

NERMIN OSMANOVIC

Pioneering a New Era in Portable Power for Musicians and Beyond

If you are a musician, you know how frustrating and time-consuming it can be to set up and tear down your equipment before and after every show. You have to deal with tangled wires, bulky power supplies, unreliable batteries, and noisy interference. You wish there was a better way to power your pedals, amps, and instruments, without compromising your sound quality and performance.

That's exactly what **Nermin Osmanovic**, a hobbyist musician and an electrical engineer, wished for when he founded **Mendaudio**, a company that aims to solve the problem of powering musical equipment. He decided to replace the traditional DC power cables with a rechargeable 9V battery pack that is safe, easy to use, and has real-time power monitoring hardware design. He also architected and built products that empower musicians to perform anywhere, anytime, with high-quality sound and minimal hassle: the DC Battery Packs and the AC Battery Pack.

Mirror Review recently interviewed Nermin, who says, "If something in life is annoying you, and you have the skills to remedy it, go for it! It probably annoys other people too – these are your customers!"

(The following Q&A has been edited for length and clarity)

Mirror Review: Please tell us the story behind Mendaudio. What sparked the initial idea, and what problem were you aiming to solve?

Nermin: I started playing Trumpet in a marching band when I was 6 and Guitar at 13. I've organized and played hundreds of shows in many countries. One of the biggest challenges for musicians is setting up and tearing down equipment.

I used to spend a lot of time stretching and wrapping 9V DC power cables for my guitar pedals. This was risky, as dancers could trip over them. I wanted to get rid of the DC power cables and use battery packs instead.

Key Points:

- After experiencing the biggest challenges of being a hobbyist musician, Nermin Osmanovic founded Mendaudio to solve the problem of setting up and tearing down equipment before and after shows.
- Nermin decided to replace DC power cables with a rechargeable 9V battery pack that is safe, easy to use, and has real-time power monitoring hardware design.
- He architected and built several products that empower musicians to perform anywhere, anytime, with high-quality sound and minimal hassle: the DC Battery Packs and the AC Battery Pack.

Photographer
– Tuyen Thai



Founder | Mendaudio





However, the battery packs I tried were poor. They had poor hardware, no power monitoring, and short battery life. So, I decided to build my own 9V DC battery pack that is safe, rechargeable, easy, performant, and with real-time monitoring.

I also found a huge market for my product. I read the report, which said there are three million guitarists in the US, and the accessories business is over \$500 million.

In January, I attended the NAMM tradeshow, which is the biggest music tradeshow of its kind. I've made amazing connections with professional guitar techs, and musicians who were looking for wire-free portable 9V DC Battery Packs. Many professional musicians confirmed line-level and noise issues on stage when performing in South America, or in Europe.

This cemented my determination to keep on making and producing the Battery Packs. My DC Battery Packs will be used by famous artists, and I expect to announce more info soon on my website www.mendaudio.com. I would like to mention, that in January 2024, I sold my first 2 devices!

Mirror Review: You mentioned it was your destiny to build standalone battery packs. How did you discover your passion for electronics and batteries? What were the key moments and challenges in your journey to success?

Nermin: I was born in Yugoslavia in 1976. My parents supported me and my brother in taking music classes, so I played trumpet in the marching band. My parents had many books, and I browsed various topics, from Renaissance art and Greek legends to logarithmic tables. They never pushed me to choose my future but encouraged my interests.

I was an excellent student in grades 1-4 (4.0), but then my dad surprised us with a Commodore 64 computer. I was excited to type and try to load games from the tape deck. I skipped school for days. So, I got lower grades (3.0) in grades 5-8.

But I learned English and Deutch. I wrote simple programs in Basic. I was curious about electronics. I disassembled and re-assembled almost all devices in our apartment.

Sometimes, they wouldn't work after that. I was obsessed with tiny components, de-soldered them from old PCBs, and categorized them in boxes.

My mom was surprised to see hundreds of components classified by size, shape, and color. Later, I learned their names: resistors, capacitors, inductors, transistors, potentiometers, etc. I wanted to build PCB from scratch, so I used acid to etch the copper on one side. There is a burn mark on the window from spilled acid.

When I was 15, we had a war in Yugoslavia after Bosnia-Herzegovina became independent. In 1992-1995, I learned to use all resources to overcome obstacles. I recovered old lead acid batteries, drained the solution, cleaned the inside, and filled them with new electrolytes. To my surprise, I was able to recover the battery and utilize a 12-volt source to power light bulbs (automobile headlight bulbs) and my tape deck. When the power was out, I listened to music and learned guitar solos by ear, all due to having the lead acid battery backup.

