will be provided with a Shenzhen public transportation card with enough money to commute independently (transpiration cards to be returned upon departure). We will also combine public and private transportation during the program, depending on which is more convenient.

SIM Cards & VPN

Included in the program fee, you will get a SIM card with some mobile data (SIM cards to be returned upon departure). Also, to bypass censored internet, we will provide you with a VPN account. It is important to setup a VPN account before you enter China, so we will provide you instructions ahead of time. **Important:** Check is your smartphone locked before leaving. If yes, request unlocking from your network provider!

Must Know

Flight / Arrival Information

Book your flight to Hong Kong. The border-crossing to Shenzhen is only a 40-minute drive away from the Hong Kong International Airport, while tickets are much more affordable compared to arriving in Shenzhen's Airport. Also, the Hong Kong Airport is well connected to the rest of the world with plenty of direct flights. So, it is not only cheaper, but also faster. Round trip from almost anywhere in the world to Hong Kong goes from USD 500 – 1000, most likely you will have to pay between USD 650 – 850.

Due to different arrival schedules, the transportation from the airport will not be provided. But, to get to Shenzhen from Hong Kong Airport is easy. We have prepared [this short video](#) that explains exactly how to do that.

You need to prepare some Chinese currency CNY (aka RMB). In the video above, it is also explained where and how to withdraw local money. Make sure that you have 2 x 50 USD or EUR in cash when you land to Hong Kong, just in case. One 50 USD/EUR note is enough money, but if a bank note doesn't work, you can use another one. There are currency exchange machines (poor rate), an exchange office (poor rate), and the Bank of China ATM from which you can withdraw local currency (you will see their exact position in the video above). Unless you plan to buy something at the Hong Kong Airport, you don't need Hong Kong Dollars, only RMB. Around 150 RMB will pay for transportation to Shenzhen and up to 30-50 RMB will pay for the taxi once you cross the border.

Finally, you can also withdraw 1000 or 2000 RMB from the ATM at the Airport to save some time later. Banking fees will apply, but how much depends on your bank. On Hong Kong's end, it's usually about 30 HKD fixed fee (about USD/EUR 4) per withdrawal.

There is also an exchange office right when you enter China, and exchange rate is poor (especially for Euros). But if you are exchanging a small amount (like 50 USD/EUR), you don't need to bother yourself with the exchange rate.

Getting Taxi from the Border to Accommodation

Once you cross the border, follow signs *to the taxi stand*. Don't pay attention to wild taxi offers. There might be a long que for a regular taxi, but don't worry, it goes fast. Just like on a production line.

Very important: make sure that you have written down the address of your accommodation in Chinese and carry it all the time! Either on a piece of paper, or on your phone. When you get in the taxi, just show the address. Apply this whenever you are taking a taxi in China.

Once we know your arrival schedule, we will sync with you and provide you even more info for arrival.

Visa Information

To enter Hong Kong, most of nationalities do not need visa. However, almost **all nationalities need a visa to enter China**. It is not complicated to apply, you will just need to provide certain documents. Here are listed almost all options known to us that you have when applying for China visa, sorted in a way that we think it's the best for you:

Option 1 – Getting Visa in Your Country of Residence

Some nationalities (USA and Canada) can easily get 2 or 10 years valid tourist or business type of visa for China and it worth getting. Also, rejections are not happening often. If that happens to you, you'll easier provide additional documentation from home.

1. Check the visa requirements on the website of Chinese consulate in your country. NOA Labs will provide you the Invitation Letter after balancing the program fee.
2. There are many online agencies that can help you with obtaining visa. This process might be cheaper if you live far away from Chinese consulate, but it takes around 1-2 weeks to complete.
3. If you are applying in person, the process takes 2-4 working days.

For US passport holders: find out on [this link](#) about visa application process.

Option 2 – Getting Visa in Hong Kong

It is a bit trickier, and requirements depend on nationality a lot. You need to plan to stay in Hong Kong for a day or two, and the Chinese consulate doesn't work on weekends.

Doing in person in Hong Kong is a tricky process, and most of people use some of Hong Kong agencies for that. We have been dealing with this agency [wth1001@yahoo.com.hk] and they were professional and affordable in the past. We do not guarantee for their actions and we do not have any relationships with them. You can always google for more agencies, there are plenty of them in Hong Kong.

Check on [this link](#) the requirements for getting visa in Hong Kong.

The missing information in the guide above: if you have been to Turkey, Egypt, or UAE in past few years, you will be asked to submit a report of what were you doing there, and there will be still possibility to get rejected. If that is the case, better apply for the visa in your country of residence.

Option 3 – Getting Visa on Arrival

It is the last option we would recommend. This visa is valid for 5 days and only Shenzhen. That means you would need to repeat the process one more time in the middle of the Hardware Ops. The visa fee cost the same as any other visa. You will find the pricing and how the process go on [this link](#).

If there is no fee available for your country, check how much would you have to pay if you applied at the consulate in your country – the fee is the same.

[Apply for Hardware Ops](#)

Important Service Information

Air Quality in Shenzhen

Year by year, Shenzhen is getting better and better when it comes to air pollution. Higher pollution levels happen occasionally, but nothing that should concern you. In fact, Shenzhen is the least polluted out of China's big cities.

Weather

1. June, July, August, and September – the weather feels extremely hot due to high humidity. Temperature is 30-35°C (86-95°F) day and night.
2. October and November, sometimes even December - the temperature and weather are very pleasant, around 25°C (77°F), it still feels warm.
3. December, January, February – “winter” might feel very cold, but temperatures rarely drop below 10°C (50°F).
4. March, April, and May vary the most as there might be cold waves or lots of rain. Temperature will be around 20°C (68°F).

Cash, ATMs & Cards

You can only use local currency in China – the Chinese Yuan (CNY aka RMB). There are plenty of ATMs all over the city and you can use VISA or MasterCard to withdraw money. Exchange offices are not a common thing, but you can exchange money in most of banks and they are all over the place.

However, make sure that you have informed your bank ahead of time that you will be traveling to Hong Kong and China! Sometimes, banks automatically block the account if there is a withdrawal/card use from an unusual location. Also, get informed about fees when withdrawing internationally.

Other Tips and Hacks

Communication

Install the app called WeChat (by Tencent) and create your account there before coming to China. It's like Whatsapp of China, but with so many more features. But register with your email – not with the phone number.

Due to censored internet, you will need to use a VPN (we'll provide) to make your Google services work, and it slows down the internet. Everything coming from Google is blocked (Translate is an exception) - Maps, Gmail, Docs, Drive, YouTube, along with Facebook, Instagram, Twitter and many more. iCloud and other Apple services work normally, as well as Microsoft.

It is better if you download anything you will need quick access to before entering China, so you may view them offline. *Tip: Hong Kong Airport offers free WiFi.*

Some mobile service providers (especially in the USA) provide an international package. For a certain fee, you get internet access in a roaming mode for a flat rate, eliminating the need to switch SIM cards. This type of internet is not censored, so you don't need a VPN and therefore connection is perfectly stable. We recommend to ask your service provider if that's doable. Just remember that we will keep a free SIM Card and VPN account for you if that is more comfortable for you.

Safety & Insurance

Shenzhen is a very safe city, much safer than you can imagine. To get in trouble means that you probably got extremely disrespectful towards someone. However, typical pick pocketing and small theft could always happen, especially if you don't pay attention to your valuable belongings.

Medical services are generally not super affordable (you need English-speaking doctors), but they are good enough. We do recommend purchasing travel insurance. Even a limited insurance plan could do a good job in China.

[Apply for Hardware Ops](#)