Then, I made an AC/DC charger and designed and assembled a Lead Acid Battery Charger. I built the enclosure too. It looked nice! I sold this device, and years later, I realized it was my destiny to build battery packs.

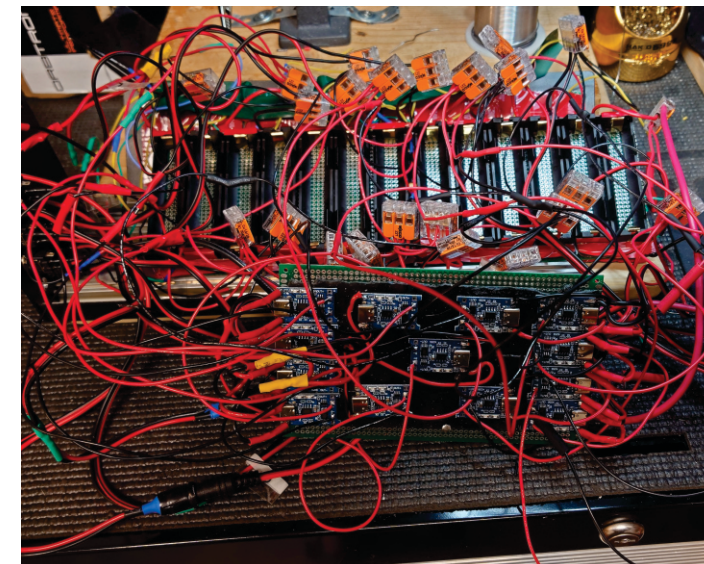
I also experimented with other things, like making a distortion with a Sony Walkman (connecting guitar pickups to the tape head), using a boom box as an amp, and building a power supply for Neon Lights with 12V DC. By then, I was in an electro-technical high school and my grades improved (4.0) for grades 11-12.

Mirror Review: Mendaudio's vision is to "unlock the full potential of musicians." How does your product lineup contribute to this mission and empower musicians?

Nermin: I created two products for musicians to perform anywhere, anytime, with high-quality sound and minimal hassle: the DC Battery Packs and the AC Battery Packs.

The DC Battery Pack is a portable, safe, and reliable device that powers guitar pedals without AC plugs or converters. It eliminates the noise and cables that can ruin the sound and stage. It also reduces the setup and tear-down time. It works anywhere in the world and is ideal for traveling and performing internationally. It lasts 20+ years for typical use.

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The AC Battery Pack is an innovative device that generates a perfect AC waveform, free of noise, which can power any stage equipment, such as speakers, mixers, microphones, and TVs. It is super-safe, controllable, independent, rechargeable, pure hardware, and extensible. It has a transport mode, switches, chargers, monitoring, solar panels, an extension port, and a long lifespan. The first version is 125 Wh, but I aim to build a 1kWh system to power the whole stage for 4 hours.

I made these products because I wanted to play music anywhere, without the grid or noise. I needed AC power for my speaker, mixer, microphone, and TV for my project (www.nazband.com). I built it from scratch to design a perfect AC battery pack that is portable and easy.

Mirror Review: You founded Mendaudio from scratch. How did you navigate the early stages of growth and funding, and what were some key turning points?

Nermin: It was hard to balance the time for starting a new company. But, I knew I was solving a real issue for musicians. If I solved it for myself, it would help others. So, I built and tested new prototypes (soldering by hand) in real life. This kept my confidence. I was self-funded, so I did not need investors. This freed me to deliver my vision of a product that is easy, safe, reliable, and pure hardware, without unnecessary additions.

The first task was to find the best battery cell. I learned a lot about Li-Ion chemistry and performance, bought 20+ books on Batteries and Systems, and watched online research on Li-Ion Cells, including NASA design. I ordered the top 3 cell manufacturers (LG, Panasonic, Sony) and tested them. But, I needed full safety to sell my devices. So, I learned about the new hardware technology, “Advanced Safety Circuit Protection”, and ordered samples. I was surprised that the cells performed well, and had 1000 cycles. The cells are Li-Ion hybrid by Panasonic, built in Japan, with Safety Circuits by Seiko, and tested in Florida. I found my battery cells and moved to the next stage.

I realized that early DC-DC Boost Converter devices did not work well for all pedals due to DC Voltage Ripple artifacts. I decided to build a new design. I worked with engineers in various countries (Spain, Turkey, and USA) and tried 3 different circuit designs. I also got samples from a PCB supplier in Argentina.

After months of development and evaluation, I found the best design in DC signal quality and power delivery. The 2-cell design could power 12 pedals at once! This was amazing. I noticed better guitar sound quality and no noise issues. My battery devices worked great, and I used them everywhere, in the U.S. and Spain. The compact design was easy to carry on the plane. I got help with enclosure drilling, which was a manual process. I had the wooden templates made by my consultant, and I used a laser-guided drill press to make the perfect holes at the exact spots for a professional finish. The next milestone was ordering 100 PCBs for my packs. Then, I ordered 1000 PCBs, to sell on Amazon Webstore.

I wanted to design a perfect AC waveform battery pack, free of noise, portable, and easy for my music project. I aimed to design a solution to play anywhere, for 2 hours. I needed AC power for a speaker, a mixer with a microphone, and a TV for my video (www.nazband.com). So, I built an AC Battery Pack from scratch.

In this design, I used a Power Inverter and hand-soldered all other elements. AC Battery Pack had a super-safe operation, manual switches, independent-cell design, individual chargers, and real-time monitoring. It also lets users see how devices are performed and any issues like an imbalanced cell or discharged system.

AC Battery Pack can be recharged via Grid, with independent charging circuits for each cell. Nebula is pure hardware – no software, instant power-on, and safety transport mode. The first model is 125 Wh and extensible via port. I aim to build a 1kWh system to power a full stage, including instruments, amps, speakers, and lights.

I want all my devices (DC and AC packs) to have Solar Panels for off-grid charging. I avoid Bluetooth, Wifi, or other software elements to maximize efficiency and minimize disruptions. A keystone was realizing my DC Packs would last 20+ years.

Mirror Review: As the founder and Principal Engineer of Mendaudio, what are the main challenges and joys of your work?

Nermin: I handle many tasks and roles, such as market analysis, product design, prototype validation, engineer hiring, external negotiation, device manufacturing, reliability testing, product promotion, account application, and stakeholder engagement.

I work with a small team of two consulting engineers who assist me with various aspects of product development, such as circuit design, enclosure drilling, parts soldering, and general assembly preparation. I keep a positive attitude and a friendly appearance to foster a great work environment.

What I love the most about my work is the research and development process, where I turn my ideas into reality and see them delight my customers. I also enjoy interacting with many wonderful people along the way, especially musicians who value my products.

Mirror Review: Do you have plans to reach new customers beyond musicians and music enthusiasts?

Nermin: Yes, I do plan to expand my target markets in the future. I have several ideas for creating new products that can benefit other segments of customers who need reliable and portable power sources. For example, I plan to design and build a seamless power extension battery pack for MacBookPro that can provide true 12 hours of operation in any environment. This would be ideal for outdoor film production professionals and other video/audio producers who work outdoors.

Mirror Review: How do you balance your work and personal life as the founder of Mendaudio?

Nermin: In addition to the full workload during the work week, on occasions I find myself doing something over on the weekend if there are devices to assemble or shipment to be made overseas. I also noticed that I play guitar somewhat less than before. So, I try to remind myself that it is important to take the time for personal enjoyment. I try to spend a lot of time in my backyard with our cats and try to take walks in nature with my girlfriend. Staying creative, and doing artsy things is very important to maintain positive outcomes.

Mirror Review: What are the biggest challenges you faced in your career journey, and how did you overcome them?

Nermin: The biggest challenges in my 20-year professional career with some of the biggest companies in the world have been a general lack of understanding and following of basic excellence principles: safety, transparency, and ethics. This is why, working in my own company, I can maintain these principles without compromise.

Mirror Review: How do you inspire aspiring entrepreneurs who want to make a difference in the world?

Nermin: I believe that if you have a skill and a passion to solve a problem that annoys you and others, you should go for it. That’s how you find your customers and your purpose. But before you start, make sure you have a financial backup so you don’t depend on anyone. And trust your gut, even if others doubt you. But also test and refine your solution until it works perfectly.

You will feel the support when you meet people who love your products. That’s what motivates me to keep doing what I do. And don’t be afraid to get help from others in areas that you don’t enjoy. And always follow the principles of excellence: safety, transparency, and ethics. I wish you a wonderful journey and success in your future endeavors.

Mirror Review: Could you please share with us any upcoming events that you are looking forward to?

Nermin: I have two exciting events coming up in the next few months. In February, I will travel to Doha, Qatar, to participate in the WebSummit, as part of the Alpha Startup Program. This is a great opportunity for me to showcase my DC Battery Pack and AC Battery Pack technology, which are innovative solutions for portable power. I will also network with industry professionals and potential investors.

Then, in March, I will exhibit the AC and DC Battery Packs in Austin, Texas, as part of the SXSW 2024 Creative Expo tradeshow.

In addition, I have some good news to share. I have received Amazon Seller approval, including Trademark and Branding approval, and I expect to have the 9V DC Battery Packs available for purchase on Amazon in March 2024. This will make it easier for customers to access my products online.

Photographer – Tuyen Thai

